Canada's Progress towards Completing Commitments to Implement the Sustainable Fisheries Framework

Devan Archibald and Robert Rangeley, Oceana Canada
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Background

Canada's marine fisheries are highly valuable: they are a major driver of our economy, shape our culture, and sustain our coastal communities. It is important that they are managed well, in ways that support conservation and sustainable use. However, a 2016 audit by the Commissioner of the Environment and Sustainable Development (CESD) found that although Fisheries and Oceans Canada (DFO) had identified key elements necessary for successful management in its Sustainable Fisheries Framework (SFF) (DFO, 2009b), it had failed to put these elements in place for many major stocks (CESD, 2016). The DFO response to the CESD audit included a commitment to develop work plans with deliverables outlining priorities and timelines for implementing key aspects of the SFF: reference points, harvest control rules (HCRs), Integrated Fisheries Management Plans (IFMPs), and rebuilding plans for critically depleted stocks (CESD, 2016). Soon after, DFO indicated this work plan would be updated annually until the work was complete (DFO, 2016). The 2021/22 work plan was released in May 2021, the fifth annual iteration of what are now called the Sustainable Fisheries Framework Work Plans (DFO, 2021c).

A year after the first fiscal year work plan, Oceana Canada began annual assessments of the progress made toward the completion of work plan deliverables (Archibald et al., 2020; Archibald and Rangeley, 2018, 2019). These evaluations were combined in a review of progress to date published as open access in *Marine Policy* in early 2021 (Archibald et al., 2021a). The current report builds on these previous evaluations, assessing DFO's progress towards completion of the work expected to be completed since last year (2020/21 deliverables and remaining 2017/18, 2018/19, and 2019/20 deliverables previously evaluated as incomplete in the 2020 report). It also outlines the work expected in 2021/22.

Methods

Evaluation methods are conducted on an annual basis for the Fishery Audit annual evaluations. They are documented in detail in Archibald et al. (2021a) and summarized here.

Each section of all five fiscal year work plans (2017/18, 2018/19, 2019/20, 2020/21, and 2021/22) was organized by stock (or stock group) outlining the final deliverable product representing each SFF component (i.e., Limit Reference Point [LRP], Upper Stock Reference [USR], HCRs, rebuilding plans and IFMPs) in each work plan section (DFO, 2017, 2018a, 2019a, 2020b, 2021d). The final deliverable products for each stock (or stock group) were grouped across all five work plans for interpretation. However, this report only evaluates progress towards final deliverable products expected to be completed since last year (2020/21

deliverables and remaining 2017/18, 2018/19, and 2019/20 deliverables previously evaluated as incomplete in Oceana Canada's 2020 report).

Final deliverable products for each stock or stock group were assigned a completion status as of July 1, 2021. Details on progress towards deliverable product completion were obtained by searching for information from the following sources:

- the Canadian Science Advisory Secretariat (CSAS) and Regional Fishery Management Organization (RFMO) websites (e.g., published reports or meeting schedules for the development of reference points);
- departmental websites (e.g., for new or updated IFMPs and rebuilding plans appearing on the DFO IFMP website) (DFO, 2008);
- publicly available DFO follow-up evaluations of work plans (available for the second, third and fourth work plans only) (DFO, 2018b, 2020a, 2021b); and
- personal communication with DFO officials.

One of four completion statuses were assigned to each deliverable product:

1. Completed: Deliverable was met, and details of product could be found in publicly available documentation. Please note there was no attempt made to assess the quality of the final deliverable product here.
2. Ongoing: Progress was assumed to be ongoing towards the deliverable product because the timelines indicated in the work plan(s) had not yet passed or the most recent work plan being evaluated (2020/21) called only for progress, not completion, and DFO had not previously noted that this progress was delayed.
3. Delayed: Deliverable product was not yet completed, initial timelines were pushed back, or there were indications from DFO that progress has not been made as anticipated.
4. Suspended: Deliverable product progress was halted with no clear intentions from DFO to continue progress in the imminent future. This may be due to data limitations or the deliverable product no longer being considered a requirement by DFO.

Overall deliverable product completion status was calculated as the sum of each completion status category across all work plan sections. The sum for each of the three work plan sections and for each final deliverable product are also reported. Details and sources pertaining to the completion evaluation for each deliverable product are available in Tables 2–7.

To assess how completion of all work plans (2017/18, 2018/19, 2019/20, 2020/21, and 2021/22) would improve the management of Canada's marine fish and invertebrate stocks, the 2021 Fishery Audit dataset of index stocks (Oceana Canada, 2021) was used to assess how the following indicators would improve:

1. Percentage of stocks with LRPs
2. Percentage of stocks with USRs

3. Percentage of stocks included in IFMPs
4. Percentage of critical zone stocks with rebuilding plans

All stocks included in the index stock dataset that were also included in the work plans were identified, and if the work was assumed to be completed, the relevant indicator fields in Oceana Canada's assessment were adjusted accordingly. Please note that the DFO fiscal year work plans include freshwater fish, diadromous fish, and marine mammal stocks. These are excluded from the Fishery Audit dataset, which focuses exclusively on marine fish and invertebrate stocks.

Results and Discussion

Oceana Canada's 2021 annual update assessing progress made toward the completion of work plan deliverables found similar results to past annual evaluations, with low completion rates and progress on most final deliverable products delayed (Figure 1) (Archibald et al., 2020; Archibald and Rangeley, 2018, 2019).

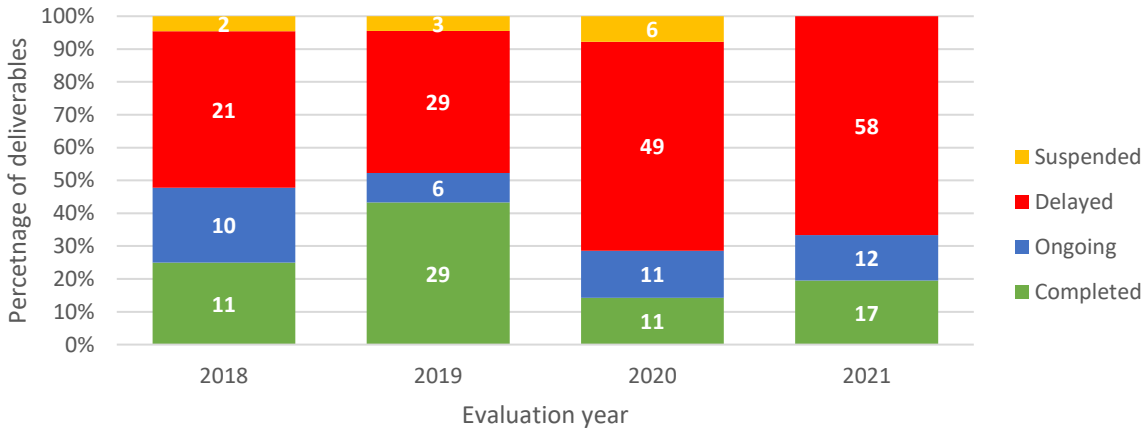

Figure 1. Overall completion rate of fiscal year work plan deliverables as evaluated by Oceana Canada in 2018, 2019, 2020, and 2021. The number of deliverables in each completion status category in each year is indicated with white bold font within the bars.

Two of Oceana Canada's last three annual evaluations found section three (pertaining to IFMPs) had the highest completion rate among all three sections of the work plan. This trend continued in 2021, with IFMPs now available online for 24 per cent of the stock groups for which these were expected (Figure 2). For the second year in a row, section two pertaining to rebuilding plans had the most delayed progress, with delays to 86 per cent of rebuilding plans expected to be published (Figure 2). This was not surprising. When DFO created its first work plan in response to the CESD audit, most of the commitments to develop rebuilding plans for the initial 19 stocks were backloaded, with initial deadlines for completion by the end of fiscal 2020/21 (DFO, 2017). Thus, several more rebuilding plans were expected to be completed in the last year than any previous year (Table 1, Figure 2), while delays in progress were suspected to already have occurred for several stocks (Archibald et al., 2021a).

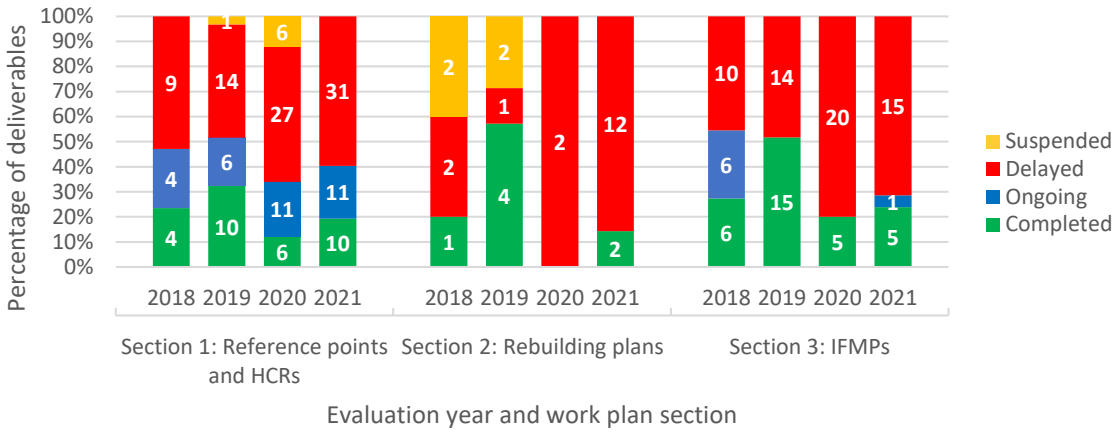

Figure 2. Completion rate for deliverables for each section of DFO's fiscal year work plans, as evaluated by Oceana Canada in 2018, 2019, 2020, and 2021. The number of deliverables in each completion status category in each year is indicated with white bold font within the bars.

In 2021, work plan section one, pertaining to reference points and HCRs, had the most deliverables where progress was ongoing as expected, as was the case in 2020 (Figure 2). Within section three, the highest completion rate was associated with LRP development or revision, with 35 per cent completed (Table 1, Figure 3). In all but 2020, over half of the LRP deliverables evaluated were completed or progressing as expected for (Figure 3). This is in stark contrast to USR development, where in 2021 the first and only USR deliverable was completed. It also contrasts with HCR development, where over half have been delayed each year (Figure 3). This could be at least in part related to the roles Canadian policy ascribes to each of these components. Scientists are clearly responsible for LRP implementation; in contrast, although they advise on USR and HCR development, management incorporates other considerations and is responsible for final implementation (DFO, 2009a). For example, several USRs and HCRs have been proposed by DFO scientists but remain unimplemented (see Tables 2–6). The ambiguity of scientists' responsibilities in policy implementation in Canada has recently been identified as contributing to insufficient compliance with the precautionary approach (Winter and Hutchings, 2020). The lack of progress with completion of these important components is concerning. Management plans developed without them are of questionable value, given that reference points and harvest strategies with HCRs are required by national policy that is intended to ensure fisheries support conservation and sustainable use and Canada follows its international obligations (Archibald et al., 2021a; DFO, 2009a).

Challenges with completion of deliverable products, implications of delayed progress on Canada's fisheries, and imperatives for increased progress are discussed in more detail in Archibald et al. (2021a).

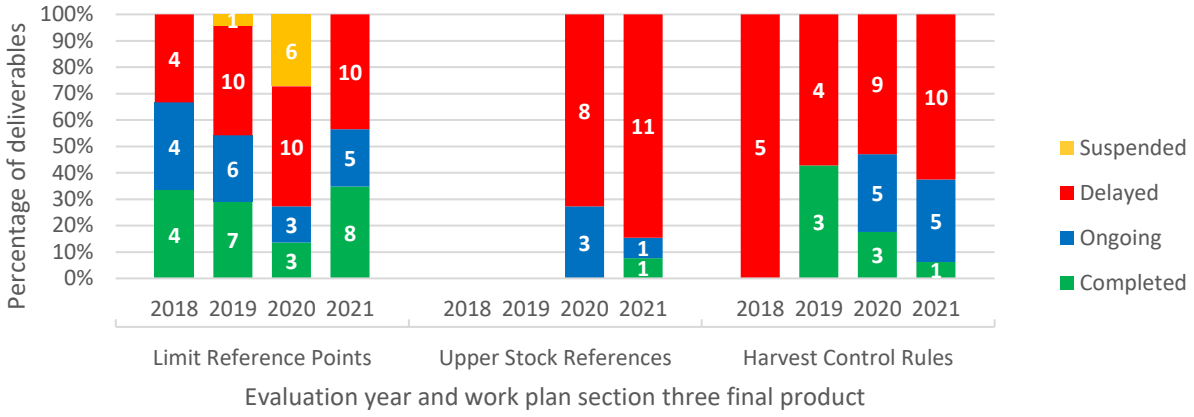

Figure 3. Completion rate of final deliverable products within fiscal year work plan section three, as evaluated by Oceana Canada in 2018, 2019, 2020, and 2021. The number of deliverables in each completion status category in each year is indicated with white bold font within the bars. Note Upper Stock References were first added to the 2019/20 fiscal year work plan and first evaluated during the Oceana Canada 2020 evaluation.

COVID-19 pandemic impacts

The delays in progress towards deliverable completion in the first three evaluation years (2018–2020) cannot be attributed to the pandemic, given no or limited overlap with it. This implies systemic issues with completion of the priority actions aimed at advancing implementation of the SFF. Some delays identified in Oceana Canada's 2020 evaluation were likely related to the pandemic. DFO indicated that some IFMPs were in approval stages and that those approvals and posting were delayed due to shifting priorities during the pandemic. However, most delays were due to other circumstances (see Tables 2–7). This is likely because although the Oceana Canada 2020 evaluation included information up to July 1st, 2020, well into the pandemic, it evaluated work that was intended to be completed by the end of the 2019/20 fiscal year (April 1, 2019, to March 31, 2020). In Canada, restrictions associated with the pandemic overlapped with the 2019/20 fiscal year for only approximately two weeks (Cotnam, 2020). However, there were undoubtably impacts of the COVID-19 pandemic on deliverable completion of work expected to be completed in the past year. The pandemic was ongoing for the entire DFO fiscal year (April 1, 2020 to March 31, 2021) and the Oceana Canada evaluation year (July 1, 2020 to July 1, 2021). In the information found online or in our communications with DFO staff, pandemic impacts were directly cited as at least partially contributing to delays for a third of delayed deliverables (33 per cent or 19 of 58). Despite this, the percentage of deliverables completed or progressing as expected was higher this year (33 per cent) than last (29 per cent). DFO staff, rights-holders, and stakeholders can be applauded for increasing performance in an entire year subject to restrictions on convening, and with most people working remotely. This provides optimism that performance will continue to improve in the coming years and exceed highest levels seen to date: in the 2019 evaluation, where over half (52 per cent) of deliverables were completed or were progressing as expected (Figure 1).

Future progress

If all deliverables outlined in all five fiscal year work plans (2017/18, 2018/19, 2019/20, 2020/21, and 2021/22) were completed, the percentage of marine fish and invertebrate stocks included in the Oceana Canada Fishery Audit index dataset with LRPs would increase from 66 per cent to 74 per cent, and the percentage of stocks with USRs would increase from 50 per cent to 64 per cent. Similarly, the percentage of stocks included in IFMPs would increase from 91 per cent to 94 per cent, and all would be available online. Finally, the percentage of critical zone stocks with rebuilding plans would increase from 21 per cent to 42 per cent. This would represent substantial progress towards fully implementing long-standing policies and tools designed to ensure our oceans are managed in ways that support conservation and sustainable use (DFO, 2009b).

Improvements to the annual work plans over the time have been noted by Oceana Canada in its previous two annual evaluations (Archibald et al., 2020; Archibald and Rangeley, 2019). These included the addition of USRs and new stocks for rebuilding plan development in the 2019/20 work plan and a new dedicated work plan website that improved transparency with the 2020/21 work plan. This year, DFO included a new section dedicated to implementation of the recently adopted national Fishery Monitoring Policy (DFO, 2019b, 2021d). This is an encouraging sign that the department will begin implementing this vital policy this fiscal year (2021/22). If the policy is effectively implemented, Canada will have increased confidence in its fishery data, driving better science and data-driven fisheries management that supports the rebuilding of depleted fish populations. The inclusion of this policy this year (fiscal year 2021/22), along with the change in the name of the work plan to the Sustainable Fisheries Framework Work Plan last year (fiscal year 2020/21), are encouraging signs that other existing policies, such as the Policy on Managing Bycatch (DFO, 2013), or newly developed policies within the framework will be included. Moving beyond a mandated response to a federal audit report and including additional policy content signals a broader and dedicated initiative to ensure the entire SFF is implemented.

Conclusions

Canada's recent (2020) international commitments for 100 per cent sustainably managed oceans by 2025 and its focus on a Blue Economy mean it has never been more urgent to accelerate the implementation of long-standing and critical policies designed to ensure our oceans are managed in ways that support conservation and sustainable use (DFO, 2021a; High Level Panel for a Sustainable Ocean Economy, 2020). The fisheries management shortcomings in Canada have been identified, and the response by DFO has been promising. While DFO is still underperforming relative to commitments and international fisheries management best practices, priorities have been set and work plans developed (Archibald et al., 2021a, 2021b). DFO needs to ensure that the work is completed in a timely manner and the SFF fully implemented, to promote healthy sustainable fisheries and the rebuilding of depleted stocks for the benefit of Canada's marine ecosystems, coastal communities, and the fishing industry.

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Tables

Table 1. Summary of work plan deliverable completion: Total number (and percentages) of deliverables expected to be completed in the last year (2020/21 work plan deliverables combined with remaining uncompleted 2017/18, 2018/19, and 2019/20 work plan deliverables) and number of deliverables falling into each completion status category are indicated in bold font. The number of deliverables in all fiscal year work plans combined, the number previously evaluated as completed or suspended in past evaluations, and the number newly added in 2021/22 (but not yet evaluated) are also indicated. See Tables 2–7 for details on each work plan deliverable by stock or stock group.

Fiscal year work plan section		Number of deliverables previously evaluated as completed[1]	Number of deliverables previously evaluated as suspended[2]	Number of deliverables expected to be completed in 2020/21[3]	Number of deliverables in each completion status category				Number of new deliverables added in 2021/22 fiscal year work plan[4]	Number of deliverables in all fiscal year work plans combined
					Completed	Ongoing	Delayed	Suspended		
Section 1: Reference points and harvest control rules	Limit reference points	14	7	**23**	**8 (35%)**	**5 (22%)**	**10 (43%)**	**0 (0%)**	7	51
	Upper stock reference points[5]	0	0	**13**	**1 (8%)**	**1 (8%)**	**11 (85%)**	**0 (0%)**	9[6]	22
	Harvest control rules	5	0	**16**	**1 (6%)**	**5 (31%)**	**10 (63%)**	**0 (0%)**	4	25[7]
Section 2: Rebuilding plans		5	2	**14**	**2 (14%)**	**0 (0%)**	**12 (86%)**	**0 (0%)**	0	24[8]
Section 3: Integrated fisheries management plans		25	0	**21**	**5 (24%)**	**1 (5%)**	**15 (71%)**	**0 (0%)**	8	54

[1] As determined by Oceana Canada in the 2018, 2019, or 2020 evaluations.

[2] As determined by Oceana Canada in the 2018, 2019, or 2020 evaluations.

[3] The number of deliverables expected to be completed in 2020/21 include the 2020/21 work plan deliverables and any remaining 2017/18, 2018/19, and 2019/20 work plan deliverables assessed as not completed last year. All 2020/21 fiscal year deliverables are included; if the deliverables were noted as not expected to be completed in the fiscal year but progress was made as anticipated, these are evaluated as ongoing as expected.

[4] These have not been evaluated here as the 2021/22 fiscal year as ongoing; they will be evaluated next year.

[5] The 2019/20 fiscal year work plan separated USR deliverables into its own sub-table for the first time. For two stocks, the 2017/18 and 2018/19 fiscal year work plans include work for USR in the LRP sub-tables. The deliverable descriptions for these stocks identify work to be conducted towards the development or updating of the USR. In 2018 and 2019, these deliverables were evaluated as per the deliverable's description (for the presence of new or updated USRs) but were summarized with LRP deliverables, since that is where they were included in the DFO fiscal year work plans evaluated. Starting with the 2020 evaluation, since the 2019/20 fiscal year work plan appropriately has an USR sub-table, those deliverables are combined with any remaining previous fiscal year work plan USR-related deliverables and are summarized with details in Table 3 below.

[6] The USR deliverable for Pacific herring was first included as a single deliverable in the 2019/20 work plan for three stock components (Haida Gwaii, Prince Rupert District, Central Coast) and was repeated in the same way in the 2020/21 work plan. In the 2021/22 work plan there is a deliverable for each of four components (Prince Rupert District, Central Coast, Strait of Georgia, West Coast Vancouver Island), with some overlap with previously included components that were treated as a single deliverable and remain uncompleted. For consistency with previous work plans, here the USR for Pacific herring stock components remains as a single deliverable.

[7] In the 2018/19 work plan, the HCR section outlined "Herring" as a single deliverable for Pacific region, and the deliverable description outlined two stock components out of the five major stock components ("Development of upper stock reference points and evaluation of PA aligned HCR for West Coast of Vancouver Island and Strait of Georgia stocks in FY 2018-19"). These two stock components did not appear in the following 2019/20 work plan. In the 2019/20 work plan, there was a single deliverable for the other three major spawning components "Pacific Herring (Haida Gwaii, Prince Rupert District, Central Coast)." In the 2020/21 work plan there was a single deliverable again for these same three major components: "Pacific Herring (Haida Gwaii, Prince Rupert District, Central Coast)." In the 2021/22 work plan there are four separate deliverables, one for each of the five major components except Haida Gwaii. For consistency with previous work plans, here all five components are included as two deliverables, as per the original inclusion of each stock component in the work plans. One deliverable for the combined West Coast of Vancouver Island and Strait of Georgia spawning components, and one deliverable for the combined Haida Gwaii, Prince Rupert District, Central Coast spawning components.

[8] This total includes three deliverables included in the work plans with deadlines for completion that remain to be determined and were not evaluated in 2021. Also note there are 25 total deliverables included in Table 5, but one has been excluded from the evaluation and analysis as the stock (Bocaccio rockfish) was already included in a rebuilding plan several years prior to its inclusion in the work plans. See Table 5 for details.

Section 4: Fishery Monitoring Policy implementation	0	0	**0**	-[9]	-	-	-	9[10]	9
TOTAL	50	9	**87**	**17 (20%)**	**12 (14%)**	**58 (67%)**	**0 (0%)**	38	187

[9] Because Section 4 of the work plans was newly added in 2021/22 and the work is ongoing, the deliverables included in it have not been evaluated for completion this year.

[10] There are six more deliverables outlined in Section 4 of the 2021/22 fiscal year work plan. However, these are not included in this summary table as a deliverable given there is no stock or stock group indicated for Fishery Monitoring Policy implementation associated with the activities outlined (see Table 7 for details). Evaluation of the policy implementation next year will be done at the assessment unit (fish stock) specified by DFO in the work plan, and only deliverables associated with a fish stock or stock group will be assessed with progress towards complete policy implementation evaluated. This is because this report evaluates progress towards final deliverable products, not interim steps towards completion (i.e., identifying priority stocks to implement the policy).

Table 2. Work plan section 1A; determining precautionary approach limit reference points (LRPs): In Section 1 of its annual work plans, Fisheries and Oceans Canada (DFO) prioritizes stocks or stock groups for which it will develop precautionary approach reference points and harvest control rules. Section 1 is broken down into sub-sections pertaining to reference points and harvest control rules. Within section 1 the sub-sections have varied in structure across the five fiscal year work plans.[11] In 2020/21 there was a single sub-section (1A) that pertained to LRPs, with each deliverable clearly indicating one of three initial descriptions: 1) "To be initiated," 2) "In progress," and 3) "To be completed." The table below summarizes all LRP deliverables[12] from section 1 of DFO's fiscal year work plans across all years by stock or stock group, with the most recent health status[13] and status towards completion as assessed by Oceana Canada. Checkmark symbols with fiscal year indicate inclusion in the work plans, while annual deliverable descriptions provided by DFO are also included in associated columns, along with an indication of which LRP sub-section the deliverable was included in (if applicable). Stocks with new or revised LRPs in documentation available online are noted as completed, stocks that have had deadlines shifted or delays in progress indicated by DFO are noted as delayed, and stocks for which the deadline has not yet passed or for which the work plan deliverable was only to make progress are noted as ongoing. (Please note that the table does not include an assessment of LRP quality.) Details on status determinations are provided for stocks included in the 2017/18, 2018/19, 2019/20, and 2020/21 work plans. Stocks appearing first, before the bold line separating rows (rows 1–21), were previously assessed as completed or suspended in the 2018, 2019, or 2020 evaluation. Stocks after the bold line but before the dashed bold line (rows 22–44) were evaluated this year and included in the evaluation summary table above (Table 1). Stocks appearing after the bold dashed line (rows 45–51) appear only in the 2021/22 work plan and were not evaluated for status completion.

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
1	Gulf	Atlantic salmon – Gulf Region; Uncertain†	✓2017/18	*Section 1A - Precautionary approach limit reference points (LRP) to be developed in the 2017 to 2018 fiscal year:* Develop LRP by March 31, 2018.					Previously completed (2018)
			Details: River-specific LRPs were developed for most rivers in the southern Gulf of St. Lawrence during a CSAS process held in February 2018, and details are available online in the CSAS Science Response document.[14]						
2	Maritimes	Lobster – inshore LFA 27–33; Healthy	✓2017/18	*Section 1B - Other work scheduled in the 2017 to 2018 fiscal year to update and revise or begin to develop limit reference points (LRP):* Refine LRP by March 31, 2018. Following this the IFMP will be					Previously completed (2018)

[11] In the 2017/18 and 2018/19 fiscal year work plans, there were only two sub-sections that pertained to LRPs: to develop LRPs (1A) and to update and revise or begin to develop LRPs (1B). In 2019/20 fiscal year work plan, the latter sub-section was broken down further into two sub-sections: to update or revise LRPs (1B) and to make progress in developing LRPs (1C), with the latter clearly indicating that stocks within it are not necessarily expected to have LRPs finalized in 2019/20. In 2020/21 there was a single section, but each deliverable clearly indicated one of three initial descriptions: 1) "To be initiated," 2) "In progress," and 3) "To be completed." In 2021/22 there again appeared three sections, each with a heading matching the 2020/21 descriptions noted here. Here, work plan sections (if applicable) are noted along with deliverable description.

[12] As stated in DFO work plans.

[13] Health status was assigned primarily using Oceana Canada's Fishery Audit dataset (Oceana Canada, 2021), with † denoting assignments for marine mammals, diadromous fish, and freshwater fish using the 2019 Sustainability Survey for Fisheries results and †† denoting uncertain status assigned when stocks were not included in either dataset. As some records represent multiple stocks that appear as more than one record in the datasets used to assign status, all unique statuses for stocks within stock groups are included when applicable.

[14] DFO (2018). Limit Reference Points for Atlantic Salmon Rivers in DFO Gulf Region. DFO Can. Sci. Advis. Sec. Sci. Res. 2018/015. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2018/2018_015-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
				updated by March 31, 2019.[15]					
			Details: New reference points were accepted at a framework meeting for LFAs 27–33 in January 2018, according to documents available from a stock status update process held in February 2018.[16] The research document expected to be published from the January 2018 meeting outlining in detail the new LRP approach was still not available at the time of the 2018, 2019, and 2020 evaluations but has since been published.[17]						
3	Maritimes	Lobster – offshore LFA 41; Healthy	✓2017/18 ✓2018/19	*Section 1B - Other work scheduled in the 2017 to 2018 fiscal year to update and revise or begin to develop limit reference points (LRP):* Refine LRP by March 31, 2018. Following this the IFMP will be updated by March 31, 2019.	*Section 1B: Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Update on progress in developing the precautionary approach Framework; update to reference points. Some minor updates and corrections. The offshore lobster were previously noted for completion in 2017/18.				Previously completed (2018)
			Details: It is noted in the 2018/19 work plan that work to update references points was not completed in 2017/18 and was to continue into 2018/19. However, two CSAS processes were held in 2017: a framework assessment in January and a stock assessment in September. The research document produced from the framework assessment indicates that attempts to develop reference points based on biomass dynamic modelling were not possible, but several survey and landings-based options to develop reference point indicators were developed.[18] Four pairs of upper stock indicators and limit stock indicators were recommended. The second process assessed the stock against these reference indicators.[19] According to the 2018/19 work plan, further minor updates and corrections remained to be conducted on reference points. A CSAS Science Response process was held in October 2018 to update the stock status against reference points.[20] In the work plan results for 2018/19 the department also indicates this deliverable is completed; a tangible deliverable is complete and available as a result.[21]						

[15] The 2017/18 deliverables statement for this section of the work plan (work plan 1) indicates the IFMP will be updated by March 31, 2019, which contradicts the deliverables statement in the IFMP section of the work plan (work plan 3) for the same fiscal year, where it is stated that the inshore lobster IFMP was to be posted online in 2017/18. This statement here is, however, consistent with the 2018/19 work plan.

[16] DFO (2018). Stock Status Update of American Lobster (*Homarus americanus*) in Lobster Fishing Areas (LFAs) 27–33. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/030. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2018/2018_030-eng.html

[17] Cook, A.M., Hubley, P.B., Denton, C. & Howse, V. (2020). 2018 Framework Assessment of American Lobster (*Homarus americanus*) in LFA 27–33. DFO Can. Sci. Advis. Sec. Res. Doc. 2020/017. vi + 251 p. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2020/2020_017-eng.html

[18] DFO (2017). Framework Assessment of the Offshore American Lobster (*Homarus americanus*) in Lobster Fishing Area (LFA) 41. DFO Can. Sci. Advis. Sec. Res. Doc. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2017/2017_065-eng.html

[19] DFO (2018). Assessment of Lobster (*Homarus americanus*) in Lobster Fishing Area 41 (4X + 5Z) for 2016. DFO Can. Sci. Advis. Sec. Sci. Adv. Rep. 2018/004. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_004-eng.html

[20] DFO (2018). Terms of Reference. Stock Status Update of American Lobster in Lobster Fishing Area (LFA) 41. Regional Science Response Process – Maritimes Region, November 16, 2018, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/11_16b-eng.html

[21] DFO (2019). Work Plans for Fiscal 2018–19: Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
4	Maritimes	Gaspereau – Maritimes Region; Uncertain†	✓2017/18	*Section 1A - Precautionary approach limit reference points (LRP) to be developed in the 2017 to 2018 fiscal year:* Refine reference points based on new scientific information.					Previously completed (2018)[22]
			Details: Alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*) are diadromous fish that are collectively referred to as river herring and are fished together as "gaspereau."[23] In February 2016 a CSAS process was held, in part to determine how to develop reference points.[24] A CSAS report indicates that an LRP was developed for alewife but not blueback herring due to data deficiencies, and the development of reference points for blueback herring was deferred until more population-specific data were available.[25] Given these documented results, this deliverable was evaluated as completed.						
5	Quebec and National Capital Region	Acadian and deepwater redfish – Units 1 and 2;[26] Cautious, Healthy	✓2017/18	*Section 1B - Other work scheduled in the 2017 to 2018 fiscal year to update and revise or begin to develop limit reference points (LRP):* LRP refinements will be completed in conjunction with the management strategy evaluation (MSE), which is anticipated to be completed by late spring 2018.					Previously completed (2018)
			Details: The LRP for Acadian redfish in units 1 and 2 combined and the LRP for deepwater redfish in units 1 and 2 combined were completed in conjunction with the Management Strategy Evaluation.[27] These were then revised at a CSAS process held in January 2020 and also documented in a CSAS Science Advisory Report.[28]						

[22] This deliverable had a completion status of "Delayed" assigned in 2018 when it should have been assessed as "Completed," which was corrected in 2019. Scientists did refine reference points (in February 2016) for alewife and clearly indicated more data is required to develop reference points for blueback herring in a publicly available report (published April 2018).

[23] Gibson, A.J.F, Bowlby, H.D. & Keyser, F.M. (2016). A Framework for the Assessment of the Status of River Herring Populations and Fisheries in DFO's Maritimes Region. DFO Can. Sci. Advis. Sec. Res. Doc. 2016/105. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2016/2016_105-eng.html

[24] DFO (2016). Terms of Reference: Maritimes Region River Herring Framework and Case Study Application to the Tusket River Fishery. Regional Peer Review – Maritimes Region, February 9–11, 2016, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2016/02_09-11-eng.html

[25] Gibson, A.J.F., Bowlby, H.D. & Keyser, F.M. (2017). A Framework for the Assessment of the Status of River Herring Populations and Fisheries in DFO's Maritimes Region. DFO Can. Sci. Advis. Sec. Res. Doc. 2016/105. vi + 69 p. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2016/2016_105-eng.html

[26] Included in 2017/18 work plan 1 as species combined, units combined.

[27] DFO (2018). Units 1+2 Redfish Management Strategy Evaluation. DFO Can. Sci. Advis. Sec. Sci. Adv. Rep. 2018/033. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_033-eng.html

[28] DFO (2020). Redfish (*Sebastes mentella* and *S. fasciatus*) Stocks Assessment in Units 1 and 2 in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/019. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_019-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
6	Maritimes	Atlantic cod – 4X5Y; Critical	✓2018/19		*Section 1B: Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Update to limit reference points, if Science determines that a change needs to be made (LRP will be reviewed by Science in 2018-19).				Previously completed (2019)
			Details: Three CSAS processes were held in 2018 pertaining to Atlantic cod in 4X5Y. Two of these pertained to the framework assessment, with the first part (reviewing data inputs) held in March and the second part (reviewing modelling approaches) in November. The terms of reference for the latter process indicate LRP revision would occur.[29] No documents are yet available from either process, but a revised LRP is included in the report[30] from the third process, held in December 2018 to assess the stock using the new modelling framework. In the work plan results for 2018/19 the department also indicates this deliverable is completed; a tangible deliverable is complete and available as a result.[31]					
7	Newfoundland and Labrador	Witch flounder – 2J+3KL; Critical	✓2018/19		*Section 1A - Precautionary Approach Limit Reference Points (LRP) to be developed in fiscal year 2018-19:* Develop limit reference points by March 31, 2019				Previously completed (2019)
			Details: A CSAS process was held in May 2018 to assess witch flounder in 2J3KL, and details on the LRP and its development are available online in the CSAS Science Advisory Report.[32] In the work plan results for 2018/19 the department also indicates this deliverable is complete; a tangible deliverable is complete and available as a result.[33]					
8	Newfoundland and Labrador	Snow crab – 2J, 3KLNO and 3Ps; Cautious, Healthy	✓2018/19 ✓2019/20		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Ongoing evaluation	*Section 1B - Work scheduled in fiscal year 2019-20 to update or revise Limit Reference Points (LRP):* Will begin			Previously completed (2019)

[29] DFO (2018). Terms of Reference: Assessment Framework for 4X5Y Atlantic Cod: Part 2 – Review of Modelling Approaches. Regional Peer Review – Maritimes Region, November 6–8, 2018. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/11_06-08b-eng.html

[30] DFO (2019). Stock Assessment of Atlantic Cod (*Gadus morhua*) in NAFO Divisions 4X5Y. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/015. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_015-eng.html

[31] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[32] DFO (2019). Stock Assessment of Witch Flounder (*Glyptocephalus cynoglossus*) in NAFO Divisions 2J3KL. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/053. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_053-eng.html

[33] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
					and potential development of LRPs in FY 2018-19.	revision of LRP in 2019-20.			
			Details: Two CSAS processes were held in 2018 pertaining to snow crab stocks off the coast of Newfoundland and Labrador. The first, in February, was a stock assessment. Reference point development was not in the terms of reference,[34] nor did any appear in the resulting report from the meeting.[35] The second process, in June 2018, was held to develop a precautionary approach framework for snow crab in the Newfoundland and Labrador Region and included the key objective of defining the LRP.[36] The research document published from this meeting indicates LRPs were established.[37] An additional CSAS process was held in February 2019,[38] and the CSAS Science Advisory Report includes details about the LRPs and stock statuses in relation to them.[39] Departmental officials indicate there is currently no plan to revise the LRPs since their development in June 2018 (DFO Science, personal communication, June 28, 2019). In the work plan results for 2018/19 the department also indicates this deliverable is complete, as did the 2019/20 work plan results;[40] a tangible deliverable is complete and available as a result.[41]					
9	Newfoundland and Labrador	Haddock – 3Ps; Critical	✓2018/19		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Ongoing evaluation and potential development of LRPs in 2018-19.				**Previously completed (2019)**

[34] DFO (2018). Terms of Reference: Newfoundland and Labrador Snow Crab Assessment. Regional Peer Review Process – Newfoundland and Labrador Region, February 20–23, 2018, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/02_20-23-eng.html

[35] DFO (2018). Assessment of Newfoundland and Labrador (Divisions 2HJ3KLNOP4R) Snow Crab. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/024. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_024-eng.html

[36] DFO (2018). Terms of Reference: Development of a Precautionary Approach Framework for Snow Crab in the NL Region. Regional Peer Review – Newfoundland and Labrador Region, June 6–7, 2018. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/06_06-07b-eng.html

[37] Mullowney, D., Baker, K., Pedersen, E. & Osborne, D. (2018). Basis for a Precautionary Approach and Decision Making Framework for the Newfoundland and Labrador Snow Crab (*Chionoecetes opilio*) Fishery. DFO Can. Sci. Advis. Sec. Res. Doc. 2018/054. iv + 66 p. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2018/2018_054-eng.html

[38] DFO (2019). Terms of Reference: 2HJ3KLNOP4R Snow Crab Assessment. Regional Peer Review Process – Newfoundland and Labrador Region, February 19–21, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_19-21-eng.html

[39] DFO (2019). Assessment of Newfoundland and Labrador (Divisions 2HJ3KLNOP4R) Snow Crab. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/041. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_041-eng.html

[40] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[41] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			Details: A CSAS process was held in December 2018 to assess haddock in 3Ps, during which an LRP was established. Details on the LRP and its development are available online in a CSAS report.[42] In the work plan results for 2018/19 the department also indicates this deliverable is complete; a tangible deliverable is complete and available as a result.[43]						
10	Newfoundland and Labrador	Witch flounder – 3Ps; Uncertain	✓2018/19		*Section 1A - Precautionary Approach Limit Reference Points (LRP) to be developed in fiscal year 2018-19:* Develop LRPs by March 31, 2019.				Previously completed (2019)
			Details: A CSAS process was held in December 2017 to assess witch flounder in 3Ps, during which an LRP was established. Details on the LRP and its development are available online in a CSAS report.[44] In the work plan results for 2018/19 the department also indicates this deliverable is complete; a tangible deliverable is complete and available as a result.[45]						
11	Pacific	Green sea urchin – Pacific Region; Healthy	✓2018/19		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Analysis of provisional LRPs in 2018-19 for better alignment with the PA. Ongoing evaluation for fully PA compliant LRP possibly in 2020.				Previously completed (2019)
			Details: A CSAS process was held in April 2018 to assess green sea urchin in the Pacific Region. Details on LRPs and their development for two areas included in this stock group are available online in a CSAS report.[46] In the work plan results for 2018/19 the department also indicates this deliverable is complete; a tangible deliverable is complete and available as a result.[47]						
12	Maritimes	American eel – adult; Uncertain†	✓2017/18	*Section 1A - Precautionary approach limit reference points (LRP) to be*					Previously suspended (in 2019)

[42] DFO (2019). Stock Assessment of Haddock (*Melanogrammus aeglefinus*) in NAFO Subdivision 3Ps. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/007. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_007-eng.html

[43] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[44] DFO (2018). Stock assessment of Witch Flounder (*Glyptocephalus cynoglossus*) in NAFO Subdivision 3Ps. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/011. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_011-eng.html

[45] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[46] DFO (2018). Stock Status Update for Green Sea Urchin (*Strongylocentrotus droebachiensis*) in British Columbia and Harvest Options for the Fishery in 2018 to 2021. DFO Can. Sci. Advis. Sec. Sci. Resp. 2018/054. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2018/2018_054-eng.html

[47] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
				developed in the 2017 to 2018 fiscal year: Develop LRP by March 31, 2018.					
			Details: A framework stock assessment for American eels and elvers was held in October 2016. The proceedings from the process indicate reference points were discussed but do not indicate a final decision was made.[48] Other than the proceedings, no further documentation is available on the CSAS website from the framework process. An assessment of eels in the Maritimes Region occurred in September 2018. According to the terms of reference, reference points would be discussed, although it is unclear if this included an LRP,[49] and during Oceana Canada's 2019 evaluation no reports were available from this process and departmental officials indicated a Science Advisory Report would be published imminently summarizing the assessment based on American eel in the Maritimes Region (elvers and adults; DFO Science, personal communication, June 28, 2019). During the 2019 evaluation it was indicated that at the assessment, removal reference points were developed. Spawner per recruit (SPR) analyses were used to define mortality reference points for all directed fisheries and hydroelectric facilities. The mortality rate that results in a 70% loss of spawning biomass relative to the population without losses from human activities (SPR30) was recommended as the limit removal reference (i.e., the maximum acceptable human-induced mortality rate). The mortality rate that results in a 50% loss of spawning biomass (SPR50) would be the target value. However, the assessment of current human-induced mortality relative to reference points is limited to the elver fishery. Mortality relative to reference points could not be assessed for large eel fisheries or for large eel mortality following downstream transit through hydroelectric facilities because of data limitations. Due to these data limitations, this deliverable was classified as "suspended" here in 2019. Given the limited geographic scope of the assessment when compared to the overall size of the panmictic American eel range, it was not possible to develop biomass reference points, so the focus had changed to removal reference points, and no LRP is expected to be developed or published from the September meeting (DFO Science, personal communication, June 28, 2019). The CSAS Science Advisory Report from the September 2018 meeting is now available and discusses the removal reference points and data limitations pertaining to adult eels.[50] The work plan results for 2018/19, in the additional work section, indicates the deliverable to develop a removal reference by March 31, 2019 is complete; a tangible deliverable is complete and available as a result.[51] There was a second framework assessment CSAS process held in October 2019, which was to provide the first step towards a range-wide assessment and a step closer to evaluating the status of eels in Canadian waters (DFO Science, personal communication, June 28, 2019).[52] No publications are available from this process yet. The recently published (August 2018) IFMP for elvers in the Maritimes Region indicates that the development of precautionary approach reference points for the elver fishery and for American eel fisheries at all life history stages remains a regional goal.[53]					
13	Maritimes	American eel – elvers; Uncertain†	✓2017/18	*Section 1A - Precautionary approach limit reference points (LRP) to be developed in the 2017 to 2018 fiscal year:* Develop LRP by March 31, 2018.					**Previously suspended (2020)**

[48] DFO (2017). Proceedings of the Regional Peer Review of the Stock Framework for American Eel (*Anguilla rostrate*) and Elvers. DFO Can. Sci. Advis. Sec. Proc. 2017/048. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2017/2017_048-eng.html

[49] DFO (2018). Terms of Reference: Assessment of American Eel in the Maritimes Region. Regional Peer Review – Maritimes Region, September 5–7, 2018, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/09_05-07-eng.html

[50] DFO (2019). Assessment of the Maritimes Region American Eel and Elver Fisheries. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/054. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_054_eng.html

[51] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[52] DFO (2019. Terms of Reference: Stock-wide Assessment Framework for American Eel: Part 2 – Review of Trends and Approaches to Assessment. National Peer Review – National Capital Region, October 29–31, 2019, Halifax, Nova Scotia. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/10_29-31-eng.html

[53] DFO (2018). Elver Integrated Fisheries Management Plan (Evergreen) Maritimes Region. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/elver-anguille/index-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			Details: A framework stock assessment for American eels and elvers was held in October 2016. The proceedings from the process indicate reference points were discussed but do not indicate a final decision was made.[54] Other than the proceedings, no further documentation is available on the CSAS website from the framework process. An assessment of eels in the Maritimes Region occurred in September 2018. According to the terms of reference, reference points would be discussed, although it is unclear if this included an LRP.[55] At the time of the 2019 evaluation, no reports were available from this process and departmental officials indicated a Science Advisory Report would be published imminently summarizing the assessment based on American eel in the Maritimes Region (elvers and adults; DFO Science, personal communication, June 28, 2019). It was indicated that at the assessment, removal reference points were developed. Spawner per recruit (SPR) analyses were used to define mortality reference points for all directed fisheries and hydroelectric facilities. The mortality rate that results in a 70% loss of spawning biomass relative to the population without losses from human activities (SPR30) was recommended as the limit removal reference (i.e., the maximum acceptable human-induced mortality rate). The mortality rate that results in a 50% loss of spawning biomass (SPR50) would be the target value. Given the limited geographic scope of the assessment when compared to the overall size of the panmictic American eel range, it was not possible to develop biomass reference points, so the focus had changed to removal reference points and no LRP was expected to be developed or published from the September meeting (DFO Science, personal communication, June 28, 2019). The CSAS Science Advisory Report from the September 2018 meeting is now available and includes an assessment of current mortality relative to reference points for the elver fishery.[56] The work plan results for 2018/19, in the additional work section, also indicate the deliverable to develop a removal reference by March 31, 2019 is complete; a tangible deliverable is complete and available as a result.[57] There was a second framework assessment CSAS process held in October 2019, which was to provide the first step towards a range-wide assessment and another step towards evaluating the status of eels in Canadian waters (DFO Science, personal communication, June 28, 2019).[58] No publications are available from this process yet. Although the rationale provided for the shift in focus away from the LRP towards removal references is appropriate (and there is enough data to evaluate the elver fishery against its removal reference), this deliverable is evaluated as suspended given there is no LRP or further intentions to develop one in the imminent future. The recently published (August 2018) IFMP for elvers in the Maritimes Region indicates that the development of precautionary approach reference points for the elver fishery and for American eel fisheries at all life history stages remains a regional goal.[59]						
14	Pacific	Coho salmon – southern inside; Uncertain††	✓2017/18	*Section 1B - Other work scheduled in the 2017 to 2018 fiscal year to update and revise or begin to develop limit reference points (LRP):* Undertake work to refine reference points based on new science information.					Previously completed (2020)
			Details: In 2017/18 work was undertaken to refine reference points. A CSAS process was held in September 2017, in part to determine reference points for Canadian Pacific Salmon Treaty southern coho management units. The meeting focused on evaluating the effects of exploitation rate changes on meeting conservation objectives across a range of smolt-to-adult survival rates that can be used to define status across three Pacific Salmon Treaty status categories (low, moderate, and abundant) using a range of stock-recruitment (S-R) models that incorporated						

[54] DFO (2017). Proceedings of the Regional Peer Review of the Stock Framework for American Eel (*Anguilla rostrate*) and Elvers. DFO Can. Sci. Advis. Sec. Proc. 2017/048. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2017/2017_048-eng.html

[55] DFO (2018). Terms of Reference. Assessment of American Eel in the Maritimes Region. Regional Peer Review – Maritimes Region, September 5–7, 2018, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/09_05-07-eng.html

[56] DFO (2019). Assessment of the Maritimes Region American Eel and Elver Fisheries. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/054. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_054_eng.html

[57] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[58] DFO (2019). Terms of Reference: Stock-wide Assessment Framework for American Eel: Part 2 – Review of Trends and Approaches to Assessment. National Peer Review – National Capital Region, October 29–31, 2019, Halifax, Nova Scotia. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/10_29-31-eng.html

[59] DFO (2018). Elver Integrated Fisheries Management Plan (Evergreen) Maritimes Region. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/elver-anguille/index-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			hatchery smolt-adult survival as a surrogate for population productivity.[60] S-R parameters were derived for the individual Interior Fraser River Conservation Units and the Interior Fraser Coho (IFC) Management Unit (MU) as a whole and the Strait of Georgia (SOG) MU, as represented by the Black Creek indicator stock. But due to a lack of suitable data, no S-R analysis was conducted for the Lower Fraser River (LFR) MU. Retrospective and forward simulations were completed for the IFC MU and resulted in a set of decision tables that could be used to inform the selection of status benchmarks and management reference points (also known as operational control points) using hatchery survival as an index of productivity. But, due to lack of data, comparable analyses for the SOG and LFR MUs were not possible. The resultant report provides examples to illustrate how the results from the framework could be used to inform the development of management reference points for setting low, moderate, and abundant status categories under the Pacific Salmon Treaty, but formal recommendations on reference points to use for management purposes were not provided. The report indicated that the selection of these reference points would require input from government, First Nations, and stakeholders on acceptable probabilities of achieving conservation outcomes given the data gaps and uncertainties. In April and May 2018 DFO held consultations to seek feedback on the approach for identifying reference points (i.e., low, moderate, or abundant) and determining corresponding exploitation rate caps for Canadian coho management units.[61] Given the science process could only provide advice on developing reference points and associated exploitation rates for the IFR MU, the engagement process predominantly focused on reviewing the proposed approach for IFR coho.[62] The 2018/2019 annual report of the Wild Salmon Policy implementation plan indicated the development of reference points and associated decision rules were ongoing and on track and that IFMPs will document them.[63] During Oceana Canada's 2019 evaluation, departmental officials indicated a workshop was held in May 2018 to use the science information from the 2017 CSAS process to develop management reference points, which were planned to be incorporated in the 2019/20 IFMP (N. Schjott, personal communication, June 25, 2019). Although this deliverable did not appear in the 2018/19 fiscal year work plan, in the work plan results for 2018/19 the department indicates in the HCR work plan results section that the deliverable (i.e., management reference points will be evaluated and implemented by March 31, 2019) is complete with a tangible deliverable that is available.[64] However, in the additional work section it indicates the deliverable (i.e., "undertake work to refine reference points based on new science information") was not completed but only met; commitment or action as defined in the description of deliverables (2018/19) is complete without a tangible deliverable. The 2019/2020 Wild Salmon Policy implementation plan report confirms that the consultations on revised reference points and exploitation rate caps for IFR coho were completed and documented in the 2019/20 Southern BC salmon IFMP.[65] The consultation report revealed little support for the proposed approach as is, and changes were recommended. The 2019/20 IFMP does not include an LRP for any coho salmon stocks; only mixed-stock chum fisheries in Johnstone Strait have an LRP documented.[66] However, the IFMP section pertaining to the precautionary approach (section 2.6) indicates that Wild Salmon Policy benchmarks of biological status will inform the development of a precautionary approach to management of salmon resources, that benchmarks had been reviewed for conservation units of several of the southern inside coho stocks (Interior Fraser River, Georgia Strait Mainland, East Vancouver Island), and that consultations were held to seek feedback on the approach for identifying reference points (i.e., low, moderate, or abundant) and determining corresponding exploitation rate caps for Canadian coho management units.[67] Table 13.3-1 in the IFMP identifies Pacific Salmon Treaty abundance-based exploitation rate limits on coho salmon stocks in fisheries harvesting southern BC coho in the low, moderate, and abundant categories that appear to align					

[60] DFO (2018). Framework for Determination of Pacific Salmon Commission Reference Points for Status Determination and Associated Allowable Exploitation Rates for Select Canadian Southern Coho Salmon Management Units. DFO Can. Sci. Advis. Sec. Sci. Adv. Rep. 2018/016. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_016-eng.html

[61] DFO (2018). Consultation on the Pacific Salmon Treaty Southern Coho Reference Points and Exploitation Rate Caps. http://www.pac.dfo-mpo.gc.ca/consultation/smon/pst-coho-tsp/index-eng.html

[62] Hall, A. & Semmens, C. (2018). PST Southern Coho Reference Points and Exploitation Rate Caps: Engagement Report. Prepared by ESSA Technologies Ltd. for the Department of Fisheries and Oceans (DFO) and the Pacific Salmon Commission (PSC). v + 18pp.+ Appendices. https://waves-vagues.dfo-mpo.gc.ca/Library/40712072.pdf

[63] DFO (2019). Wild Salmon Policy 2018 to 2022 Implementation Plan. Annual Report 2018 to 2019. http://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/annual-annuel/2018-2019-eng.html#highlights

[64] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[65] DFO (2020). Wild Salmon Policy 2018 to 2022 Implementation Plan: Annual Report 2019 to 2020. http://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/annual-annuel/2019-2020-eng.html

[66] DFO (2019). Pacific Region Final Integrated Fisheries Management Plan. June 1, 2019–May 31, 2020, Salmon, Southern BC. https://waves-vagues.dfo-mpo.gc.ca/Library/40799104.pdf

[67] DFO (2018). Consultation on the Pacific Salmon Treaty Southern Coho Reference Points and Exploitation Rate Caps. http://www.pac.dfo-mpo.gc.ca/consultation/smon/pst-coho-tsp/index-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			with feedback obtained during consultation focused on the IFR MU and that differ from the same table included in the previous IFMP.[68] Management reference point work appears to have been completed, as indicated in the deliverable description, although these appear to be Wild Salmon Policy benchmarks of biological status, not an LRP as indicated in the work plan title in which the deliverable was included. Here the deliverable is evaluated as completed, given the work in the deliverable description was completed. It should be clarified whether the low limits will function as an LRP, and if so, they should be identified as such and details on them included in section 2.6 of the IFMP outlining the precautionary approach.						
15	Gulf	Sea scallop – southern Gulf of St. Lawrence (SFA 21a, b, c, 22, 23, 24); Uncertain	✓2018/19 ✓2019/20		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Stock assessment scheduled for May 2018. Present stock assessment and reference points to industry.	*Section 1C - C. Work scheduled in fiscal year 2019-20 to make progress in developing Limit Reference Points (LRP). For these stocks LRP's are not necessarily expected to be finalized in 2019-2020:* Will continue development of LRP in 2019-20.			**Previously suspended (2020)**
			Details: A CSAS process was held in October 2018 where scientists attempted to develop reference points for sea scallops in the southern Gulf of St. Lawrence. It was determined that there is insufficient data available to define abundance and removal rate reference points as per the precautionary approach and that there are currently no indicators that could be used to signal if a significant unexpected change in stock status has occurred.[69] The report does discuss potential indicators that could be used to monitor the status and productive capacity of the stock and suggests that annual surveys of scallop beds that contribute the most to the fisheries effort and landings be considered to develop them. But the report does not indicate whether these approaches would be pursued. In the work plan results for 2018/19 the department does not provide an overall status determination for this deliverable but does indicate the stock assessment was completed and reference points delayed. This deliverable was repeated in the 2019/20 work plan. The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by deadline date as indicated in the description of deliverables for 2019/20.[70] During Oceana Canada's evaluation in 2020, it was found that there were no CSAS processes held for this stock in 2019 and none were yet scheduled for 2020. DFO confirmed LRPs could not be determined during the last CSAS process (October 2018), but DFO is continuing to analyse and expand knowledge of the stock status, based on recommendations from the review (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). Because this is a data-deficient stock, DFO is still in data-acquisition mode for the next few years to develop the LRP and is investing in new monitoring that will begin in 2021/2022 (Science, National Capital Region, personal communication, June 23, 2020). Given that it will take time to collect enough data for use in developing an LRP, that data collection will not start until 2020/21, and that this deliverable was not included in the 2020/21 work plan, in 2020 this deliverable was evaluated as suspended despite DFO internally evaluating it as delayed. It was subsequently not repeated in the 2021/22 fiscal year work plan, and there remain no scheduled CSAS process pertaining to this stock in 2021 or 2022.						
16	Maritimes	Dogfish – Atlantic Canada 4VWNX-5; Cautious	✓2018/19		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points*				**Previously completed (2020)**

[68] DFO (2018). Integrated Fisheries Management Plan. June 1, 2018–May 31, 2019, Salmon, Southern B.C. https://waves-vagues.dfo-mpo.gc.ca/Library/40694306.pdf

[69] DFO (2019). Fishery and Stock Status of the Sea Scallop (*Placopecten magellanicus*) from the Southern Gulf of St. Lawrence to 2016. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/006. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_006-eng.html

[70] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
					(LRP): Update to limit reference points (for Atlantic Canada), if Science determines that a change needs to be made (LRP will be reviewed by Science in 2018-19).				
			Details: Two CSAS processes were held in 2018 pertaining to dogfish in Atlantic Canada. The final part of a framework assessment that began in 2017 was held in June 2018, reviewing modelling approaches, and a second CSAS process was held in fall 2018 to update the status of the stock. The June meeting terms of reference indicate reference points were to be revised,[71] but no documents are available from it yet. During Oceana Canada's 2019 evaluation, departmental officials indicated that the framework assessment considered data to 2015 and a new modelling approach, but the proposed Canadian model was rejected (DFO Science, personal communication, June 28, 2019). The U.S. regularly undertakes assessments of the Northwest Atlantic spiny dogfish population to provide advice for their directed fishery, and the index of abundance (adult females) uses data collected on the U.S. side of the Hague line. During a fall 2018 CSAS process it was agreed that until a joint or Canadian modelled approach could be developed, relying on the U.S. assessment would be more informative than reviewing the survey index of adult female abundance without the context of a population model. Adopting the U.S. reference points was deemed appropriate under the Canadian precautionary approach framework. The U.S. spawning stock biomass target (SSBtarget) was used as the USR, given that SSBtarget represents a proxy for adult female biomass at maximum sustainable yield (MSY) under the U.S. assessment model. The USR becomes 159,288 mt. The LRP is the U.S. SSBthreshold value, calculated as 50% of the USR, with a value of 79,644 mt. Using these values places dogfish in the cautious zone since 2015 (DFO Science, personal communication, June 28, 2019). The CSAS schedule confirms processes were held on December 11, 2018, and February 13, 2019, with the objective of reviewing and updating proxy biological reference points for Northwest Atlantic spiny dogfish and to evaluate the status of the stock.[72] There is now a Science Advisory Report available that documents this new approach to the LRP for the stock.[73] In the work plan results for 2018/19 the department also indicates this deliverable is complete, with a tangible deliverable available.[74]				
17	Newfoundland and Labrador	Lumpfish – 3KLPs; Uncertain	✓2018/19 ✓2019/20		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Ongoing evaluation and potential development of LRPs in 2018-19.	*Section 1B - Work scheduled in fiscal year 2019-20 to update or revise Limit Reference Points (LRP):* Will continue revision of LRP in 2019-20.			**Previously suspended (2020)**

[71] DFO (2018). Terms of Reference: Northwest Atlantic Spiny Dogfish Framework Part 2: Review of Modeling Approaches and Assessment. Regional Advisory Process – Maritimes Region, June 27–28, 2018. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/06_27-28-eng.html

[72] DFO (2019). Terms of Reference: Stock Assessment of Northwest Atlantic Spiny Dogfish. Regional Peer Review Process – Maritimes Region, December 11, 2018, and February 13, 2019, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_13-eng.html

[73] DFO (2020). Assessment of Spiny Dogfish in the Northwest Atlantic. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/001. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_001-eng.html

[74] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			Details: A CSAS process was held in March 2019 to conduct a recovery potential assessment of lumpfish in the Atlantic Ocean. One of the objectives of this meeting was identifying recovery targets.[75] No documentation was available from this process when evaluated here in 2020, but a report published in May 2021 includes a candidate recovery target for this Designatable Unit (DU) to increase the distribution to historic levels in NAFO Subdiv. 3Ps and Div. 3KL and to maintain the current distribution throughout the other areas (e.g., Div. 4RST3Pn; Div. 4VWX5YZ; SA 0).[76] The report also includes a candidate biomass recovery target of 15,831 t, the Upper Stock Reference (USR) level as estimated from the combined survey indices in Subdiv. 3Ps and Div. 3KL, and a short-term/medium-term recovery target set to be above the candidate LRP (7,915 t). Current biomass is estimated to be 50% of the candidate LRP. In the work plan results for 2018/19 the department indicates this deliverable is met; the commitment or action as defined in the description of deliverables (2018/19) is complete without a tangible deliverable available.[77] Yet the 2019/20 work plan indicated work would continue to revise the LRP. The 2019/20 work plan results indicate an "N/A" for this deliverable; the commitment or action as defined in the description of deliverables (2019/20) was not pursued for reasons including it no longer being required.[78] There were no other CSAS processes related to this stock in fiscal 2019/20, and at the time of the 2020 evaluation none were scheduled for fiscal 2020/21. During Oceana Canada's 2020 evaluation, DFO indicated that work on the LRP does continue, using various modelling approaches to help refine the proposed reference points that arose from the Recovery Potential Assessment and that an update will be provided at the next lumpfish assessment meeting (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador and National Capital regions, personal communication, June 23, 2020). However, considering the next CSAS meeting was not scheduled, the 2019/20 work plan result of "N/A," and the lack of inclusion in subsequent work plans, this deliverable was evaluated as suspended here in 2020. There remains no scheduled CSAS meetings pertaining to lumpfish in 2021 or yet for 2022. Despite a candidate LRP being in place, and now in publicly available documentation (as of 2021 evaluation), because DFO indicated work continues and the LRP remains only as a candidate during Oceana Canada's 2020 evaluation, the 2020 evaluation finding of suspended remains.						
18	Newfoundland and Labrador	Monkfish – 3LNOPs; Cautious	✓2018/19 ✓2019/20		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Ongoing evaluation and potential development of LRPs in 2018-19.	*Section 1B - Work scheduled in fiscal year 2019-20 to update or revise Limit Reference Points (LRP):* Will continue revision of LRP in 2019-20.			**Previously suspended (2020)**
			Details: According to the recently published (2019) IFMP,[79] this stock has an LRP. It was established at a June 2017 CSAS process.[80] In the work plan results for 2018/19 the department indicated this deliverable is met; the commitment or action as defined in the description of deliverables (2018/19) is complete without a tangible deliverable available.[81] Yet the 2019/20						

[75] DFO (2019). Terms of Reference: Recovery Potential Assessment – Lumpfish, Atlantic Ocean. Zonal Peer Review Meeting – Newfoundland and Labrador, Maritimes, Gulf, Quebec, Central and Arctic Regions, March 12–13, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/03_12-13-eng.html

[76] DFO (2021). Recovery Potential Assessment for Common Lumpfish (*Cyclopterus lumpus*) in Canadian Waters. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/019. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_019-eng.html

[77] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[78] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[79] DFO (2019). IFMP Groundfish Newfoundland and Labrador Region NAFO Subarea 2 + Divisions 3KLMNO. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/2019/groundfish-poisson-fond-2_3klmno-eng.htm

[80] DFO (2018). Stock Assessment of Monkfish in NAFO Division 3LNO and Subdivision 3Ps. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/010. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_010-eng.html

[81] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			work plan indicated work would continue to revise the LRP, and during Oceana Canada's 2019 evaluation departmental officials indicated this work is continuing (DFO Science, personal communication, June 28, 2019). The 2019/20 work plan results indicate an "N/A" for this deliverable; the commitment or action as defined in the description of deliverables (2019/20) was not pursued for reasons including no longer being required.[82] There were no other CSAS processes related to this stock in fiscal 2019/20, and at the time of this evaluation in 2020, none were scheduled for fiscal 2020/21. During Oceana Canada's 2020 evaluation, DFO confirmed that no work has been proposed on an LRP for monkfish in 2020/21 but that science work is ongoing to refine and model monkfish (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador and National Capital regions, personal communication, June 23, 2020). But results were not expected until the next assessment, which at the 2017 CSAS meeting was proposed to be every five years. DFO noted that if Fisheries Management wants an assessment in 2022/23, then progress on modelling and reference points will be presented at that time (Science, National Capital Region, personal communication, June 23, 2020). In previous evaluations, this deliverable was evaluated as delayed, despite a new LRP resulting from the 2017 CSAS meeting, because it was included in the work plans for the first time in the 2018/19 fiscal year work plan and repeated in the 2019/20 fiscal year work plan. However, given the details concerning the timeline for an assessment that may or may not happen, the 2019/20 work plan result of "N/A," and lack of inclusion in subsequent work plans, it was evaluated as suspended here in 2020. There remains no scheduled CSAS meetings pertaining to monkfish in 2021 or yet for 2022.					
19	Newfoundland and Labrador	Thorny skate – 3LNOPs; Uncertain	✓2018/19		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Ongoing evaluation and potential development of LRPs in 2018-19.				**Previously suspended (2020)**
			Details: Thorny skate in 3LNO and 3Ps are assessed by NAFO[83] and managed as thorny skate in 3LNO[84] by NAFO and together with other skates in 3Ps by Canada.[85] Within 3LNO there is a NAFO B_{LIM}.[86] In the work plan results for 2018/19 the department indicated this deliverable is met; the commitment or action as defined in the description of deliverables (2018/19) is complete without a tangible deliverable available.[87] During Oceana Canada's 2019 evaluation, departmental officials indicated that work would be ongoing during 2019/2020 to develop a quantitative model and precautionary approach framework that was anticipated to be presented at the NAFO meeting in June 2020, if progress was made (DFO Science, personal communication, June 28, 2019). The report from the June 2019 NAFO scientific council meeting includes updated information on abundance and biomass indices to 2018 and a recommendation that further work be conducted on development of a quantitative stock model, indicated as ongoing. The next full assessment of this stock was planned for 2020.[88] During Oceana Canada's 2020 evaluation, DFO confirmed thorny skate was assessed at the June 2020 NAFO Scientific Council meeting but says an accepted analytical model was not possible at					

[82] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[83] Simpson, M.R., Miri, C.M. & Collins, R.K. (2018). Assessment of Thorny Skate (*Amblyraja radiata* Donovan, 1808) in NAFO Divisions 3LNO and Subdivision 3Ps. Scientific Council Meeting. Serial No. N6811NAFO SCR Doc. 18/027. June 2018. https://www.nafo.int/Portals/0/PDFs/sc/2018/scr18-027.pdf

[84] DFO (2019). IFMP Groundfish Newfoundland and Labrador Region NAFO Subarea 2 + Divisions 3KLMNO. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/2019/groundfish-poisson-fond-2_3klmno-eng.htm

[85] DFO (2016). IFMP Groundfish (NAFO) Division 3Ps – Updated 2016. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/groundfish-poisson-fond-div3p-2016-eng.html

[86] NAFO (2018). Thorny Skate in Divisions 3LNO and Subdiv. 3Ps – Advice June 2018 for 2019–2020. SC 01–14, June 2018. https://www.nafo.int/Portals/0/PDFs/Advice/2018/TSkate3LNO.pdf

[87] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[88] NAFO (2019). Northwest Atlantic Fisheries Organization Report of the Scientific Council Meeting, 31 May–13 June 2019, Halifax, Nova Scotia. Serial No. N6966. NAFO SCS Doc. 19/20. https://www.nafo.int/Portals/0/PDFs/sc/2019/scs19-20.pdf

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			that time. DFO indicated exploratory work was ongoing on the development of a model for this stock to possibly refine the current B_{LIM} that was adopted in 2015 (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador and National Capital regions, personal communication, June 23, 2020). This deliverable is evaluated as suspended here because there is no accepted analytical model for use in revisions to the B_{LIM}, and although DFO indicates exploratory work is ongoing for its development and *possible* revisions to the current B_{LIM}, it has not been carried forward in the 2019/20 or 2020/21 fiscal year work plans. Therefore, in 2020 this deliverable was evaluated as suspended. However, there was a CSAS process held in November 2020 to assess 3Ps thorny skate, with identification of an LRP as an objective in the terms of reference.[89] No reports are yet available from this meeting, but given the limitations highlighted above, it is unlikely a new LRP was determined.						
20	Pacific	Red sea urchin – Pacific Region; Healthy	✓2019/20			*Section 1A - Precautionary Approach Limit Reference Points (LRP) to be developed in fiscal year 2019-20:* Will complete the development of LRP in 2019-20.			**Previously completed (2020)**
			Details: According to the CSAS schedule website, in fiscal year 2019/20 there were no CSAS processes pertaining to red sea urchin (RSU) in the Pacific. The stock was last assessed in February 2019, and in the title of the process specifically included identification of candidate reference points. The resultant Science Advisory Report included details on provisional reference points and recommends a new LRP and USR (0.3 mature RSU/m^2 and 0.6 mature RSU/m^2, on RSU habitat, respectively; mature RSU are defined as ≥50 mm test diameter, and RSU habitat is defined as hard substrate larger than gravel (>0.25 cm) where mud is not the predominant substrate).[90] However, the 2019/20 IFMP indicates there is currently no limit or upper stock reference points in place for the commercial Red Sea Urchin fishery in BC.[91] It does note that the February 2019 process occurred (but not in the context of reference point development), that the research was accepted, and that recommendations from the report will be incorporated into the management of the fishery starting next season after further consultation with First Nations and industry. The 2019/20 work plan results indicate this deliverable was completed; a tangible deliverable is complete and available as a result.[92] Given that the LRP is documented in a CSAS report and DFO policy indicates LRPs are established by science through a peer review process,[93] despite the LRP not being documented in the IFMP, here it is assumed it will be adopted by management, and this deliverable was therefore evaluated as completed in 2020. During Oceana Canada's 2020 evaluation, DFO confirmed that the LRP is considered to be in place but that due to the lack of a long-term monitoring program, it is currently difficult to assess the status of stock against the LRP. DFO Science is currently developing a long-term monitoring program that will allow the assessment of stock status against reference points (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). The 2020/21 IFMP indicates the Limit and Upper Stock Reference points recommended by DFO Science in 2019 will be formally implemented once the new stock monitoring program is operational.[94]						

[89] DFO (2020). Terms of Reference: Assessment of Northwest Atlantic Fisheries Organization (NAFO) Subdivision 3Ps Thorny skate. Regional Advisory Meeting – Newfoundland and Labrador Region, November 2–6, 2020, Virtual Meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/11_02-06b-eng.html

[90] DFO (2019). The Identification of Provisional Reference Points and Harvest Rate Options for the Commercial Red Sea Urchin (*Mesocentrotus franciscanus*) Fishery in British Columbia. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/036. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_036-eng.html

[91] DFO (2019). Pacific Region Integrated Fisheries Management Plan: Red Sea Urchin, August 1, 2019 to July 1, 2020. https://waves-vagues.dfo-mpo.gc.ca/Library/40797879.pdf

[92] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[93] DFO (2009). A Fishery Decision-making Framework Incorporating the Precautionary Approach. https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-eng.htm

[94] DFO (2021). Pacific Region Integrated Fisheries Management Plan: Red Sea Urchin, August 1, 2020 to July 31, 2021. https://waves-vagues.dfo-mpo.gc.ca/Library/40882056.pdf

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
21	Newfoundland and Labrador	White hake – 3NOPs; Uncertain	✓2019/20			*Section 1C - Work scheduled in fiscal year 2019-20 to make progress in developing Limit Reference Points (LRP). For these stocks LRP's are not necessarily expected to be finalized in 2019-2020:* Will continue revision of LRP in 2019-20. New LRP proposed to Northwest Atlantic Fisheries Organization (NAFO) in June 2019.			**Previously suspended (2020)**
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries indicate this stock is co-managed with and assessed by NAFO.[95] The stock is considered one distinct population in 3NOPs but is managed in two separate management areas by DFO in 3Ps and with NAFO in 3NO.[96,97] The 3Ps portion of the stock was assessed during a CSAS process held in November 2017, where LRP development was considered but not accepted, in part due to data limitations (exclusion of 3NO data) and life history traits (episodic recruitment).[98] The Science Advisory Report from that process discussed challenges in attempts to develop an LRP for the entire stock, indicating previous investigations using multiple approaches by NAFO scientists were unsuccessful in capturing the episodic character of the stock and therefore were not adopted at the 2015 meeting, nor at the 2017 meeting. The 2019 annual report from the NAFO Scientific Council Meeting indicates no precautionary reference points have been established for this stock.[99] The stock assessment is considered data-limited and highly uncertain. The report includes an update to a previous recommendation that work should continue on the development of population models and reference point proxies, stating that various formulations of a surplus production model in a Bayesian framework were explored and work is continuing. The next full assessment of this stock was planned for 2021. The 2019/20 work plan results for this deliverable indicate "N/A"; the commitment or action as defined in the description of deliverables (2019/20) was not pursued for reasons including no longer being required.[100] However, during Oceana Canada's 2020 evaluation, DFO confirmed exploratory work is ongoing towards the development of a model for this stock, which, if successful, is expected to result in a NAFO B_{LIM}. In addition, aging work on this stock has been initiated in the Newfoundland and Labrador region to support the potential development of an age-based model in the future (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador Region, personal communication, June 23, 2020). However, given the exploratory nature of the work, the timelines indicated, the DFO 2019/20 work plan result of "N/A," and the lack of inclusion in subsequent work plans, this deliverable was evaluated as suspended here in 2020.				

[95] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[96] DFO (2019). Integrated Fisheries Management Plan: Groundfish Newfoundland and Labrador Region, NAFO Subarea 2 + Divisions 3KLMNO. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/2019/groundfish-poisson-fond-2_3klmno-eng.htm

[97] DFO (2016). Integrated Fisheries Management Plan: Groundfish (NAFO) Division 3Ps – Updated 2016. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/groundfish-poisson-fond-div3p-2016-eng.html

[98] DFO (2018). Assessment of White Hake (*Urophycis tenuis*) in NAFO Subdivision 3Ps. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/005. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_005-eng.html

[99] NAFO (2019). Northwest Atlantic Fisheries Organization Report of the Scientific Council Meeting, 31 May–13 June 2019, Halifax, Nova Scotia. Serial No. N6966. NAFO SCS Doc. 19/20. https://www.nafo.int/Portals/0/PDFs/sc/2019/scs19-20.pdf

[100] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
22	Arctic	Arctic char – Cumberland Sound; Uncertain†	✓2017/18 ✓2020/21	*Section 1A - Precautionary approach limit reference points (LRP) to be developed in the 2017 to 2018 fiscal year*: Develop LRP by March 31, 2018.			To be initiated: Will continue development of LRP in 2020-21.		**Delayed**[101]
			Details: Two CSAS processes were held in February 2017 to assess the stock status and sustainable harvest levels for Arctic char in Ijaruvung Lake, Iqalujjuaq Fiord and Irvine Inlet, and Naulinniarvik Lake, Cumberland Sound, Nunavut. Although LRP development was not indicated as a deliverable in the terms of reference for these processes,[102,103] departmental officials indicated in 2018 that the LRPs for these stocks were developed but that the CSAS documents were not yet posted as they were in the process of completing quality control and translation (N. Schjott, personal communication, June 29, 2018). One of the two expected publications is now available online as a CSAS Science Advisory Report with details on the LRPs. LRPs have been developed for Arctic char in Ijaruvung Lake, Iqalujjuaq Fiord and Irvine Inlet, Cumberland Sound,[104] but reports are still not available for the Naulinniarvik Lake Arctic char fishery, Cumberland Sound. However, DFO noted in 2020 that LRPs are not likely to be developed for it, as Naulinniarvik Lake is currently an exploratory fishery (Fisheries and Aquaculture Management, and Science, Arctic region, personal communication, June 23, 2020). This deliverable was previously evaluated as completed by Oceana Canada in the 2019 evaluation as LRPs were developed for three components and because the stock group did not reappear in the 2018/19 or 2019/20 fiscal year work plans, implying it was complete and all components expecting LRPs had them. However, in 2020 it was evaluated as delayed given the stock group re-appeared in the 2020/21 fiscal year work plan with the deliverable description indicating LRP development will *continue*, implying the work was not completed in totality. DFO appropriately indicates that inclusion of this stock group in the 2020/21 fiscal year work plan was based on the expectation that LRP development would further progress for commercial water bodies within the region (Fisheries and Aquaculture Management, and Science, Arctic region, personal communication, June 23, 2020). There are five stock components in Cumberland Sound, and DFO intends to develop LRPs for two more of these. However, during Oceana Canada's 2020 evaluation, DFO already expected intended work in 2020/21 will be delayed due to staff departures and the impacts of COVID-19 on hiring and community consultation (Fisheries and Aquaculture Management, and Science, Arctic and National Capital regions, personal communication, June 23, 2020). There were no CSAS meetings held in fiscal 2020/21 pertaining to Arctic char in the Cumberland Sound. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The stock is not included for LRP development in the 2021/22 work plan. However, there is a meeting scheduled for fall 2021 pertaining to evaluating sustainable harvest levels for Anaktuayuit in the Cumberland Sound Arctic char fishery. The terms of reference are not yet available to determine if LRP development is indicated. The most recent results (2019 results; released in March 2021) of the DFO Sustainability Survey for Fisheries indicate there are 17 stocks: 12 Exploratory and five Schedule V Commercial. Comments note that stock-specific LRPs have only been developed for three of the 17 stocks: Ijaruvung Lake, Iqalujjuaq Fiord, and Irvine Inlet water bodies. These LRPs use 0.4 of the BMSY values and are considered preliminary provisional values. The survey respondent indicates these models are being revised in light of updated research and new models, and these LRP values may change in the near future.[105] The report cited in the survey is the Science Advisory Report from the February 2017 meeting, noted above. During Oceana Canada's 2021 evaluation, DFO indicates modelling revisions have not provided updates to the LRPs for the Arctic char stocks discussed in the 2019 Sustainability Survey (Science, National Capital Region and Arctic					

[101] This deliverable was previously evaluated as completed by Oceana Canada in the 2019 evaluation as LRPs were developed for Arctic char in three areas (Ijaruvung Lake, Iqalujjuaq Fiord, and Irvine Inlet) and the stock group did not reappear in the 2018/19 or 2019/20 fiscal year work plans. However, in 2020 Oceana Canada evaluated it as delayed given the stock group re-appeared in the 2020/21 fiscal year work plan with the deliverable description indicating LRP development will *continue* and further communications with DFO indicating it expects to develop LRPs for two more areas in the stock group.

[102] DFO (2017). Terms of Reference: Stock Status and Sustainable Harvest Levels for the Naulinniarvik Lake Arctic Char Fishery, Cumberland Sound, Nunavut. Regional Peer Review – Central and Arctic Region, February 16, 2017, Iqaluit, Nunavut. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2017/02_16-eng.html

[103] DFO (2017). Terms of Reference: Stock Status and Sustainable Harvest Levels for Arctic Char in Ijaruvung Lake, Iqalujjuaq Fiord and Irvine Inlet, Cumberland Sound, Nunavut. Regional Peer Review – Central and Arctic Region, February 14–15, 2017, Iqaluit, NU. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2017/02_14-15-eng.html

[104] DFO (2018). Stock Status and Sustainable Harvest Levels for Arctic Char in Ijaruvung Lake, Iqalujjuaq Fiord and Irvine Inlet, Cumberland Sound, Nunavut. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/021. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_021-eng.html

[105] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

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			region, personal communication, July 16, 2021). DFO indicated research for the 2021 season on Cumberland Sound Arctic char will focus on providing a point estimate on the population size as well as describing spawning migration patterns of Arctic Char in Iqalujjuaq Fiord. DFO notes that the data and results collected will not be sufficient to update the LRP for this stock or contribute to the development of an LRP for other Cumberland Sound Arctic char stocks. When appropriate, however, these LRPs will be revised to reflect the most recent and relevant data (Science, National Capital Region and Arctic region, personal communication, July 16, 2021).						
23	Maritimes	Lobster – Inshore LFA 34; Healthy	✓2017/18	*Section 1B - Other work scheduled in the 2017 to 2018 fiscal year to update and revise or begin to develop limit reference points (LRP):* Work planned to refine LRP. The work is expected to be finalized in the 2018 to 2019 fiscal-year. Following this the IFMP will be updated by March 31, 2020.[106]					Completed
			Details: In June 2018 a CSAS Science Response process was held to update the status of lobster in LFA 34. The report published from this process indicates the LRP previously developed (in 2013) was still in use.[107] A framework stock assessment was listed on the CSAS schedule website for March 2019, where DFO indicated in the 2018 evaluation that reference points would be refined (N. Schjott, personal communication, June 29, 2018), but this was postponed until September 2019 (N. Schjott, personal communication, June 25, 2019). The terms of reference for the September process indicate that an objective of the meeting was to update existing reference points and develop new reference points for primary indicators, as necessary.[108] No reports have been published on the CSAS website for the September process yet. Another CSAS process was held in October 2019 to assess the stock. The terms of reference for this process indicate the September framework meeting presented a suite of primary, secondary, and contextual indicators for use as stock assessment indicators, as well as upper stock and limit reference points.[109] The October meeting was intended to assess the stock using the framework, indicators, and reference points developed at the September meeting. During Oceana Canada's 2020 evaluation no reports had been published from this process yet either. The recently published IFMP for inshore lobster (March 2020), which includes this stock, uses the old primary LRP based on landings, and no LRP based on fishery-independent data is defined for LFA 34.[110] The IFMP reiterates the intention to explore and/or improve methods to develop biological reference points, which are related to the productivity of lobster stocks. During Oceana Canada's 2020 evaluation, DFO indicated work on the LRP for this stock was completed as part of the new framework assessment and will be included in the pending CSAS report from the September meeting (Fisheries and Aquaculture Management, and Science, Maritimes region, personal communication, June 23, 2020). There are still no reports yet available for the September 2019 CSAS meeting, but the Science						

[106] The 2017/18 deliverables statement for this section of the work plan (work plan 1) indicates the IFMP will be updated by March 31, 2019, which contradicts the deliverables statement in the IFMP section of the work plan (work plan 3) for the same fiscal year, where it is stated that the inshore lobster IFMP was to be posted online in 2017/18. However, this statement here is consistent with the 2018/19 work plan.

[107] DFO (2018). Stock Status Update of American Lobster (*Homarus americanus*) in Lobster Fishing Area 34. DFO Can. Sci. Advis. Sec. Sci. Resp. 2018/044. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2018/2018_044-eng.html

[108] DFO (2019). Terms of Reference: Stock Framework for American Lobster in Lobster Fishing Areas (LFAs) 34 and 35-38. Regional Peer Review – Maritimes Region, September 10–11, 2019, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/09_10-11-eng.html

[109] DFO (2019). Terms of Reference: Stock Assessment of American Lobster in Lobster Fishing Area(s) (LFA) 34 and 35-38. Regional Peer Review – Maritimes Region, October 1–2, 2019, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/10_1-2-eng.html

[110] DFO (2020). Integrated Fisheries Management Plan: Lobster Fishing Areas 27–38. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/maritimes/2019/inshore-lobster-eng.html

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			Advisory Report from the October 2019 meeting was published in April 2021.[111] It indicates that the primary indicator for stock status uses time series trends of commercial biomass from four fishery-independent surveys relative to reference points. Stock status is the combined result across survey indices, relative to the respective Limit Reference Indicator (LRI) and Upper Stock Indicators (USIs). The transition from a healthy stock status to a cautious stock status (i.e., below the USR) would require three of four survey biomasses to fall below the respective USIs. Similarly, to enter the Critical Zone (i.e., below LRP) would require two of four survey biomasses to fall below their respective LRIs.						
24	Maritimes	Lobster – Inshore LFA 35–38; Healthy	✓2017/18	*Section 1B - Other work scheduled in the 2017 to 2018 fiscal year to update and revise or begin to develop limit reference points (LRP):* Work planned to refine LRP. The work is expected to be finalized in the 2018 to 2019 fiscal-year. Following this the IFMP will be updated by March 31, 2020.[15]					Completed
			Details: In September 2018 a CSAS Science Response process was held to update the status of lobster in LFA 35–58. The report published from this process indicates the LRP previously developed (in 2013) was still in use.[112] A framework stock assessment was listed on the CSAS schedule website for March 2019, where it was indicated by DFO during Oceana Canada's 2018 evaluation that reference points would be refined (N. Schjott, personal communication, June 29, 2018), but this was postponed until September 2019 (N. Schjott, personal communication, June 25, 2019). The terms of reference for the September process indicate that an objective of the meeting was to update existing reference points and develop new reference points for primary indicators, as necessary.[113] No reports have been published on the CSAS website for the September process yet. Another CSAS process was held in October 2019 to assess the stock. The terms of reference for this process indicate the September framework meeting presented a suite of primary, secondary, and contextual indicators for use as stock assessment indicators, as well as upper stock and limit reference points.[114] The October meeting was intended to assess the stock using the framework, indicators, and reference points developed at the September meeting. At the time of Oceana Canada's evaluation in 2020, no reports had been published yet. The recently published IFMP for inshore lobster (March 2020), which includes this stock, uses the old primary LRP based on landings, and no LRP based on fishery-independent data is defined for LFA 34.[115] The IFMP reiterates the intention to explore and/or improve methods to develop biological reference points, which are related to the productivity of lobster stocks. DFO indicates work on the LRP for this stock was completed as part of the new framework assessment and will be included in the pending CSAS report from the September meeting (Fisheries and Aquaculture Management, and Science, Maritimes region, personal communication, June 23, 2020). There are still no reports yet available for the September 2019 CSAS meeting. But the Science Advisory Report from the October 2019 meeting was be published in June 2021.[116] It indicates that the primary indicator for stock status, which describes the time series trends relative to reference points, is the modelled						

[111] DFO (2021). Assessment of Lobster (*Homarus americanus*) in Lobster Fishing Area 34. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/015. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_015-eng.html

[112] DFO (2019). Stock Status Update of American Lobster (*Homarus americanus*) in Lobster Fishing Areas 35–38. DFO Can. Sci. Advis. Sec. Sci. Resp. 2018/049. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2018/2018_049-eng.html

[113] DFO (2019). Terms of Reference: Stock Framework for American Lobster in Lobster Fishing Areas (LFAs) 34 and 35–38. Regional Peer Review – Maritimes Region, September 10–11, 2019, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/09_10-11-eng.html

[114] DFO (2019). Terms of Reference: Stock Assessment of American Lobster in Lobster Fishing Area(s) (LFA) 34 and 35–38. Regional Peer Review – Maritimes Region, October 1–2, 2019, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/10_1-2-eng.html

[115] DFO (2020). Integrated Fisheries Management Plan: Lobster Fishing Areas 27–38. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/maritimes/2019/inshore-lobster-eng.html

[116] DFO (2021). Assessment of American Lobster (*Homarus americanus*) in Lobster Fishing Areas 35–38. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/020. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_020-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			commercial Catch Per Unit Effort (CPUE). The report notes commercial catch rates were modelled separately for each LFA with generalized linear models. The weight reported in each log record was log-transformed and offset by the log of the Trap Hauls (THs) with factors for day of season, predicted bottom temperature, and year. The annual index was the predicted CPUE on the first day of the season at the average temperature typically experienced on that day. The report notes the median of the high-productivity period (2011–2018) was used as the proxy for the biomass at carrying capacity (K). Following the recommendations of DFO policy, the USR and LRP were set to 40% and 20% of the K proxy. The three-year running median is used to compare the commercial catch rates to the USR and LRP. This value will dampen the impact of any anomalous years, which may occur due to factors outside of changes in abundance.						
25	Newfoundland and and Labrador and National Capital Region	Northern shrimp – SFA 0–7; Critical, Cautious, Healthy	✓2017/18 ✓2018/19 ✓2019/20 ✓2020/21 ✓2021/22	*Section 1B - Other work scheduled in the 2017 to 2018 fiscal year to update and revise or begin to develop limit reference points (LRP):* New assessment model under development which may lead to the review of reference points.	*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Ongoing evaluation and potential revision of LRPs in FY 2018-19. *(SFA 4–6 only)*	*Section 1B - Work scheduled in fiscal year 2019-20 to update or revise Limit Reference Points (LRP):* Will begin update of LRP in 2019-20. *(SFA 4–6 only)*	In progress: Will continue development of LRP in 2020-21. *(SFA 4–6 only)*[117]	Will continue development of LRP in 2021-22. *(SFA 4–6 only)*[118]	**Delayed**
			Details: The 2017/18 fiscal year work plan indicated the deliverable here applied to northern shrimp in SFA 0–7, while subsequent work plans have indicated it applies only to SFA 4–6, areas for which the department is the primary provider of science advice.[119] In 2017/18 two CSAS processes were held (in February 2018). The first provided an update of the status of northern shrimp (*Pandalus borealis*) and striped shrimp (*Pandalus montagui*) in the Eastern and Western Assessment Zones (EAZ and WAZ, respectively, which combined cover the same areas as the former SFAs 2 and 3) and striped shrimp in SFA 4. It does not appear that reference points were adjusted in this process, and they were still missing for striped shrimp in SFA 4 and for both species in the WAZ.[120,121] The second process assessed northern shrimp in SFAs 4, 5, and 6, and the documentation produced indicates the values of the reference points were revised slightly in 2018, in accordance with refinements in the biomass estimation method.[122] In fiscal year 2018/19 one CSAS process was held (in February 2019) to assess the status of northern shrimp in SFAs 4, 5, and 6, striped shrimp in SFA 4, and both species in the EAZ and WAZ.[123] Documentation for the EAZ and WAZ[124] indicates previously established reference points were utilized for both species in the EAZ, although it was noted these should be utilized with caution.[125] In the WAZ neither species was assessed under a PA framework, but the						

[117] In the 2020/21 fiscal year work plan there are also now LRP deliverables for northern shrimp in the Western Assessment Zone (WAZ) and striped shrimp in the WAZ; see their new records further below.

[118] In the 2020/21 fiscal year work plan there are also now LRP deliverables for northern shrimp in the Western Assessment Zone (WAZ) and striped shrimp in the WAZ; see their new records further below.

[119] DFO provides science advice for SFAs 4, 5 and 6 and the Eastern and Western Assessment Zones (EAZ and WAZ, respectively, which combined cover the same areas as the former SFA 2 and 3). The Northwest Atlantic Fisheries Organization (NAFO) Scientific Council provides science advice for SFAs 0, 1, and 7. In the 2020/21 fiscal year work plan there are LRP deliverables for SFAs 4–6 and northern and striped shrimp in the WAZ.

[120] DFO (2018). Update of Stock Status Indicators for Northern Shrimp, *Pandalus Borealis*, and Striped Shrimp, *Pandalus montagui*, in the Western and Eastern Assessment Zones, February 2018. DFO Can. Sci. Advis. Sec. Sci. Res. 2018/012. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2018/2018_012-eng.html

[121] DFO (2018). Stock Status Update of Striped Shrimp (*Pandalus montagui*) in SFA 4. DFO Can. Sci. Advis. Sec. Sci. Res. 2018/011. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2018/2018_011-eng.html

[122] DFO (2018). An Assessment of Northern Shrimp (*Pandalus borealis*) in Shrimp Fishing Areas 4–6 in 2017. DFO Can. Sci. Advis. Sec. Sci. Adv. Rep. 2018/018. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_018-eng.html

[123] DFO (2018). Terms of Reference: Northern and Striped Shrimp Assessment. Zonal Peer Review – Newfoundland and Labrador, and Central and Arctic Regions, February 12–14, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_12-15-eng.html

[124] DFO (2019). Assessment of Northern Shrimp, *Pandalus borealis*, and Striped Shrimp, *Pandalus montagui*, in the Eastern and Western Assessment Zones, February 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/011. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_011-eng.html

[125] Page 21 of the document states "The PA reference points in the EAZ should be viewed with caution and most likely need to be re-evaluated. Reference points were based on the former shrimp fishing areas (SFA2 and SFA3) which are different than the current assessment zones; thus, the biomass levels used to define the reference points may no longer be appropriate. In addition, the survey time series that were used to determine the reference points are much shorter than in other SFAs. For the EAZ, the time series included two years of data which is now not considered comparable with the rest of the series."

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			report indicated that work is underway to establish the PA framework within the next two years. Documentation for SFAs 4, 5, and 6[126] indicates that in 2018/2019 the reference points for northern shrimp in SFA 4 were modified to exclude the Hatton Basin Marine Refuge, which was removed from surveying beginning in 2018, but otherwise the assessment followed the previously established reference point framework first published in 2007. This document indicates that the lack of reference points for striped shrimp in SFA 4 is due to data limitations. The document highlights uncertainty in the appropriateness of the reference points[127] but also notes that there was no scientific basis on which to change them, as at the time there was no quantitative model of the resource. It further reiterates the conclusions from the January 2017 process held specifically to review SFA 6 reference points, where it was concluded that the currently used biomass reference points would remain unchanged because of the high level of uncertainties and that lowering them would involve a high amount of risk to the ecosystem and to the resource.[128] An updated IFMP was published in November 2018, and it included the previously developed LRP for northern shrimp in SFA 4, SFA 5, SFA 6, and the EAZ and striped shrimp in the EAZ. It also indicated reference points were in the process of being developed for striped shrimp in SFA 4 and both species in the WAZ, and it contained much discussion on the pending revision of the LRP for SFA 6.[129] In the work plan results for 2018/19 the department indicated this deliverable was met (commitment or action as defined in the description of deliverables is complete without a tangible deliverable) as of March 31, 2019.[130] This deliverable was included again in the 2019/20 work plan. In fiscal year 2019/20, a CSAS process was held in May 2019 with the key objectives for northern shrimp in SFAs 4–7 of reviewing the proposed population models and defining LRPs, consistent with the PA.[131] During the 2019 Oceana Canada evaluation, departmental officials indicated that while a new model was accepted, more work was required (N. Schjott, personal communication, June 25, 2019). An updated LRP was proposed by DFO Science (Newfoundland and Labrador Region), but it was deemed to be unacceptable for use during CSAS peer review (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador Region, personal communication, June 23, 2020). Consequently, reference points were not determined at the meeting, and their development was indicated to occur later (N. Schjott, personal communication, June 25, 2019). At the time of the 2020 evaluation there were still no publications available from this meeting (May 2019) to document this progress and decisions, and that remains the case during Oceana Canada's 2021 evaluation. A CSAS Science Response Process (SRP) was held in January 2020 to provide an update on northern and striped shrimp in the EAZ and WAZ and striped shrimp for SFA 4.[132] Reports from this process include the status of both species relative to previously developed LRPs for the EAZ but indicate reference points were still not available for striped shrimp in SFA 4 nor for either species in the WAZ. According to the reports, there are no plans to develop reference points for striped shrimp in SFA 4, but the establishment of reference points for both species in the WAZ is planned for 2020 and will be implemented in the 2021 stock assessment.[133,134] In February 2020 a CSAS process was held to assess northern shrimp in SFAs 4–6. Reference points are not mentioned in the terms of				

[126] DFO (2019). An Assessment of Northern Shrimp (*Pandalus borealis*) in Shrimp Fishing Areas 4–6 and of Striped Shrimp (*Pandalus montagui*) in Shrimp Fishing Area 4 in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/027. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_027-eng.html

[127] Page 19 of the document states: "There is uncertainty in the appropriateness of the reference points as it is unknown how the time periods selected to generate proxies (which differ by SFA) relate to the biomass of maximum sustainable yield (BMSY). However; there is no scientific basis on which to change the current reference points as there is no quantitative model of this resource; historical shrimp survey data will be incorporated into models wherever possible."

[128] DFO (2017). Review of Reference Points Used in the Precautionary Approach for Northern Shrimp (*Pandalus borealis*) in Shrimp Fishing Area 6. DFO Can. Sci. Advis. Sec. Sci. Resp. 2017/009. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2017/2017_009-eng.html

[129] DFO (2018). IFMP Northern Shrimp and Striped Shrimp – Shrimp Fishing Areas 0, 1, 4–7, the Eastern and Western Assessment Zones and North Atlantic Fisheries Organization (NAFO) Division 3M. Effective 2018. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/shrimp-crevette/shrimp-crevette-2018-002-eng.html

[130] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[131] DFO (2019). Terms of Reference: Development of a New Precautionary Approach Framework for Northern Shrimp in the Newfoundland and Labrador Region. Regional Peer Review – Newfoundland and Labrador Region, May 15–17, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/05_15-17-eng.html

[132] DFO (2020). Terms of Reference: Northern and Striped Shrimp Update for the Eastern and Western Assessment Zones, and Striped Shrimp Update for Shrimp Fishing Area (SFA) 4. Zonal Science Response Process – Newfoundland and Labrador, and Central and Arctic Regions, January 28, 2020, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/01_28-eng.html

[133] DFO (2020). Stock Status Update of Striped Shrimp (*Pandalus montagui*) in SFA4. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/016. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_016-eng.html

[134] DFO (2020). Update of Stock Status Indicators for Northern Shrimp, *Pandalus borealis*, and Striped Shrimp, *Pandalus montagui*, in the Western and Eastern Assessment Zones, January 2020. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/014. (Erratum: February 2020). http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_014-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			reference for the meeting,[135] and at the time of the 2020 Oceana Canada evaluation, reports were not yet available from this process. A Science Advisory Report from this meeting was published in April 2021, and reports on the status of northern shrimp in each of SFA 4–6 use the old reference points from the IFMP.[136] Results for the 2019/20 work plan evaluation indicate this deliverable was delayed; the deliverable was not completed by deadline date as indicated in the description of deliverables (2019/20).[137] Because DFO internally evaluated this deliverable as delayed pertaining to the 2019/20 deliverable description and considering this deliverable had appeared in all four fiscal year work plans, it was evaluated as delayed here in 2020. The 2020/21 fiscal year work plan indicated work would continue to develop an LRP for northern shrimp in SFAs 4–6. During Oceana Canada's 2020 evaluation, DFO indicated modelling work was still ongoing and work continued towards the development of an updated LRP (Fisheries and Aquaculture Management, and Science, National Capital and Newfoundland and Labrador regions, personal communication, June 23, 2020). In the 2020/21 fiscal year work plan there are also now two new deliverables included for LRP development: one for each of the species in the WAZ. These are now evaluated separately below. In fiscal year 2020/21 there was a CSAS process held in February (2021) to assess northern shrimp in SFAs 4–6, EAZ & WAZ and striped shrimp in SFA 4, EAZ & WAZ. There is one Science Advisory Report from this meeting available for Oceana Canada's 2021 evaluation, published in March 2021, but it pertains only to the EAZ and WAZ.[138] The expected Science Advisory Report pertaining to SFAs 4–6 is not yet available. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2021/22 work plan indicates DFO will continue development of LRP in this fiscal year. There is a stock assessment on the CSAS scheduled for SFAs 4–6 for winter 2022 and a science response process to provide a stock status update for striped shrimp in SFA 4 in winter 2022. The terms of references are not yet available for either process. The deliverable is included again in the 2021/22 work plan, indicating LRP development will continue. This is the fifth appearance of this deliverable in the annual fiscal year work plans. During Ocean Canada's 2021 evaluation DFO indicated precautionary approaches (and therefore limit reference points) are currently established and used in the management of the northern shrimp fisheries in SFAs 4 to 6 (Science, National Capital Region and Newfoundland and Labrador Region, personal communication, July 16, 2021). DFO continues research activities in an effort to revise these reference points to account for ecosystem dynamics, and when the research is complete, the proposed limit reference points will be peer reviewed within a formal CSAS process (Science, National Capital Region and Newfoundland and Labrador Region, personal communication, July 16, 2021). This deliverable remains evaluated as delayed due to the previously acknowledged delays and lack of completion.						
26	Arctic	Arctic char – Jayko Lake and Halovik River; Healthy†	✓2018/19		*Section 1A - Precautionary Approach Limit Reference Points (LRP) to be developed in fiscal year 2018-19*: Develop LRPs by March 31, 2019.				**Completed**
			Details: In fiscal 2016/17 (three years before this deliverable was created), work was undertaken to develop reference points. A CSAS process was held in January 2017, in part to determine reference points for Arctic char in Jayko and Halovik rivers.[139] During Oceana Canada's 2019 evaluation, it was indicated that the results from the CSAS process were available for use by Resource Management (DFO Science, personal communication, August 1, 2019) but were still not available online. In the work plan results for 2018/19 the department indicates						

[135] DFO (2020). Terms of Reference: Assessment of Northern Shrimp in Shrimp Fishing Areas (SFAs) 4, 5 and 6. Regional Peer Review – Newfoundland and Labrador Region, February 18–20, 2020, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_18-20-eng.html

[136] DFO (2021). An Assessment of Northern Shrimp (*Pandalus borealis*) in Shrimp Fishing Areas 4–6 in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/010. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_010-eng.html

[137] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[138] DFO (2021). Assessment of Northern Shrimp *(Pandalus borealis*) and Striped Shrimp *(Pandalus montagui*) in the Eastern and Western Assessment Zones, February 2021. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/014. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_014-eng.html

[139] DFO (2017). Terms of Reference: Estimated Abundance and Sustainable Harvest Levels for the Jayko and Halokvik (30 Mile) Rivers in the Cambridge Bay Commercial Fishery, 2010–2015. Regional Peer Review – Central and Arctic Region, January 24–26, 2017, Winnipeg, MB. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2017/01_24-26b-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			this deliverable is complete, with a tangible deliverable available.[140] However, documentation supporting this assertion was not found during Oceana Canada's evaluation in 2020. During Oceana Canada's 2020 evaluation, DFO indicated that LRPs were updated at the 2017 CSAS process and that a CSAS report is being prepared for publication, which was expected to occur in July 2020 (Fisheries and Aquaculture Management, and Science, Arctic Region, personal communication, June 23, 2020). In February 2021 two Research Documents and a Proceedings were finally published from the 2017 meeting.[141,142,143] One Research Document appears to recommend the provisional approach and LRP and upper stock reference (USR) points of 0.2 K and 0.4 K, respectively, where K is carrying capacity of the population productivity derived from a DB-SRA model. However, the expected Science Advisory Report (SAR) from the 2017 meeting remains unpublished, and the publicly available IFMP was last updated in 2014, making it unclear if these have been implemented. Here it is assumed the LRP has been implemented and is based on the information provided in the newly published Research Document. During Oceana Canada's 2021 evaluation, DFO confirmed that the LRP approach outlined in the Research Document has replaced the aggregate LRP for Arctic char in Jayko Lake and Halovik River (Science, National Capital Region and Arctic region, personal communication, July 16, 2021). The aggregate LRP was an area LRP that included all rivers, and there are now LRPs for two water bodies (Jayko Lake and Halovik River). DFO noted that delays to both Research Documents produced from the meeting led to the delay of the SAR itself as the SAR utilized information from both documents. DFO is actively working towards publication of the SAR, and once finalized, the CSAS report will be publicly available on the CSAS website (Science, National Capital Region and Arctic region, personal communication, July 16, 2021).					
27	Newfoundland and Labrador	Greenland halibut (turbot) – 2+3KLMNO; Uncertain	✓2018/19		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Ongoing evaluation and potential development of LRPs in 2018-19. Development of exceptional circumstances protocol (within NAFO) to monitor performance of recently adopted HCR.				**Delayed**
			Details: The recently published (2019) IFMP including this stock indicates it is assessed by the Northwest Atlantic Fisheries Organization (NAFO).[144] The annual report from the NAFO Scientific Council meeting for 2018 indicated precautionary approach reference points had not been determined for this stock at this time.[145] During Oceana Canada's 2019 evaluation,						

[140] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[141] Harris, L.N., Cahill, C.L., Jivan, T., Zhu, X. & Tallman, R.F. (2021). Updated Stock Status of Commercially Harvested Arctic Char (*Salvelinus alpinus*) from the Jayko and Halokvik Rivers, Nunavut: A Summary of Harvest, Catch-effort and Biological Information. DFO Can. Sci. Advis. Sec. Res. Doc. 2019/062. v + 97 p. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2019/2019_062-eng.html

[142] Zhu, X., Harris, L., Cahill, C. & Tallman, R.F. (2021). Assessing Population Dynamics of Arctic Char, *Salvelinus alpinus*, from the Halokvik and Jayko Rivers, Cambridge Bay, Nunavut, Canada. DFO Can. Sci. Advis. Sec. Res. Doc. 2021/016. iv + 34 p. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2021/2021_016-eng.html

[143] DFO (2021). Proceedings of the Regional Peer Review on the Estimated Abundance and Sustainable Harvest Levels for the Jayko and Halokvik (30 Mile) Rivers in the Cambridge Bay Commercial Fishery, 2010–2015; January 24–26, 2017. DFO Can. Sci. Advis. Sec. Proceed. Ser. 2020/029. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2020/2020_029-eng.html

[144] DFO (2019). IFMP Groundfish Newfoundland and Labrador Region NAFO Subarea 2 + Divisions 3KLMNO. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/2019/groundfish-poisson-fond-2_3klmno-eng.htm

[145] NAFO (2018). Northwest Atlantic Fisheries Organization Report of the Scientific Council Meeting 01-14 – June 2018, Halifax, Nova Scotia. Serial No. N6849. NAFO SCS Doc. 18-19. https://www.nafo.int/Portals/0/PDFs/sc/2018/scs18-19.pdf

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			departmental officials indicated that while technically it is correct that no reference points have been defined, this is largely a reporting issue, as the stock is managed using a harvest control rule (HCR; see entry for this stock in Table 4 below) that has been tested by management strategy evaluation (MSE). The testing performance statistics used in the MSE included reference points based on maximum sustainable yield (MSY; including 0.3 * B_{MSY} and 0.3 * $B_{0.1}$ as B_{LIM} proxies for two models; DFO Science, personal communication, June 28, 2019). The exceptional circumstance protocol to monitor performance of the HCR has been developed, adopted and documented.[146] The 2018 results of the DFO Sustainability Survey for Fisheries, the most recent during Oceana Canada's 2020 evaluation, indicated there are no precautionary approach components for this stock and that reference points are not yet defined outside of the MSE.[147] The 2019 annual report from the NAFO Scientific Council meeting indicated that precautionary approach reference points have not been determined for this stock but will be investigated during the update of the assessment model in 2020.[148] In the work plan results for 2018/19 the department indicated this deliverable is met; the commitment or action as defined in the description of deliverables (2018/19) is complete without a tangible deliverable available.[149] During Oceana Canada's 2020 evaluation DFO indicated that a NAFO B_{LIM} for this stock was intended to be discussed at the June 2020 NAFO Scientific Council meeting, as the Scientific Council planned to look at adopting official reference points from the MSE exercise (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador region, personal communication, June 23, 2020). Given that the stock is much higher than the B_{LIM} proxies used within the MSE, it was not a NAFO Scientific Council priority to decide on that specific point last year due to time constraints, but the intent was to do so at a future meeting (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador region, personal communication, June 23, 2020). Each year indices are compared to expected values following the path simulated under the HCR in the MSE. If stock size estimates fall below the expected path, then exceptional circumstances will be triggered, and this should happen well before the stock reaches the B_{LIM} proxy values used in the MSE (Science, National Capital Region, personal communication, June 23, 2020). However, given the stock still lacked official reference points — either domestic precautionary approach reference points or a NAFO B_{LIM}, the latter of which may come in 2020 — it remained evaluated as delayed here in 2020. The 2020 annual report from the NAFO Scientific Council meeting indicates that although reference points were developed using each model to test a series of performance metrics as part of MSE process of 2017, neither have been accepted for use as B_{LIM}. Reference points that follow definitions under NAFOs Precautionary Approach Framework would require further research and review that was recommended be investigated during the next full assessment and MSE review process planned for 2023.[150]					
28	Newfoundland and Labrador	Capelin – 23KLPs; Uncertain	✓2018/19 ✓2019/20 ✓2020/21 ✓2021/22		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Ongoing evaluation and potential development of LRPs in 2018-19.	*Section 1B - Work scheduled in fiscal year 2019-20 to update or revise Limit Reference Points (LRP):* Will continue revision of LRP in 2019-20.	In progress: Will continue development of LRP in 2020-21.	Will continue development of LRP in 2021-22.	**Ongoing**

[146] NAFO (2018). Northwest Atlantic Fisheries Organization Serial No. N6888 NAFO/COM-SC Doc. 18-05. https://www.nafo.int/Portals/0/PDFs/COM-SC/2018/com-scdoc18-05.pdf

[147] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[148] NAFO (2019). Northwest Atlantic Fisheries Organization Report of the Scientific Council Meeting, 31 May–13 June 2019, Halifax, Nova Scotia. Serial No. N6966. NAFO SCS Doc. 19/20. https://www.nafo.int/Portals/0/PDFs/sc/2019/scs19-20.pdf

[149] DFO (2019). Work Plans for Fiscal 2018-19: Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[150] NAFO (2020). NAFO SCS Doc. 20/14. Serial No. N7099. Northwest Atlantic Fisheries Organization. Report of the Scientific Council Meeting, 28 May–12 June 2020, by correspondence. https://www.nafo.int/Portals/0/PDFs/sc/2020/scs20-14REV.pdf

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			Details: A CSAS process was held in March 2018 to assess capelin in 2+3K, but reference point development was not part of the terms of reference,[151] and therefore an LRP was not identified from the process.[152] Another assessment was conducted in March 2019, but again reference points were not part of the terms of reference[153] and therefore were not included in the resultant report.[154] The recently published (2019) IFMP does not mention any reference points in place for this stock or any plans to develop them.[155] In the work plan results for 2018/19 the department indicated this deliverable is met; the commitment or action as defined in the description of deliverables (2018/19) is complete without a tangible deliverable available.[156] Yet, as indicated in the 2019/20 work plan, work towards LRP revision (or development, since there currently is no LRP) was expected to continue. In March 2020, a CSAS process was held to assess the stock, but again reference points were not part of the terms of reference[157] and are therefore not expected in the reports, which were not yet available at the time of Oceana Canada's evaluation in 2020 and are still not yet available. The work plan results for the 2019/20 work plan indicate the deliverable was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[158] As indicated in the 2020/21 work plan, work towards LRP development is expected to continue in this fiscal year. During the evaluation in 2020, DFO confirmed that work continues towards developing an LRP for capelin but says the timeline is not firm. However, it expected development of an LRP within four years (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador Region, personal communication, June 23, 2020). New mid-water trawl surveys are planned to leverage the acoustic data to obtain an "absolute" biomass estimate of capelin in 2J3KL, which will help support the development of the LRP (Science, National Capital Region, personal communication, June 23, 2020). In March 2021, a CSAS process was held to assess the stock, but again reference points were not part of the terms of reference[159] and are therefore not expected in the reports, which are not yet available. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The deliverable is included again in the 2021/22 work plan. This is the fourth consecutive year this deliverable has been included, however deliverable language has never implied it would be completed and progress has not been noted as delayed by DFO. Therefore, it is evaluated as ongoing here, despite limited evidence publicly available indicating progress is being made towards an LRP for this stock. During Oceana Canada's 2021 evaluation DFO indicated new researchers have been hired in early 2021 and are working on the analysis of acoustic data and development of a model to derive an LRP (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021).					
29	Quebec	Snow crab – coastal (12A, 12B, 12C, 13, 14, 15, 16, 16A, 17); Uncertain	✓2018/19 ✓2019/20 ✓2020/21 ✓2021/22		*Section 1B - Other work scheduled in fiscal year 2018-19 to update and revise or begin to develop Limit Reference Points (LRP):* Preliminary work on the development of reference points will be	*Section 1A - Precautionary Approach Limit Reference Points (LRP) to be developed in fiscal year 2019-20*: Will complete the development of LRP in 2019-20.	In progress: Will continue development of LRP in 2020-21.	Will complete development of LRP in 2021-22.	**Delayed**

[151] DFO (2018). Terms of Reference: Status of Subarea 2 and Divisions 3KL Capelin. Regional Peer Review – Newfoundland and Labrador Region, March 7–8, 2018, St. John 's NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/03_07-08-eng.html

[152] DFO (2018). Assessment of Capelin in SA2 and Divs. 3KL in 2017. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/030. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_030-eng.html

[153] DFO (2019). Terms of Reference: Assessment of Divisions 2J+3KL Capelin. Regional Peer Review – Newfoundland and Labrador Region, March 19–21, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/03_19-21-eng.html

[154] DFO (2019). Assessment of 2J3KL Capelin in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/048. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_048-eng.html

[155] DFO (2019). Capelin Newfoundland & Labrador Region 2+3 (Capelin Fishing Areas 1–11). http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/capelin-area1-11-zone-capelan/capelin-capelan-2018-eng.html

[156] DFO (2019). Work Plans for Fiscal 2018–19: Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[157] DFO (2020). Terms of Reference: Assessment of Divisions 2J+3KL Capelin. Regional Peer Review – Newfoundland and Labrador Region, March 11–13, 2020, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/03_11-13-eng.html

[158] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[159] DFO (2021). Terms of Reference: Assessment of Divisions 2J+3KL Capelin. Regional Advisory Meeting – Newfoundland and Labrador Region, March 9–12, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/03_09-12-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
					re-examined and a new analysis of the dynamics of abundance cycles will be performed on units where biological information is more complete (i.e., Area 17). The analysis will be used to define the indicators used to determine reference points. The reference points will be determined in 2019-20.				
			Details: A CSAS process was held in February 2018 to assess snow crab in the estuary and northern Gulf of St. Lawrence, but reference point development was not part of the terms of reference,[160] nor, as expected, do LRPs appear in the resultant reports from the process.[161] Another assessment was conducted in February 2019, but again reference points were not part of the terms of reference[162] and therefore are not in the resultant report.[163] In the work plan results for 2018/19 the department indicated this deliverable was delayed; the deliverable was not completed by deadline date as indicated in the description of deliverables (2018/19).[164] As indicated in the 2019/20 work plan, work towards LRP revision was expected to be ongoing, and during Oceana Canada's 2019 evaluation, departmental officials indicated a coordination meeting was anticipated in August 2019 to facilitate LRP development (N. Schjott, personal communication, June 25, 2019). The 2018 results of the DFO Sustainability Survey for Fisheries, the most recent available for Oceana Canada's 2020 evaluation, indicated the precautionary approach components for this were currently under development, with an implementation target of 2020/2021.[165] The stock was assessed in February 2020, but again reference point development was not part of the terms of reference[166] and therefore again were not in the resultant report.[167] The 2019/20 work plan results indicate this deliverable was				

[160] DFO (2018). Terms of Reference: Assessment of the Estuary and Northern Gulf of St. Lawrence Snow Crab Stocks. Regional Peer Review – Quebec Region, February 13–14, 2018, Mont-Joli, Québec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/02_13-14-eng.html

[161] DFO (2018). Assessment of the Estuary and Northern Gulf of St. Lawrence (Areas 13 to 17, 12A, 12B, 12C and 16A) Snow Crab Stocks in 2017. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/047. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_047-eng.html

[162] DFO (2019). Terms of Reference: Assessment of the Estuary and Northern Gulf of St. Lawrence Snow Crab Stocks. Regional Peer Review – Quebec Region, February 12–13, 2019, Mont-Joli, Québec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_12-13-eng.html

[163] DFO (2019). Assessment of the Estuary and Northern Gulf of St. Lawrence (Areas 13 to 17, 12A, 12B, 12C and 16A) Snow Crab Stocks in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/047. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_047-eng.html

[164] DFO (2019). Work Plans for Fiscal 2018–19: Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[165] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[166] DFO (2020). Terms of Reference: Assessment of the Estuary and Northern Gulf of St. Lawrence Snow Crab Stocks. Regional Peer Review – Quebec Region, February 11–2, 2020, Mont-Joli, Québec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_11-12-eng.html

[167] DFO (2020). Assessment of the Estuary and Northern Gulf of St. Lawrence (Areas 13 to 17, 12A, 12B, 12C and 16A) Snow Crab Stocks in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/050. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_050-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[168] The 2020/21 fiscal year work plan indicated work will continue towards LRP development. During Oceana Canada's 2020 evaluation DFO confirmed that work had indeed begun on the science side and would continue, depending on available resources (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). However, considering this deliverable was indicated for completion in 2019/20 and assessed as delayed by DFO in the 2018/19 and 2019/20 work plan evaluations, it remained evaluated as delayed here in 2020. In 2020/21 there was one CSAS process pertaining to this stock, and the terms of reference include a request for "a summary table of main indicators for the precautionary approach",[169] but the resultant report is not yet available to indicate if these include LRPs. The most recently available results (2019) of the Sustainability Survey for Fisheries indicate the precautionary approach is under development for stocks in this stock group with an implementation target for 2020-2021, depending on resources.[170] The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2021/22 work plan indicates DFO will complete development of an LRP in 2021/22, presumably implying resources will be dedicated to ensuring it is completed. There is a CSAS process scheduled for 2022 to assess the stock group, but the terms of reference are not yet posted. During Oceana Canada's 2021 evaluation DFO indicated a biologist was hired to make progress on LRP development (Science, National Capital Region and Quebec region, personal communication, July 16, 2021). Due to several delays since this deliverable was included in the work plan, it remains evaluated as delayed in 2021.						
30	Quebec	Atlantic halibut – 4RST; Uncertain	✓2019/20 ✓2020/21 ✓2021/22			*Section 1A - Precautionary Approach Limit Reference Points (LRP) to be developed in fiscal year 2019-20*: Will complete the development of LRP in 2019-20.	In progress: Will continue development of LRP in 2020-21.	Will continue development of LRP in 2021-22.	**Delayed**
			Details: According to the CSAS schedule website, in fiscal year 2019/20 there were no CSAS processes pertaining to this stock. The stock was last assessed in February 2019, at which time the terms of reference indicate an LRP was to be developed.[171] Reference points were not developed at the meeting, but the intention to develop them over the "medium term" was mentioned in the resultant Science Advisory Report.[172] The proceedings from the meeting indicate participants agreed that existing research indices (DFO bottom trawl RV surveys and sentinel survey) are useful and have potential in determining reference points for the precautionary approach.[173] It also identified reference points and the precautionary approach as areas where effort will be invested. According to the advisory report, the stock will next be assessed in 2021 and there was no intention to assess it in the intervening year (2020). The stock does not currently have an analytical assessment model and instead is assessed using trends in survey indices (two DFO bottom trawl RV surveys and sentinel survey). A longline survey and tagging program for the entire Gulf of St. Lawrence was initiated as a collaboration between DFO and industry in 2017 and should provide a more complete survey dataset (i.e., more appropriate for use as an index of abundance than the bottom trawl survey for this species) to use in development of an analytical model. It is unclear if this is the reason reference points were not developed previously and deferred to the "medium" term. The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline						

[168] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[169] DFO (2021). Terms of Reference: Assessment of the Estuary and northern Gulf of St. Lawrence Snow Crab stocks. Regional Advisory Meeting – Quebec Region, February 16-18, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/02_16-18b-eng.html

[170] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[171] DFO (2019). Terms of Reference: Assessment of the Gulf of St. Lawrence (4RST) Atlantic Halibut. Regional Peer Review – Quebec Region, February 18–19, 2019, Mont-Joli, Quebec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_18-19-eng.html

[172] DFO (2019). Stock Assessment of Gulf of St. Lawrence (4RST) Atlantic Halibut in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/038. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_038-eng.html

[173] DFO (2019). Proceedings of the Regional Peer Review of the Stock Assessment of Gulf of St. Lawrence (4RST) Atlantic Halibut. Can. Sci. Advis. Sec. Proc. Ser. 2019/013. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2019/2019_013-eng.html

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			date as indicated in the description of deliverables (2019/20).[174] The 2020/21 fiscal year work plan indicated work would continue towards LRP development. During Oceana Canada's 2020 evaluation DFO confirmed that work has begun on the science side and would continue in 2020/21. A proposal for an LRP was expected to be presented at the next stock assessment in the winter of 2021 using the available mobile survey data (Fisheries and Aquaculture Management, and Science, Quebec and National Capital regions, personal communication, June 23, 2020). However, considering the deliverable was indicated for completion in 2019/20, it was evaluated as delayed here in 2020. In March 2021 there was a CSAS meeting to assess the stock, and the terms of reference indicate intentions to identify a LRP and to report on stock status relative to the LRP.[175] However, the reports from this meeting are not yet available. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2021/22 work plan indicates LRP development will continue this year. During Oceana Canada's 2021 evaluation, in response to questions about HCR development, DFO indicated it will continue work on the development of the LRP and the USR in 2021/22 before beginning work on HCR development (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). This deliverable remains evaluated as delayed due to the previously acknowledged delays and lack of completion.						
31	Arctic	Greenland halibut – Cumberland Sound; Uncertain	✓2019/20			*Section 1A - Precautionary Approach Limit Reference Points (LRP) to be developed in fiscal year 2019-20*: Will complete the development of LRP in 2019-20.			**Delayed**
			Details: During Oceana Canada's 2020 evaluation the most recent (2018) results of the DFO Sustainability Survey for Fisheries indicated that the Greenland halibut stock in the Cumberland Sound Turbot Management Area (CSTMA) is considered to be recruited from the Davis Strait stock and that adults appear resident in the management area and thus isolated from the spawning stock of origin.[176] It has been hypothesized that little to no spawning occurs in the management area. There is currently no assessment for the Greenland halibut stock in the CSTMA, but the survey respondent indicated a stock assessment was planned for fall 2019. The CSAS schedule website indicates a CSAS process was held in November 2019, but reference points were not mentioned in the terms of reference for the meeting.[177] There are no reports published yet from this process. The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[178] During Oceana Canada's 2020 evaluation DFO confirmed that stock status was determined at the November 2019 CSAS process and that the results will be available when the Science Advisory Report is published (Fisheries and Aquaculture Management, and Science, Arctic Region, personal communication, June 23, 2020). The report remains unpublished at the time of this (2021) evaluation. There were no CSAS processes in 2020/21 pertaining to this stock, and none currently on the schedule for 2021 or 2022. The most recently available (2019) results of the DFO Sustainability Survey for Fisheries indicate no LRP for the stock but does confirm that a CSAS meeting was held in November 2019 to identify sustainable harvest level, stock status, and stock connectivity for Cumberland Sound Greenland halibut and that a Science Advisory Report, Proceedings and Research Document are being completed following the meeting.[179] During Oceana Canada's						

[174] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[175] DFO (2021). Terms of Reference: Assessment of the Gulf of St. Lawrence (4RST) Atlantic halibut. Regional Advisory Meeting – Quebec Region, March 16–17, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/03_16-17-eng.html

[176] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[177] DFO (2019). Terms of Reference: Stock Assessment of the Cumberland Sound Greenland Halibut (*Reinhardtius hippoglossoides*) in 2019. Regional Peer Review – Central and Arctic Region, November 25–27, 2019, Pangnirtung, NU. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/11_25-27-eng.html

[178] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[179] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

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			2021 evaluation DFO indicates the documents from the November 2019 CSAS regional peer review meeting for Cumberland Sound Greenland halibut are still being completed and there was no estimated time for when they may be available (Science, National Capital Region and Arctic region, personal communication, July 16, 2021). DFO indicated that once finalized, the CSAS report will be publicly available on the CSAS website. DFO noted that these documents will not include LRPs, but will discuss stock status/trends, sustainability of various harvest levels, and stock connectivity with the offshore (Science, National Capital Region and Arctic region, personal communication, July 16, 2021).						
32	Pacific	Albacore tuna – north Pacific; Healthy	✓2019/20 ✓2020/21			*Section 1B - Work scheduled in fiscal year 2019-20 to update or revise Limit Reference Points (LRP):* Will begin update of LRP in 2019-20.	In progress: Canada will continue update of LRP with Regional fisheries management organisations (RFMOs).		**Delayed**
			Details: During Oceana Canada's 2020 evaluation the most recent (2018) results of the DFO Sustainability Survey for Fisheries indicated the LRP is the only precautionary approach component established.[180] DFO coordinates management of this stock with the USA under the Pacific Albacore Tuna Treaty and with multiple other nations under the Inter-American Tropical Tuna Commission and the Western and Central Pacific Fisheries Commission. The survey results indicated that the LRP is defined as 20%$SSB_{CURRENT}$ at F=0 (20% of dynamic female spawning biomass at the unfished state) and that for 2015, the most recent year of data used in the 2017 stock assessment, the LRP was 32,614t. The most recent IFMP (2019/20) indicates the stock is assessed approximately every three years by the Albacore Working Group (ALBWG), part of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC).[181] The IFMP outlines several uncertainties that are affecting the ability of the ALBWG to assess the utility of biological reference points for North Pacific albacore and outlines several research priorities to address the uncertainties. It also indicates that the ALBWG is working to advance a Management Strategy Evaluation (MSE) for North Pacific Albacore tuna that will evaluate possible target reference points and alternative harvest control rules, and it supports the application of the precautionary approach at the international level. According to the IFMP, management objectives have been established and a suite of candidate reference points have been proposed through three Albacore Tuna MSE workshops involving managers, scientists, and stakeholders. The working group has been working on evaluation of performances of these proposed biological reference points and harvest control rules through the MSE processes. The working group met from February 26 to March 4, 2019, where a working paper with the results of the first round of modelling was presented and the working paper included limit and threshold biomass reference points.[182,183] The 2019/20 work plan results indicate this deliverable was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[184] A stock assessment was conducted in April 2020 by webinar by the ALBWG. The results of the stock assessment were to be finalized by the ISC at their annual meeting in July 2020, and in winter 2021 the second round of MSE modelling was scheduled to be reviewed at the 5th Albacore MSE workshop (Fisheries and Aquaculture Management, and Science, Pacific and National Capital regions, personal communication, June 23, 2020). The 2020/21 fiscal year work plan indicated Canada would continue the update of the LRP with regional fisheries management organisations. During Oceana Canada's evaluation in 2020 DFO indicated this will be accomplished through the continuation of the MSE process (Science, National Capital Region, personal communication, June 23, 2020). The report by the ALBWG from the July 2020 meeting indicates that for the 2020 stock assessment the reference points that would be estimated and presented in the assessment would be the same as in the 2017 assessment using the						

[180] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[181] DFO (2020). Pacific Region Integrated Fisheries Management Plan, April 1, 2019–March 31, 2020, Albacore Tuna. https://waves-vagues.dfo-mpo.gc.ca/Library/4077790x.pdf

[182] Tommasi, D. & Teo, S. (2020). Summary of Results for the North Pacific Albacore Tuna (*Thunnus alalunga*) Management Strategy Evaluation. http://isc.fra.go.jp/pdf/ALB/ISC19_ALB_1/ISC19-ALBWG-01_01.pdf

[183] ISC (2019). ISC/19/ANNEX/06. Annex 6. 19th Meeting of the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean, Taipei, Taiwan, July 11–15, 2019. Report of the ALBWG Working Group Workshop, July 2019. http://isc.fra.go.jp/pdf/ISC19/ISC19_ANNEX06_Report_of_the_ALBACORE_Working_Group_Workshop_February2019.pdf

[184] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

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			spawner per recruit (SPR) approach.[185] However, this work is separate from the MSE. The report also provided an update on the second round of MSE modelling but did not indicate any updates to reference points considered. The report indicated the working group was considering a webinar in August 2020 to review the ongoing work on the MSE and expected a complete report in December 2020. It further recommended the 5th MSE workshop be held in person rather than by webinar and that it should be in February or March 2021, contingent on resolution of current travel issues. Another webinar was held in September 2020, but no materials other than the agenda are available.[186] According to the ISC meeting schedule, no other ALBWG meeting occurred in 2020, but there was an MSE workshop scheduled for May 2021 and an ABLWG webinar on July 8, 2021.[187] The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. It appears that this work is ongoing, however, given it is not repeated in the 2021/22 work plan (implying completion), so it is evaluated as delayed here in 2021. During Oceana Canada's 2021 evaluation DFO indicated that in March 2021 the second round of MSE modelling was completed and reviewed at the 5th Albacore MSE workshop, which was held virtually (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). The final MSE report will be reviewed and adopted at the upcoming International Scientific Committee for Tuna and Tuna-like Species in the North Pacific (ISC) meeting in July 2021 (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). Once the report is adopted by the ISC, discussions will occur at upcoming Western and Central Pacific Fisheries Commission and Inter-American Tropical Tuna Commission meetings to decide on what management strategy, HCR, LRP, and USR to adopt for this stock (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). DFO noted that this deliverable is no longer included in the SFF work plan because this stock is managed under a regional fisheries management organization (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). Considering this stock is still in the HCR section of the 2021/22 work plan, this latter statement implies some confusion internally within DFO about the work plans.						
33	Pacific	Giant red sea cucumber – Pacific; Healthy	✓2019/20 ✓2020/21 ✓2021/22			*Section 1B - Work scheduled in fiscal year 2019-20 to update or revise Limit Reference Points (LRP):* Will begin update of LRP in 2019-20.	In progress: Will continue to update LRP in 2020-21.	Carry forward from 2020-21. Will complete review of LRP in 2021-22.	**Delayed**
			Details: According to the CSAS schedule website, there were no CSAS processes held in 2019 or 2020 pertaining to giant red sea cucumber in the Pacific. During this evaluation in 2020 the most recent (2018) results of the DFO Sustainability Survey for Fisheries indicated the stock has an LRP.[188] It indicates there is an LRP for several Pacific Fishery Management Area Subareas (50% of virgin biomass estimates) corresponding to the 67 Sea Cucumber Quota Management Areas (QMAs) in BC. However, a coastwide estimate of virgin biomass cannot be provided because assessment information is not available for every part of the coast, so the overall stock status has not been evaluated. According to the survey respondent, how close each subarea is to its LRP is checked each time a QMA is assessed via dive survey. The LRP approach currently in use was developed during a CSAS meeting held in 2010,[189] therefore it is not an updated LRP. The most recent IFMP (2019/20) indicated this same LRP approach is in place and does not indicate any plan for modification.[190] It indicated reference points are of limited use in the current assessment framework because harvest areas must be monitored on a regular basis to see whether changes are occurring and the time, money and effort required to						

[185] ISC (2020). ISC/20/ANNEX/09 ANNEX 09 20th Meeting of the International Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean. Held virtually July 15–20, 2020. Report of the ALBWG Working Group Workshop, July 2020. http://isc.fra.go.jp/pdf/ISC20/ISC20_ANNEX09_Report_of_the_ALBACORE_Working_Group_Workshop_April2020.pdf

[186] ISC (2020). Albacore Working Group Workshop – MSE Updates. http://isc.fra.go.jp/reports/alb_mse_workshop_2020_1.html

[187] ISC (2021). ISC Schedule of Future Meetings for 2021. http://isc.fra.go.jp/meetings/future_meetings.html

[188] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[189] DFO (2011). Assessment Framework and Management Advice for the British Columbia Giant Red Sea Cucumber (*Parastichopus californicus*) Fishery. DFO Cdn. Sci. Advis. Sec. Sci. Advis. Rep. 2010/080. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2010/2010_080-eng.html

[190] DFO (2019). Pacific Region Integrated Fisheries Management Plan: Sea Cucumber by Dive, October 1, 2019 to September 30, 2020. https://waves-vagues.dfo-mpo.gc.ca/Library/40815870.pdf

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			survey all areas multiple times would be prohibitive. However, earlier in the document it does indicate surveys of selected subareas are conducted annually to obtain estimates of the density, albeit even if no estimates beyond 2014 have been published.[191] The 2019/20 IFMP did indicate that science work is ongoing. DFO Science is analyzing the entire time series of data from the Experimental Fishing Areas (1997 to 2015; program halted in 2017) and the IFMP indicated that results will be published in a CSAS Research Document in late 2019. It is unclear what CSAS process would have led to this publication, as according to the schedule website the last CSAS process involving sea cucumbers was in 2010.[192] The IFMP also indicates that DFO Science is now moving towards a new, multispecies approach for providing science advice. It indicates DFO Science is developing a multispecies benthic invertebrate survey protocol and will promote an ecosystem approach to stock assessment and gain efficiencies by combining single species survey protocols for the commercial dive fisheries. It is also intended to allow assessment of stock status relative to the three health status zones in the precautionary approach framework. The IFMP noted a CSAS research document with peer reviewed recommendations on this approach is expected to be delivered by fall 2020. The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[193] The 2020/21 work plan also indicated work would continue to update the LRP that fiscal year. During Oceana Canada's 2020 evaluation, DFO confirmed that reference points are of limited use within the current assessment framework because of the lack of a long-term monitoring program but that DFO Science is currently developing a long-term monitoring program (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). DFO Science's work on updating the LRP was temporarily delayed but DFO indicated it would resume in 2020/21. Once work is complete, DFO Science will recommended an LRP in a CSAS Research Document that will be vetted through the Regional Peer Review Process. During Oceana Canada's 2020 evaluation, DFO Science was now targeting next fiscal year (2021/22) for the multispecies benthic survey protocol CSAS review, but plans remained uncertain due to COVID-19 (Science, National Capital Region, personal communication, June 23, 2020). There were no CSAS processes held in 2020/21 pertaining to this stock group. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2021/22 work plan indicates DFO will complete the review of the LRP in 2021/22 and that it was a carry forward from 2020-21, here implying progress was not made as anticipated. The schedule has a CSAS process in fall of 2021 to review the sea cucumber experimental fishing area data (1998-2015). It also includes a CSAS process in January 2022 to provide science advice on the optimal design of the Multispecies Benthic Marine Invertebrates and Habitat Dive Survey Program. The terms of reference for both meetings are yet to be posted. The 2020/21 IFMP indicates DFO Science is currently working on a scientific paper that will look at the full time series of data from the Experimental Harvest Area research that occurred from 1998 to 2015. This paper is expected to provide advice on a range of harvest rates, update the current LRP and recommend an Upper Stock Reference (USR) for the commercial fishery, thereby aligning this fishery with the DFO Precautionary Approach Framework and the legislated requirements of Bill C-68.[194]					
34	Gulf	Rock crab – 23, 24, 25, 26A; Uncertain	✓2019/20 ✓2020/21 ✓2021/22			*Section 1C - Work scheduled in fiscal year 2019-20 to make progress in developing Limit Reference Points (LRP). For these stocks LRP's are not necessarily expected to be finalized*	In progress: Will continue development of LRP in 2020-21.	Will continue development of LRP in 2021-22.	**Delayed**

[191] Duprey, N.M.T. & Stanton, L.M. (2018). Biomass Estimates for Sea Cucumbers (*Parastichopus californicus*, *Cucumaria miniata, C. pallida*) as Determined Through Surveys Conducted June 2013 to May 2014. Canadian Manuscript Report of Fisheries and Aquatic Sciences 3112. https://waves-vagues.dfo-mpo.gc.ca/Library/40657437.pdf

[192] DFO (2010). Terms of Reference: Update to the Assessment Framework for the Pink and Spiny Scallop (*Chlamys rubida, C. hastata*) Dive Fishery in Waters off the West Coast of Canada. Assessing Potential Habitat Impacts of Small-scale, Intertidal Geoduck Clam (*Panopea generosa*) Aquaculture. Assessment Update of Sea Cucumber (*Parastichopus californicus*) in British Columbia. Assessment Update of Manila Clam in the Central Coast of British Columbia and Evaluation of the Area 7 Manila Clam Fisheries Management Strategy. Assessment of Inshore Shrimp Stocks along the Coast of British Columbia. Pacific Regional Advisory Process — November 30–December 2, 2010, Nanaimo, British Columbia. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2010/11/11_30-02-eng.html

[193] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[194] DFO (2020). Pacific Region Integrated Fisheries Management Plan: Sea Cucumber by Dive, October 1, 2020 to September 30, 2021. https://waves-vagues.dfo-mpo.gc.ca/Library/40892657.pdf

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
						in 2019-2020: Will begin to develop LRP in 2019-20.			
			Details: During Oceana Canada's 2020 evaluation, the most recent (2018) results of the DFO Sustainability Survey for Fisheries indicated this stock did not have an LRP.[195] Comments by the survey respondent pertaining to details of the uncertain stock status indicated data challenges for assessment, and likely LRP development, stating there are no data to calculate biomass estimates or to use as indicators of population abundance. Scientists rely on data collected from the directed fishery, which are highly dependent on fishing effort, which is in turn affected by various socio-economic factors and, therefore, fishery data is considered to poorly represent the stock status. The respondent further noted that it was believed that important quantities of rock crab are removed from the population via the bait and bycatch fisheries by lobster licence holders but that the accuracy and quality of the data collected through the mandatory logbooks is questionable. The stock was last fully assessed in 2013, but in November 2018 a CSAS Science Response Process was held to update indicators. The terms of reference for the meeting indicated the stock does not have reference points and did not indicate intentions to develop any.[196] The resultant report does not mention reference points.[197] According to the CSAS schedule, there were no processes pertaining to this stock in 2019 and 2020. Given these statements in the 2018 SSF results, it is unclear if there are any intentions to develop an LRP or proxy for this stock, but given the deliverable only indicates beginning development of an LRP, it was assumed here during the 2020 evaluation that work was ongoing behind the scenes. The 2020/21 work plan also indicated work would continue to develop an LRP. The 2019/20 work plan results indicate this deliverable was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[198] There currently is insufficient data to determine an LRP for the rock crab. During Oceana Canada's 2020 evaluation, DFO indicated a new fishery-independent monitoring project that aims to monitor the abundance of rock crab in the Southern Gulf of St. Lawrence was currently being developed and should be initiated in 2021. This project should provide baseline data to complete a rock crab stock assessment and to propose reference points in 2022, at the earliest (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). There were no CSAS processes held in fiscal 2020/21 pertaining to this stock, and none currently on the schedule for the rest of 2021 or 2022. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The stock is included in the 2021/22 work plan for continued LRP development.						
35	Newfoundland and and Labrador	Capelin – 4RST; Uncertain	✓2020/21 ✓2021/22				To be initiated: Will begin development of LRP in 2020-21.	Will continue development of LRP in 2021-22.	**Ongoing**
			Details: According to the most recent (2019) results of the DFO Sustainability Survey for Fisheries there is currently no LRP for this stock.[199] According to the survey respondent new morphological and genetic evidence show that capelin are at least three species, all found in Atlantic Canada, with an undetermined number of sub populations and the structure of the populations in the Gulf of Saint Lawrence unknown. It is possible this may present challenges to LRP development. The IFMP (effective 2017) indicates there is no fishery independent directed abundance survey for capelin in area, but one was planned for the spring of 2018 following the most recent stock assessment in February 2018.[200] The IFMP indicates that consequently, it is not possible to calculate abundance, fishing mortality, and limit reference points which could help to establish a precautionary approach framework for the fishery. This stock was included in the 2020/21 work plan indicating development of the LRP would begin. There was a CSAS process pertaining to this stock in in March 2021, and the terms of						

[195] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[196] DFO (2018). Terms of Reference: Update of the Indicators of the Rock Crab (*Cancer irroratus*) Fishery of the Southern Gulf of St. Lawrence. Regional Science Response Process – Gulf Region. November 23, 2018, Moncton, New Brunswick. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/11_23-eng.html

[197] DFO (2019). Update to 2017 of the Fishery Indicators for Rock Crab (*Cancer irroratus*) in the Southern Gulf of St. Lawrence. DFO Can. Sci. Advis. Sec. Sci. Resp. 2019/007. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2019/2019_007-eng.html

[198] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[199] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[200] DFO (2018). Integrated Fisheries Management Plan: Capelin Northwest Atlantic Fisheries Organization Divisions 4RST (Capelin Fishing Areas 12-16), Effective 2017. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/capelin-capelan/index-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			reference do not indicate LRP development as a meeting objective.[201] However, they do indicate intentions to provide a qualitative analysis of capelin stock status indicators in relation to environmental conditions, trophic interactions, and commercial fishing. The reports expected from this meeting are not yet available. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The stock was included again in the 2021/22 work plan to continue LRP development. The CSAS schedule includes a planned stock assessment for winter 2022, but the terms of reference for this meeting are not yet available. During Oceana Canada's 2021 evaluation, DFO indicated there was no directed abundance survey for this stock in 2018 (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). DFO noted that work done so far includes the start of a standardized index of relative abundance from the two bottom trawl surveys (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). Planned work for this fiscal includes refining these abundance indices, analyzing the consumption of capelin by two of its main predators (cod and turbot) for use as an index, as well as considering how capelin productivity is related to environmental variables within the Ecosystem Approach to Fisheries Management framework (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). DFO noted the March 2021 assessment was not intended to establish an LRP, and that more data that are being collected are needed first (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). Population dynamics models may be explored after the next stock assessment, but the development of an LRP is not expected for the next stock assessment (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021).						
36	Newfoundland and Labrador	Herring – 2J3KLPs; Uncertain	✓2020/21 ✓2021/22				To be initiated: Will begin development of LRP in 2020-21.	Will continue development of LRP in 2021-22.	**Ongoing**
			Details: According to the most recent (2019) results of the DFO Sustainability Survey for Fisheries there are five stock complexes/management units within this stock group, none of which have LRPs, nor is there an aggregate LRP for the entire stock group.[202] The survey respondent indicates that for these stock components, stock status is reported using a system of red, yellow and green lights to categorize indicators as negative, positive or uncertain and are based on the spring research gillnet program, which produces a standardized, industry-independent index of abundance. Stock status is only reported for stock complexes which have a gillnet program (3 of 5 in the 2019 assessment). The respondent then reiterates there are no LRP for these stocks to determine healthy, cautious or critical zones at this time. The IFMP confirms there is no LRP (B_{LIM}) for 2+3 herring and includes further details on the above approach evaluating status for components.[203] This stock was included in the 2020/21 work plan to begin LRP development. In January 2021 there was a CSAS Science Response Process held, but the terms of reference for this meeting do not include mention of an LRP,[204] and the resultant report expected from this meeting is not yet available. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The stock was included in the 2021/22 fiscal year work plan for continued LRP development. During Oceana Canada's 2021 evaluation, DFO indicated four acoustic surveys have been completed (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). The data from these surveys will be used to derive a stock assessment model and LRP (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). The activity for 2021/22 is to collect more data through an additional winter and fall survey (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). The four stock complex areas will be surveyed at least once so that progress can be made in the analyses (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). The approach for LRP development for five areas, whether individual, the entire stock complex, or some combination, has yet to be determined (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021).						
37	Maritimes	Sea cucumber (SWNB, midshore,	✓2020/21				To be initiated: Will begin development of		**Completed**

[201] DFO (2021). Terms of Reference: Assessment of Capelin in the Estuary and Gulf of St. Lawrence (NAFO 4RST) in 2020. Regional Advisory Meeting – Québec Region, March 18–19, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/03_18-19-eng.html

[202] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[203] DFO (2019). Integrated Fisheries Management Plan: Herring – Newfoundland and Labrador Region 2+3 (Herring Fishing Areas 1–11). https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/herring-hareng/2019/areas-1-11-zones-eng.html

[204] DFO (2021). Terms of Reference: Stock Status Update of NAFO Subdivisions 3KLPs Herring. Regional Science Response Process – Newfoundland and Labrador Region, January 26–27, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/01_26-27-eng.html

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		and offshore); Cautious					LRP for various areas in 2020-21.		
			Details: This stock is not included in the most recent results (2019) of the DFO Sustainability Survey for Fisheries, and it is not included in a publicly available IFMP.[205,206] This stock was included in the 2020/21 fiscal year work plan to begin development of the LRP for various areas. According to the schedule website, there were no CSAS process held in fiscal year 2020/21, and none are currently scheduled for the rest of 2021 or yet for 2022. However, in May 2019 there was a CSAS process held to review indicators and reference points for the Maritimes Region sea cucumber (*Cucumaria frondosa*) and status of the southwest New Brunswick (SWNB) sea cucumber population. The resultant Science Advisory Report was published in February 2021 and indicates it was the first assessment of the SWNB sea cucumber fishery since all licences were converted from Stage II Exploratory to limited entry in 2011.[207] The report indicates LRPs were established for sea cucumber fishing areas that have been regularly fished, including SWNB Zone 1, 4W Offshore Zones 1 & 2, 4W Mid-shore Zone F, and 4Vs Area of Access 2. The LRPs for 4W Offshore Zones 1 & 2, 4W Mid-shore Zone F, and 4Vs AOA2 were set as 20% of B_0 (0.045 kg/m^2, 0.061 kg/m^2, 0.127 kg/m^2, and 0.052 kg/m^2, respectively). The LRP for SWNB Zone 1 was set as 30% of B_0 (811.53 kg/hr*m). Reference points for SWNB Zone 1 were more precautionary due to the risk associated with fishing all known available sea cucumber habitat in that fishing area. It further indicates reference points should be re-evaluated as additional fishery-independent information becomes available. The 2020/21 DFO work plan results indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result.						
38	Maritimes	Snow crab – CFAs 20–22, 23, 24, 4X; Critical, Healthy	✓2020/21				To be completed: Will complete update of LRP in 2020-21.		Completed
			Details: The most recent results (2019) of the DFO Sustainability Survey for Fisheries includes three stocks in this stock group (4X, ENS-N, ENS-S).[208] The survey respondent indicates there is an LRP in place for each stock, set at 25% of carrying capacity based on commercial biomass with an absolute value that floats annually based on stock assessment model. Absolute values for 2018 were provided, and a Science Advisory Report from a meeting held in February 2019 (Science Advisory Report 2019/053) is cited as the source for the LRP approach documentation. The publicly available IFMP for this stock was effective as of 2013 and posted in October 2016.[209] It also outlines the same approach for LRP determination, as well as eight research priorities with regards to formulating more appropriate reference points, including modelling improvements. This stock group was included in the 2020/21 work plan for completion and updating of the LRP. There was a framework stock assessment process held by CSAS in February 2020. The terms of reference for this meeting do not include mention of reference point development but do indicate the intention to review a new proposed spatiotemporal modelling approach.[210] There are no documents published from this meeting yet. The day after the framework meeting ended, a second CSAS process was held to assess the stock. The resultant Science Advisory Report indicates a precautionary approach framework based on reference points has been implemented in this fishery, including the LRP of 25% of carrying capacity.[211] Although the same approach for reference points development was used (i.e., percentage of carrying capacity), the report does indicate the new modeling approach was used to estimate them. Estimation of a fishable biomass index was conducted using a newly developed lattice-based approach using conditional, auto-regressive spatiotemporal models. The resultant index was coupled with a logistic population dynamics fishery model to determine fishable biomass and relevant biological reference points. It cites an unpublished CSAS research document that appears to be from the framework meeting.[212] The 2020/21 DFO work plan						

[205] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[206] DFO (2021). Integrated Fisheries Management Plans. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/index-eng.html

[207] DFO (2021). Guidance for Setting Reference Points for the Sea Cucumber (*Cucumaria frondosa*) Fishery in the Maritimes Region, and Status of the SWNB Sea Cucumber Fishery 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/007. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_007-eng.html

[208] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[209] DFO (2016). Integrated Fisheries Management Plan: Eastern Nova Scotia and 4X Snow Crab (*Chionoecetes Opillio*) – Effective as of 2013. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/snow-crab-neige/snow-crab-neiges2013-eng.html

[210] DFO (2020). Terms of Reference: A Framework for the Assessment of Snow Crab (*Chionoecetes opilio*) in Maritimes Region (NAFO Division 4VWX). Regional Science Advisory Process – Maritimes Region, February 25–26, 2020, Dartmouth, NS. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_25-26-eng.html

[211] DFO (2020). Assessment of Scotian Shelf Snow Crab. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/042. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_042-eng.html

[212] Choi, J.S. 2020. A Framework for the assessment of Snow Crab (*Chioneocete opilio*) in Maritimes Region (NAFO Div 4VWX). DFO Unpublished Report.

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			results indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result. During Oceana Canada's 2021 evaluation, DFO confirmed the LRP revisions have been completed, and while the LRP did remain at 25% of carrying capacity, the values have been adjusted using the new modelling approach (Science, National Capital Region and Maritimes region, personal communication, July 16, 2021).						
39	Gulf	Striped bass; Uncertain††	✓2020/21 ✓2021/22				To be initiated: Will begin development of LRP in 2020-21.	Will continue development of LRP in 2021-22.	Completed
			Details: This stock is not included in the most recent results (2019) of the DFO Sustainability Survey for Fisheries, and it is not included in a publicly available IFMP.[213,214] This stock was included in the 2020/21 fiscal year work plan to begin development of the LRP. According to the schedule website, there was a Science Response Process held in January 2020, but it was only intended to update the indicators of the striped bass population of the southern Gulf of St. Lawrence, and the resultant report does not include an LRP.[215] It does discuss a proposed a recovery limit and a recovery target that were developed from a Recovery Potential Assessment conducted in support of the *Species at Risk Act* listing decision process that was held in December 2005. The proposed recovery limit was at least 21,600 spawners in five of six consecutive years. Once that was achieved, then the proposed recovery target for considering fisheries access was ≥ 31,200 spawners in three of six consecutive years. It was also suggested that the 5th percentile of the spawner abundance estimate be used to assess status relative to these recovery objectives. Both targets have been met for nine consecutive years. In November 2020 another CSAS process was held: this time a regional advisory meeting to review reference points and precautionary approach framework for striped bass from the southern Gulf of St. Lawrence, with reference points mentioned in several of the objectives for the meeting in the terms of reference.[216] A Science Advisory Report was published in June 2021 from this meeting that proposed an LRP based on the number of eggs that result in half of the Beverton-Holt carrying capacity.[217] There was no model consensus for the LRP value: 17.3 billion or 30.0 billion eggs depending on the model, equivalent to 330 to 560 thousand spawners. The report notes that based on the trajectory of the population over the relatively short period of assessment, maintaining spawners above 330 thousand fish should be sufficient to avoid serious harm. The report further presented status in terms of estimated eggs from spawners, noting perspectives on status are model-dependent. The highest estimated spawner abundance of approximately one million fish in 2017 was approximately at the USR or in the cautious zone, depending on the model. Otherwise, the status was either below the LRP in all years except 2017, or below the LRP until 2015 and in the cautious zone since 2016. The 2020/21 DFO work plan results indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result. However, this stock was included again in the 2021/22 work plan for continued LRP development. There is a CSAS meeting on the schedule for winter 2022 to provide a determination of spawner abundance, age-class distribution, and biological characteristics for striped bass for 2021, but the terms of reference are not yet available for further details. During Oceana Canada's 2021 evaluation, DFO indicated that the report published in June 2021 included LRP values and candidate USR values and that the delivery of the LRP for striped bass is considered complete and additional work will not be completed in 2021/2022 (Science, National Capital Region and Gulf region, personal communication, July 16, 2021), despite work continuing to be outlined in the 2021/22 work plan. That further work in fiscal 2021/22 may have included publication of the report, given it was published in fiscal 2021/22, resulting in completed status in this evaluation.						
40	Quebec	Gulf of St. Lawrence shrimp – SFA 8, 9, 10, 12;	✓2020/21 ✓2021/22				To be initiated: Will begin revision of LRP in 2020-21.	Will continue revision of LRP in 2021-22.	Ongoing

[213] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[214] DFO (2021). Integrated Fisheries Management Plans. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/index-eng.html

[215] DFO (2020). Update of Spawner Abundance and Biological Characteristics of Striped Bass (*Morone saxatilis*) in the Southern Gulf of St. Lawrence to 2019. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/009. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_009-eng.html

[216] DFO (2020). Terms of Reference: Reference Points that Conform to the Precautionary Approach for the Striped Bass Population of the Southern Gulf of St. Lawrence. Regional Advisory Meeting – Gulf Region, November 23–25, 2020, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/11_23-25-eng.html

[217] DFO (2021). Reference Points for Striped Bass (*Morone saxatilis*) for the Southern Gulf of St. Lawrence population. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/018. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_018-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
		Cautious	**Details:** The most recent results of the DFO Sustainability Survey for Fisheries (2019) indicate this stock group consists of four stocks (Esquiman SFA 8, Anticosti SFA 9, Sept-Iles SFA 10, and Estuaire SFA 11), each assessed separately and with their own LRP and USR.[218] The respondent indicates the main indicator of stock status is calculated from the indices of males and females obtained from the summer fishery (number per unit of effort for June, July, and August) and the research survey (abundance in August). To combine them, each index is first standardized relative to a reference period, and the primary indicator of stock status is the average of the four indices. The LRPs were established based on the observed historical relationship between the primary indicator of stock status in one year and the harvest in the following year, with LRP values corresponding to stock status of low abundance from which it could increase (SFA 8: 0.45, SFA 9: 0.60, SFA 10: 0.53, SFA 12: 0.65). The IFMP publicly available has a date last modified in 2014 but contains information to 2018.[219] It confirms the approach outlined by the survey respondent, indicating it was developed at a CSAS process held in 2011, but also discusses situations when the LRP and USR could be considered for revision. This stock group was included in the 2020/21 work plan to begin revision of the LRPs. According to the CSAS schedule, this stock group was assessed in January 2020. The resultant Science Advisory Report appears to use the established LRP and indicates in "sources of uncertainty" that the precautionary approach used was developed in the late 2000s, so it is not a revised approach.[220] The report indicates concerns about the approach given it is based on an equal mixture of fishery-dependent indices (commercial fishery catch rates) and fishery-independent indices (research survey catch rates) that are diverging. Commercial fisheries catch rates were demonstrating hyperstability, due to differing coverage of the stock area, with the research survey covering it entirely while the commercial fishery targets the highest concentrations of shrimp at the channels' head. The report indicates divergence between these two types of indices, and the decrease in average shrimp size makes it pertinent to ask whether the main indicator still accurately reflects the stock status. There was a CSAS Science Response Process held in January 2021 to provide an update of stock status indicators. The resultant report published in May 2021 includes the same primary indicators and LRP as used in the past.[221] The CSAS schedule indicates a regional advisory process is scheduled in winter 2022 to assess the stock, but the terms of reference are not yet available to provide further details. However, given this is not indicated to be a framework assessment, where new approaches for assessment are usually evaluated, it seems unlikely a new LRP approach will be included as an objective for this meeting. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. During Oceana Canada's 2021 evaluation, DFO indicated the department continues to work towards revising reference points for these stocks (Science, National Capital Region and Quebec region, personal communication, July 16, 2021). Discussions focused on reviewing the precautionary approach (PA) framework have occurred through the Estuary and Gulf of St. Lawrence Shrimp Advisory Committee (Science, National Capital Region and Quebec region, personal communication, July 16, 2021). A sub-committee was formed to focus on next steps for revising the PA framework (Science, National Capital Region and Quebec region, personal communication, July 16, 2021). Progress also includes some preliminary science work (e.g., reviewing biological stock units) (Science, National Capital Region and Quebec region, personal communication, July 16, 2021). Work is ongoing (Science, National Capital Region and Quebec region, personal communication, July 16, 2021).						
41	Quebec	Cod – 4RS-3Pn; Critical	✓2020/21 ✓2021/22				To be initiated: Will begin revision of LRP in 2020-21.	Will complete revision of LRP in 2021-22.	**Delayed**
			Details: The most recent results of the DFO Sustainability Survey for Fisheries (2019) indicate the current LRP is 118,000 t.[222] However, the report cited as a source by the survey respondent indicates the current LRP value is 116,000 t SSB.[223] The survey respondent later cited a source for stock status determination that indicates two approaches for LRP determination were acceptable in 2010 (Hockey-Stick and Non-parametric smoother SSB at 50% of maximum) and the choice for the LRP was to average the two estimates, with 116,000 t						

[218] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[219] DFO (2018). Integrated Fisheries Management Plan: Northern shrimp – Areas 8, 9, 10 and 12 (Estuary and Gulf of St. Lawrence). https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/shrimp-crevette/shrimp-crevette-2018-eng.html

[220] DFO (2020). Assessment of Northern Shrimp Stocks in the Estuary and Gulf of St. Lawrence in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/010. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_010-eng.html

[221] DFO (2021). Update of Stock Status Indicator for Northern Shrimp in the Estuary and Gulf of St. Lawrence. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/015. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_015-eng.html

[222] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[223] DFO (2019). Assessment of the Northern Gulf of St. Lawrence (3Pn, 4RS) Atlantic Cod Stock in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/032. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_032-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			SSB the result.[224] There is no publicly available (approved) IFMP including this stock to provide further information. This stock was included in the 2020/21 work plan to begin revision of the LRP. In January 2020/21 there was a CSAS Science Response Process held to update stock status indicators for the stock. The resultant report indicates that there was a full assessment of this stock scheduled for February 2021 that was canceled to allow for the review of the assessment framework, including the review of available data and the establishment of a new stock assessment model.[225] The report provided an update of the main indicators of the stock to determine whether major changes in stock status have occurred. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 work plan indicates DFO will complete revision of the LRP in 2021/22. In April 2021 the first CSAS process pertaining to the framework assessment occurred, reviewing the data inputs. Reports from this meeting are not yet available. The second part of the framework, to review the model, will occur at a CSAS meeting in September 2021. The terms of reference covering both meetings indicate the second meeting will provide direction for an approach to estimating reference points for this stock.[226] There is another CSAS Science Response Process on the schedule to provide an update on the main indicators for the stock in winter 2022.						
42	National Capital Region	Northern shrimp – Western Assessment Zone; Healthy	✓2020/21				To be completed: Will complete development of LRP in 2020-21.		Completed
			Details: The most recent results of the DFO Sustainability Survey for Fisheries (2019) indicate that there is no LRP in place for this stock but that work would be undertaken to have a precautionary approach framework developed and applied to the 2021 fishery.[227] The survey also indicates this stock is co-managed with the Nunavut Wildlife Management Board and Nunavik Marine Region Wildlife Board. The publicly available IFMP (effective 2018) indicates reference points for northern shrimp in the Western Assessment Zone (WAZ) are being developed.[228] This stock was included in the 2020/21 work plan to complete the development of an LRP. In May 2020 a CSAS process was held to provide science advice on LRPs for northern shrimp, *Pandalus borealis*, and striped shrimp, *Pandalus montagui*, in the WAZ and the Eastern Assessment Zone (EAZ). The resultant Science Advisory Report indicates LRPs for northern shrimp and striped shrimp in both the WAZ and EAZ were newly established as 40% of the geometric mean of the spawning stock biomass (SSB) index, while the proposed USRs was set as 80% of this mean.[229] The report notes the advice is based on a traditional approach of calculating SSB from shrimp trawl surveys and explores a time series of fishery-independent data. Data used to assess these fisheries are limited and highly variable, and currently no trends in stock status have been observed. Striped shrimp in the EAZ have demonstrated an ability to recover from 40% of the SSB, the LRP, below which the ability of these stocks to recover is uncertain; thus scientists conclude the approach is consistent with DFO policy. In the WAZ, the newly established LRPs for northern shrimp (4,100 t) and striped shrimp (12,300 t) are based on a six-year time series (2014–2019). The report notes the LRPs and proposed USRs are based on the best available scientific information but do not incorporate environmental or ecosystem factors into their calculations, as information pertaining to these metrics are lacking. It notes both reference points should be re-examined when a population model is developed or relationships between stock productivity and environmental or ecosystem factors are sufficiently developed to inform stock assessments. The 2020/21 DFO work plan results indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result.						

[224] Duplisea, D. & Fréchet, A. (2011). Updated Reference Point Estimates for Northern Gulf of St. Lawrence (3Pn4RS) Cod (*Gadus morhua*) Based on Revised Beginning of Year Weights at Age. DFO Can. Sci. Advis. Sec. Res. Doc. 2011/003 iv + 8 p. https://waves-vagues.dfo-mpo.gc.ca/Library/343048.pdf

[225] DFO (2021). Update of Stock Status Indicators for Northern Gulf of St. Lawrence (3Pn, 4RS) Atlantic Cod in 2020. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/006. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_006-eng.html

[226] DFO (2021). Terms of Reference: Northern Gulf of St-Lawrence Cod (3Pn, 4RS) Assessment Framework. Regional Advisory Meeting – Quebec Region, Part 1: April 21–23, 2021; Part 2: September 13–15, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/04_21-23-eng.html

[227] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[228] DFO (2018). Northern Shrimp and Striped Shrimp – Shrimp Fishing Areas 0, 1, 4–7, the Eastern and Western Assessment Zones and North Atlantic Fisheries Organization (NAFO) Division 3M, Effective 2018. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/shrimp-crevette/shrimp-crevette-2018-002-eng.html

[229] DFO (2020). Science Advice on Limit Reference Points for Northern Shrimp (*Pandalus borealis*) and Striped Shrimp (*Pandalus montagui*) in the Eastern and Western Assessment Zones. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/053. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_053-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
43	National Capital Region	Striped shrimp – Western Assessment Zone; Healthy	✓2020/21				To be completed: Will complete development of LRP in 2020-21		Completed
			Details: The most recent results of the DFO Sustainability Survey for Fisheries (2019) indicate that there is no LRP in place for this stock but that work would be undertaken to have a precautionary approach framework developed and applied to the 2021 fishery.[230] The survey also indicates this stock is co-managed with the Nunavut Wildlife Management Board and Nunavik Marine Region Wildlife Board. The publicly available IFMP (effective 2018) indicates reference points for striped shrimp in the WAZ are being developed.[231] This stock was included in the 2020/21 work plan to complete the development of an LRP. In May 2020 a CSAS process was held to provide science advice on LRPs for northern shrimp, *Pandalus borealis*, and striped shrimp, *Pandalus montagui*, in the Western Assessment Zone (WAZ) and Eastern Assessment Zone (EAZ). The resultant Science Advisory Report indicates LRPs for northern shrimp and striped shrimp in both the WAZ and EAZ were newly established as 40% of the geometric mean of the spawning stock biomass (SSB) index, while the proposed USRs was set at 80% of this mean.[232] The report notes the advice is based on a traditional approach of calculating SSB from shrimp trawl surveys and explores a time series of fishery-independent data. Data used to assess these fisheries are limited and highly variable, and currently no trends in stock status have been observed. Striped shrimp in the EAZ have demonstrated an ability to recover from 40% of the SSB, the LRP, below which the ability of these stocks to recover is uncertain, thus scientists conclude the approach is consistent with DFO policy. In the WAZ, the newly established LRPs for northern shrimp (4,100 t) and striped shrimp (12,300 t) are based on a six-year time series (2014–2019). The report notes the LRPs and proposed USRs are based on the best available scientific information but do not incorporate environmental or ecosystem factors into their calculations, as information pertaining to these metrics are lacking. It notes both reference points should be re-examined when a population model is developed or relationships between stock productivity and environmental or ecosystem factors are sufficiently developed to inform stock assessments. The 2020/21 DFO work plan results indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result.						
44	Arctic	Narwhal – North Hudson Bay; Uncertain†	✓2020/21 ✓2021/22				To be initiated: Will begin development of LRP in 2020-21.	Will continue development of LRP in 2021-22.	Ongoing
			Details: The most recent results of the DFO Sustainability Survey for Fisheries (2019) indicate this stock is co-managed in the Nunavut Settlement Area with Nunavut Inuit co-management organizations: the Nunavut Wildlife Management Board (NWMB), the Kivalliq Wildlife Board (Regional Wildlife Organizations), and the Kivalliq Hunter and Trapper Organizations (HTOs) of harvesting communities.[233] The survey indicates there is no LRP in place for this stock but Potential Biological Removal (PBR) has been developed. According to the most recent publicly available IFMP (effective 2013), PBR is a statistical method currently used by DFO Science to provide recommendations on sustainable harvest levels.[234] It is a simulation method that identifies the levels of removals that could lead to depletion, while accounting for uncertainties.[235] The IFMP indicates that stock assessment information (e.g., abundance estimates, hunting mortality, and concurrent population dynamics parameters) at the time the IFMP was developed was insufficient for all narwhal management units. As a result, DFO's policy "Fishery Decision-Making Framework Incorporating the Precautionary Approach" (that requires reference points, among other elements) could not be implemented for narwhal. Instead, a PBR threshold is determined for each management unit, using the most recent abundance estimate. The PBR value was then adjusted to estimate mortality due to hunting losses, based on self-reporting by harvesters. DFO's sustainable harvest advice for each management unit is presented as a Total Allowable Landed Catch recommendation. This stock was included in the 2020/21 work plan to begin the development of an LRP. In February 2020 there was a CSAS process held to provide an abundance estimate and sustainable harvest advice for the northern						

[230] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[231] DFO (2018). Northern Shrimp and Striped Shrimp – Shrimp Fishing Areas 0, 1, 4–7, the Eastern and Western Assessment Zones and North Atlantic Fisheries Organization (NAFO) Division 3M, Effective 2018. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/shrimp-crevette/shrimp-crevette-2018-002-eng.html

[232] DFO (2020). Science Advice on Limit Reference Points for Northern Shrimp (*Pandalus borealis*) and Striped Shrimp (*Pandalus montagui*) in the Eastern and Western Assessment Zones. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/053. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_053-eng.html

[233] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[234] DFO (2013). Integrated Fisheries Management Plan for Narwhal in the Nunavut Settlement Area, (*Monodon monoceros*), Effective April 1, 2013. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/narwhal-narval/index-eng.html

[235] Wade, P. R. (1998). Calculating Limits to the Allowable Human-caused Mortality of Cetaceans and Pinnipeds. Marine Mammal Science, 14(1): 1–37.

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			Hudson Bay (NHB) narwhal. The resultant Science Advisory Report does not mention an LRP or its development but does indicate that in a future analysis, the addition of the 2018 survey estimate may allow scientists to estimate population abundance and provide management advice for the population using a model-based approach.[236] The research document associated with this meeting also indicates that this is the case and, further, that under the precautionary approach framework and new legislative requirements of Bill C-68, DFO is required to collect adequate data to assess marine mammal stocks and define limit reference points to generate advice for Total Allowable Landed Catch using population trends rather than PBR. In this way, harvest advice is based on long-term population trends derived from time series of abundance estimates and harvest removals rather than single survey estimates, which can be quite variable, and can result in PBR estimates that fluctuate more than would be expected given the dynamics of narwhal populations.[237] There was a second CSAS process held in November 2020 to provide sustainable harvest advice. The reports expected from this meeting are not yet available, but the terms of reference indicate one objective was to determine whether a model-based approach is suitable for providing sustainable harvest advice for the NHB narwhal population, and if so, should the model-based approach take priority over the PBR threshold determined from the 2018 aerial survey estimate for NHB narwhal.[238] The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The stock is included again in the 2021/22 work plan for continued LRP development. During Oceana Canada's 2021 evaluation, DFO indicated that it develops sustainable harvest advice using the PBR method, in cases where lengthy intervals have occurred between abundance estimates for a given stock/population (Science, National Capital Region and Arctic region, personal communication, July 16, 2021). DFO notes this was the case for previous advice concerning the NHB narwhal population. However, the 2018 aerial survey of the NHB narwhal provided a sufficient time series with which to evaluate a model-based approach to develop sustainable harvest advice (Science, National Capital Region and Arctic region, personal communication, July 16, 2021). DFO's National Marine Mammal Peer Review Committee conducted their evaluation in November 2020 and, when the internal approvals process is complete, a Science Advisory Report will be made publicly available on the CSAS website (Science, National Capital Region and Arctic region, personal communication, July 16, 2021).						
45	Quebec	Iceland Scallop - SFA 16ef, 18a; Uncertain	✓2021/22					Will continue development of LRP in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
46	Maritimes	Haddock – 5Z; Uncertain	✓2021/22					Will begin review of LRP in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
47	Maritimes	Atlantic Halibut – 3NOPs4VWX5; Healthy	✓2021/22					Will begin review of LRP in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
48	Maritimes	Shrimp – Scotian Shelf; Healthy	✓2021/22					Will begin review of LRP in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
49	Arctic	Bowhead – Eastern Canada, Western Greenland; Uncertain†	✓2021/22					Will begin development of LRP in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
50	Arctic	North Slope Dolly Varden – Rat River,	✓2021/22					Will begin development of LRP in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan

[236] DFO (2020). Abundance Estimate of the Northern Hudson Bay Narwhal Population from the 2018 Aerial Survey. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/055. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_055-eng.html

[237] Watt, C.A., Hornby, C. & Hudson, J. (2020). Narwhal (*Monodon monoceros*) Abundance Estimate from the 2018 Aerial Survey of the Northern Hudson Bay Population. DFO Can. Sci. Advis. Sec. Res. Doc. 2020/073. iv + 15 p. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2020/2020_073-eng.html

[238] DFO (2020). Terms of Reference: National Marine Mammal Peer Review Committee (NMMPRC): November 2020 Biannual Meeting. National Peer Review – National Capital Region, November 16–20, 2020, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/11_16-20-eng.html

#	Region	Stock and health status zone	Develop, update or revise LRP or make progress	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
		Big Fish River; Cautious†							
51	Pacific	Dungeness Crab; Healthy	✓2021/22					Will begin development of LRP in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan

Table 3. Work plan section 1B; determining upper stock reference points (USRs): In section 1 of its annual work plan, Fisheries and Oceans Canada (DFO) prioritizes the stocks or stock groups for which it will develop precautionary approach reference points and harvest control rules. Within section 1, the sub-sections have varied in structure across the five fiscal year work plans, and a dedicated sub-section for USR development did not appear until the 2019/20 fiscal year work plan.[239] Prior to this there were a few USR-related deliverables included in LRP sub-sections. In 2020/21, section 1 is broken down into three sub-sections, with sub-section 1B identifying stocks prioritized for USR development. The table below summarizes all USR-related deliverables[240] from section 1 of annual work plans across all years by stock or stock group, with the most recent health status[241] and status towards completion as assessed by Oceana Canada. Checkmark symbols with fiscal year indicate inclusion in the work plans, while annual deliverable descriptions provided by DFO are also included in associated columns. Stocks with new or revised USRs in documentation available online are noted as completed, stocks that have had deadlines shifted or delays in progress indicated by DFO are noted as delayed, and stocks for which the deadline has not yet passed or for which the work plan deliverable was only to make progress are noted as ongoing. (Please note that the table does not include an assessment of USR quality.) Details on status determinations are provided for stocks with USR-related deliverables included in the 2017/18, 2018/19, 2019/20, and 2020/21 work plans. No stocks or stock groups were assessed as completed or suspended in previous evaluations (2018, 2019, and 2020), so there is no solid bold line in this table separating rows evaluated in the past from those included this year. All stocks appearing in the table before the dashed bold line (rows 1–13) were evaluated this year and included in the evaluation summary table above (Table 1). Stocks appearing after the dashed bold line (rows 14–22) appear only in the 2021/22 work plan and were not evaluated for status completion.

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
1	Maritimes	Atlantic herring – Maritimes Region; Cautious, Critical	✓2018/19[242]	Development of USR in 2018-19.				**Delayed**
			Details: There was a CSAS process held in April 2018 where one objective was to propose a USR for 4VWX herring.[243] The report published from this process indicates a USR was proposed, but no consensus could be reached. It was agreed that no USR recommendation would be put forward from the meeting and that the discussion would be revisited at the next stock framework meeting.[244] According to the CSAS schedule website, part one of a framework meeting reviewing data inputs was held in February 2019 and a stock status update via a Science Response process was held in May 2019.[245,246] The Science Response report from the latter process does not mention a USR,[247] nor does the Research Document produced from the					

[239] The first USR sub-section (1D) was included in the 2019/20 fiscal year work plan. USR sub-sections were again included in the 2020/21 work plan (section 1B) and 2021/22 work plan (section 1B). All USR-related deliverables from previous fiscal year work plans (2017/18 and 2018/19) were incorporated with the LRP-related deliverables, as there was no dedicated sub-section for USR development. These latter stocks and associated deliverables are included in this table for completeness.

[240] As stated in DFO work plans.

[241] Health status was assigned primarily using Oceana Canada's Fishery Audit dataset (Oceana Canada, 2021), with † denoting assignments for marine mammals, diadromous fish, and freshwater fish using the 2019 Sustainability Survey for Fisheries results and †† denoting uncertain status assigned when stocks were not included in either dataset. As some records represent multiple stocks that appear as more than one record in the datasets used to assign status, all unique statuses for stocks within stock groups are included when applicable.

[242] This stock and deliverable were included in the 2018/19 fiscal year sub-section 1A pertaining to LRPs to be developed in fiscal year 2018/19, but the deliverable pertained to the USR. It was evaluated in 2019 for USR completion, but with all the other LRP deliverables included in that work plan. Beginning in Oceana Canada's 2020 evaluation, it was included here with all USR-related deliverables from the new sub-section (1D) dedicated to them in the 2019/20 work plan, even though it was not repeated in that work plan.

[243] DFO (2018). Terms of Reference: Assessment of Herring in NAFO Divisions 4VWX. Regional Peer Review – Maritimes Region, April 11–12, 2018, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/04_11-12-eng.html

[244] DFO (2018). 2018 Assessment of 4VWX Herring. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/052. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_052-eng.html

[245] DFO (2019). Terms of Reference: Assessment Framework for Southwest Nova Scotia/Bay of Fundy Herring: Part 1 – Review of Data Inputs. Regional Peer Review – Maritimes Region, February 5–6, 2019, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_05-06-eng.html

[246] DFO (2019). Terms of Reference: Stock Status Update of Herring in Northwest Atlantic Fisheries Organization (NAFO) Fishing Area 4VWX. Regional Science Response Process – Maritimes Region, May 8, 2019, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/05_08-eng.html

[247] DFO (2020). Stock Status Update of 4VWX Herring for the 2018/2019 Fishing Season. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/001. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_001-eng.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			February 2019 meeting.[248] In the work plan results for 2018/19, the department indicates this deliverable is delayed; the deliverable was not completed by deadline date as indicated in the description of deliverables (2018/19).[249] A second framework meeting was held in January 2020. The terms of reference for this meeting indicate DFO has decided to proceed with a management strategy evaluation (MSE) process as the framework for the major spawning component of the stock (Southwest Nova Scotia/Bay of Fundy herring).[250] An additional CSAS meeting was held virtually in May 2020 to review the structure and fitting of the models that will be used as the basis for all of the operating models in the MSE.[251] This meeting was the third of four CSAS processes being held to develop this MSE; the fourth meeting will involve the review of the entire MSE process. [252] There are no reports available yet for either the second or third meeting, and the terms of reference for both meetings do not mention reference points. Another CSAS Science Response Process occurred on April 23, 2020 to provide harvest advice using the old modelling framework.[253] Given it used the old framework, this meeting was not likely to provide advice for a USR in any reports, and none are mentioned the resultant Science Response report.[254] The currently available IFMP for the stock (published in 2013) is actually a rebuilding plan for one of four spawning components (Southwest Nova Scotia/Bay of Fundy) and does not indicate any USR.[255] During Oceana Canada's 2020 evaluation, DFO indicated the intention of the MSE process is to have the full precautionary approach framework in place, including a USR. However, MSE development and implementation is contingent on the model being accepted (Fisheries and Aquaculture Management, and Science, Maritimes Region, personal communication, June 23, 2020). In November 2020 a CSAS process was held to evaluate potential Limit Reference Points (LRPs). No reports are available yet from this meeting. Although the terms of reference for the meeting mention the precautionary framework and reference points (plural), it does not specifically mention a USR, and clearly the focus of the meeting was to be on the LRP.[256] The fourth framework meeting (third MSE framework meeting, titled "4VWX Herring Framework Part III: Implementing a Management Strategy Evaluation") was on the CSAS schedule for winter 2021 but was postponed, and no terms of reference were posted. In April 2021 a Science Response Process was held to update stock indicators using the previous (2011) approach and LRP,[257] again unlikely to result in a new USR, but no reports are available yet to confirm. There is a stock assessment on the CSAS schedule for March 2022, which will presumably use the new modelling approach, but no terms of reference are yet available. Despite the ongoing science work to support USR development, this deliverable is evaluated as delayed here because development of the USR was noted for completion in 2018/19, was					

[248] Singh, R., Knox, D. & MacIntyre, A. (2020). 2019 Southwest Nova Scotia/Bay of Fundy Atlantic Herring Framework: Data Inputs. DFO Can. Sci. Advis. Sec. Res. Doc. 2020/028. v + 123 p. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2020/2020_028-eng.html

[249] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[250] DFO (2020). Terms of Reference: Southwest Nova Scotia/Bay of Fundy Herring Framework: Part 2 – Management Strategy Evaluation Conditioning Operating Model Review. Regional Peer Review – Maritimes Region, January 21–22, 2019 [2020], Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/01_21-22-eng.html

[251] DFO (2020). Terms of Reference: Continuation of 4VWX Herring Framework Part II: Operating Model Development. Regional Peer Review – Maritimes Region, May 26–27, 2020, virtual meeting. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/05_26-27c-eng.html

[252] DFO (2020). Terms of Reference: Continuation of 4VWX Herring Framework Part II: Operating Model Development. Regional Peer Review – Maritimes Region. May 26–27, 2020, virtual meeting. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/05_26-27c-eng.html

[253] DFO (2020). Terms of Reference: Stock Status Update of Herring in Northwest Atlantic Fisheries Organization (NAFO) Fishing Area 4VWX. Regional Science Response Process – Maritimes Region, April 23, 2020, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/04_23-eng.html

[254] DFO (2020). Stock Status Update of 4VWX Herring for the 2019/2020 Fishing Season. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/050. https://publications.gc.ca/collections/collection_2020/mpo-dfo/fs70-7/Fs70-7-2020-050-eng.pdf

[255] DFO (2013). Canadian Atlantic Herring (*Clupea harengus*) – SWNS Rebuilding Plan – Atlantic Canada – 2013. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/herring-hareng/herring-hareng-2013-eng.html

[256] DFO (2020). Terms of Reference: Identification of a Limit Reference Point for Southwest Nova Scotia/Bay of Fundy Atlantic Herring (*Clupea harengus*). Regional Advisory Meeting – Maritimes Region, November 12–13, 2020, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/11_12-13-eng.html

[257] DFO (2021). Terms of Reference: Stock Status Update of Herring in Northwest Atlantic Fisheries Organization (NAFO) Fishing Area 4VWX. Regional Science Response Process – Maritimes Region, April 7, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/04_07-eng.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			evaluated by DFO as delayed, has not been repeated in subsequent work plans. During Oceana Canada's 2021 evaluation, DFO indicated the USR remains only proposed by DFO Science, based on the acoustic index (Science, National Capital Region and Maritimes region, personal communication, July 16, 2021). DFO Management is seeking to make progress on this before the conclusion of the MSE (Science, National Capital Region and Maritimes region, personal communication, July 16, 2021). DFO noted that for the MSE, a minimum performance threshold and a performance metric for reaching a target biomass have been defined. These two metrics will not be used to determine stock status at this point. The status quo based on the acoustic index will be used until guidance is available on how to define stock status when DFO has multiple operating models (Science, National Capital Region and Maritimes region, personal communication, July 16, 2021).					
2	Quebec	Greenland halibut (turbot) – 4RST; Cautious	✓2018/19[258] ✓2019/20 ✓2020/21	The limit reference is established and an USR is suggested by Science. The latter will be set in 2018-19 following discussions with fisheries management and industry.	Will complete development of USR in 2019-20. Deliverable previously noted for completion in 2018-19.[259]		Will complete development of USR in 2021-22.	**Delayed**
			Details: This stock was assessed at a CSAS process held in March 2018, and resulting documentation indicates scientists suggested a USR for management to consider adopting.[260] At the March 2019 Gulf Groundfish Advisory Committee meeting, departmental officials indicated the USR was still proposed by Science but not yet accepted. The (2018) results of the DFO Sustainability Survey for Fisheries indicate the precautionary approach framework for this stock is under development and consultations are underway to adopt it.[261] The stock was assessed again during a CSAS process held in February 2019, where the terms of reference indicate reference points were to be developed.[262] It is reiterated in the resultant Science Advisory Report that at the winter 2018 CSAS process a USR was proposed by scientists as 80% of the proposed proxy for B_{MSY} (the geometric mean of the indicator for the 2004–2012 productive period, namely 63,211 t), resulting in a USR of 50,500 t.[263] The report from the February 2019 process indicates that fishery managers at DFO, with support from the Science sector, are holding consultations with the fishing industry and other stakeholders to adopt the USR. The stock status was re-evaluated during a CSAS Science Response Process held in December 2019, but the resulting report indicates the precautionary approach framework for the stock is under development and a USR proposed by Science has not yet been adopted.[264] This deliverable was not repeated in the 2020/21 fiscal year work plan, despise the results for the 2019/20 work plan evaluation revealing that this deliverable is delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[265]					

[258] This stock and deliverable were included in the 2018/19 fiscal year sub-work plan 1A pertaining to LRPs to be developed in fiscal year 2018/19, but the deliverable pertained to the USR. It was evaluated in 2019 for USR completion, but with all the other LRP deliverables included in that work plan. Starting in 2020 it is included here with all USR-related deliverables from the new sub-work plan dedicated to them.

[259] The deliverable details for the 2018/19 sub-work plan 1A (LRP to be developed) indicated that the LRP was in place but that the USR would be set in 2018/19. Upper stock reference points were not part of the first two fiscal year work plans, but there is now a specific USR sub-work plan in the 2019/20 work plan (1D). As indicated here, the USR was not set in 2018/19.

[260] DFO (2018). Assessment of the Greenland Halibut Stock in the Gulf of St. Lawrence (4RST) in 2017. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/035. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_035-eng.html

[261] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[262] DFO (2019). Terms of Reference: Assessment of the Gulf of St. Lawrence (4RST) Greenland Halibut. Regional Peer Review – Quebec Region, February 20–21, 2019, Mont-Joli, Quebec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_20-21-eng.html

[263] DFO. (2019). Assessment of the Gulf of St. Lawrence (4RST) Greenland Halibut Stock in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/023. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_023-eng.html

[264] DFO. (2020). Update of Stock Status Indicators for Greenland Halibut in the Gulf of St. Lawrence (4RST) in 2019. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/005. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_005-eng.html

[265] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			During Oceana Canada's 2020 evaluation, DFO indicated a proposal for a USR was agreed upon by working group members in February 2019. However, broader consultations will have to take place for the USR to be formally adopted (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). The stock was assessed at a CSAS process held in February 2021, and the resultant Science Advisory Report indicates a precautionary approach is being developed for the stock, implying it is not yet finalized.[266] It will use fish biomass >40cm estimated from the northern Gulf of St. Lawrence survey as a proxy for spawning stock biomass and as an indicator for stock status determination. It outlines that the first approach for a USR was proposed as early as 2018 and was based on the concept of stable biomass during the 2004–2012 period of high productivity, which was largely attributable to the excellent recruitment produced in the late 1990s. The report indicates that recent work showing the long-term impacts of climate changes on the productivity of the stock has suggested that a USR based on that time period may no longer be achievable even without fishing. Another USR proposal was made based on the biomass from the 1996–2002 productivity period, which was not the result of a single unusually large recruitment event and which could be considered more realistic. However, since environmental conditions are changing rapidly, it is not easy to determine which USR is most appropriate for this stock. A USR proposal was made to take into account the significant ecosystem changes occurring in the region, as well as the decrease in stock productivity. The new USR is based on both productivity periods: 1996–2002 and 2004–2012. In this proposal, the biomass at the maximum sustainable yield (B_{MSY}) represents the average of the biomasses of these two periods, i.e. 47,170 t, and the USR corresponds to 80% of this B_{MSY}, i.e. 37,740 t. The report notes reference points will have to be re-evaluated with the acquisition of new data, which may allow them to be changed to more appropriate values. The report indicates that at the last workshop of the working group in February 2020, the group accepted the USR proposal at 37,740 t. The IFMP for this stock indicates the precautionary framework is still under development and includes details of the 2018 proposed USR (63,211 t), indicating consultations were still required before adoption.[267] Although the IFMP was recently published (May 2021), most of the information in it is from 2018, prior to development of the new proposed approach. This stock is included in the 2021/22 fiscal year work plan for USR completion. Although nearly in place, the new USR requires formal adoption and thus remains evaluated as delayed here. During Oceana Canada's 2021 evaluation, DFO indicated the USR was accepted by the working group but has not been formally adopted by Fisheries Management (Science, National Capital Region and Quebec region, personal communication, July 16, 2021). DFO notes the working group is not a decision-making body, and therefore the latest USR proposal will need to be endorsed in the coming months as part of the process of developing this precautionary approach (Science, National Capital Region and Quebec region, personal communication, July 16, 2021).				
3	Gulf	Atlantic salmon – Gulf Region; Uncertain †	✓2019/20 ✓2020/21 ✓2021/22		Will continue to develop USR in 2019-20. Development of PA framework will continue in 2019-20 with consultations on the proposed USR and decision rules for the recreational fishery in the Miramichi River system.	Will continue development of USR in 2020-21. Consultations on options for the Miramichi River recreational fishery USR and HCR are planned for fall 2020.	Will continue development of USR for the Miramichi River in 2021-22.	**Delayed**

[266] DFO (2021). Assessment of the Gulf of St. Lawrence (4RST) Greenland Halibut Stock in 2020. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/017. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_017-eng.html

[267] DFO (2021). Integrated Fisheries Management Plan: Greenland Halibut Integrated Fisheries Management Plan in NAFO Divisions 4RST. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/2020/halibut-fletan-eng.htm

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			Details: River-specific LRPs were developed for most rivers in the southern Gulf of St. Lawrence during a CSAS process held in February 2018, and details are available online in the CSAS Science Response report.[268] The report indicates that the development of the LRP for salmon rivers in DFO's Gulf Region is the initial step in the development of the complete precautionary approach framework and that further work is required to define the USRs, harvest strategies, and harvest decision rules. This further work was to be done by fishery managers informed by consultations with the fishery and other interests, with support from DFO Science. The 2018 results of the DFO Sustainability Survey for Fisheries indicated that USRs are to be established after discussions with First Nations and stakeholders and that the work was in progress.[269] The 2019/20 work plan evaluation results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[270] It was included again in the 2020/21 fiscal year work plan, where it is indicated work would continue to develop the USR. The deliverable description indicated that consultations on options for the Miramichi River recreational fishery USR and HCR were planned for fall 2020. During Oceana Canada's 2020 evaluation, DFO confirmed that the region would be consulting on and working through options for the precautionary approach framework for the recreational fishery in the Miramichi watershed (including USR and HCR development) in fall 2020 through a special meeting of a new working group comprised of First Nations and various stakeholders (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020). Despite deliverable descriptions indicating only continued development and not completion, this deliverable was evaluated as delayed during Oceana Canada's 2020 evaluation because of the DFO 2019/20 work plan results indicated delays. The most recent (2019) results of the survey again indicate that a USR and removal reference for status zones are to be established after discussions with First Nations and stakeholders and that this is a work in progress.[271] It indicates the IFMP update is well underway and will be completed by March 2021. The IFMP currently in use (IFMP – Atlantic Salmon in Salmon Fishing Areas 15 to 18 [2008 to 2012]) is not available online, and there is no updated version available yet. The CSAS schedule indicates there was a CSAS process postponed in March 2021 that was intended to assess the status of Atlantic salmon in the Gulf Region and provide an assessment of reference points and decision rules that conform to the precautionary approach. However, the terms of reference were not posted online to indicate if proposed USRs were to be included. Later (by July 29, 2021), this process was labelled as postponed. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. This stock is included again in the 2021/22 work plan for continued development of the USR for the Miramichi River. During Oceana Canada's 2021 evaluation, DFO indicated the CSAS process planned for March 2021 was postponed until additional stakeholder consultations can be completed and is expected to be held in 2021/22 (Science, National Capital Region and Gulf region, personal communication, July 16, 2021). The CSAS process is anticipated to be held in December 2021 and will address the USR and the Harvest Control Rules for the Miramichi River (Science, National Capital Region and Gulf region, personal communication, July 16, 2021). This deliverable remains evaluated as delayed due to the previously acknowledged delays and lack of completion.					
4	Newfoundland and Labrador and National Capital Region	Northern shrimp – SFAs 4–6; Critical, Cautious, Healthy	✓2019/20 ✓2020/21		Will begin to develop USR in 2019-20.	Will continue development of USR in 2020-21.		**Delayed**
			Details: A CSAS process was held in May 2019 with the key objective of reviewing the proposed population models and defining reference points consistent with the precautionary approach for northern shrimp in SFAs 4–7.[272] The terms of reference for the meeting indicate northern shrimp in SFAs 4–6 are currently managed using a USR approach developed in 2009 (80% of the geometric mean of the spawning stock biomass index of what					

[268] DFO (2018). Limit Reference Points for Atlantic Salmon Rivers in DFO Gulf Region. DFO Can. Sci. Advis. Sec. Sci. Res. 2018/015. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2018/2018_015-eng.html

[269] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[270] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[271] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[272] DFO (2019). Terms of Reference: Development of a New Precautionary Approach Framework for Northern Shrimp in the Newfoundland and Labrador Region. Regional Peer Review – Newfoundland and Labrador Region, May 15–17, 2019. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/05_15-17-eng.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			was considered a productive time period). They further indicate reference points were reviewed during a Science Response process in 2017, where it was concluded that in the absence of a predictive population model that incorporated ecosystem factors, there was not sufficient evidence to change the reference points. Scientists developed spatially explicit population models for northern shrimp in SFAs 4–7 to address this gap and assist with the re-evaluation of shrimp reference points at the May 2019 meeting. In the 2019 evaluation of the LRP deliverable related to this stock group, departmental officials indicated that while a new model was accepted, more work is required. Consequently, reference points were not determined at the May 2019 meeting, and their development was indicated to occur later (N. Schjott, personal communication, June 25, 2019). At the time of Oceana Canada's 2020 evaluation, there were still no publications available from this meeting to document this progress and decisions, and that remains the case during the 2021 evaluation. In February 2020 a CSAS process was held to assess northern shrimp in SFAs 4–6. Reference points are not mentioned in the terms of reference for the meeting,[273] and at the time of Oceana Canada's 2020 evaluation, reports were not yet available from this process. A Science Advisory Report from this meeting was published in April 2021 and reports on the status of northern shrimp in each of SFAs 4–6 using the old reference points from the IFMP.[274] Results of the 2019/20 work plan indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[275] The 2020/21 fiscal year work plan indicated work towards USR development would continue. During Oceana Canada's 2020 evaluation, DFO confirmed that work would continue on the development of an updated LRP but that there has been no progress on the development of a USR (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador Region, personal communication, June 23, 2020). In fiscal year 2020/21 there was a CSAS process held in February (2021) to assess northern shrimp in SFAs 4–6, EAZ & WAZ and striped shrimp in SFA 4, EAZ & WAZ. There is one Science Advisory Report from this meeting available to date, published in March 2021, but it pertains only to the EAZ and WAZ.[276] The expected Science Advisory Report pertaining to SFAs 4–6 is not yet available. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). This deliverable was not included again in the 2021/22 work plan, making it unclear whether DFO intends to continue efforts to establish a new USR for this stock group. There is a stock assessment on the CSAS schedule for SFAs 4-6 for winter 2022, but the terms of reference are not yet available to determine if USR advice is included. The most recent results of the DFO Sustainability Survey for Fisheries (2019) indicate that a USR is in place for each of SFA 4, 5, and 6 and that it is documented in the report forthcoming from a February 2020 CSAS process. That report (mentioned above) and values cited in the survey indicate the old approach was still in use. During Oceana Canada's 2021 evaluation, DFO indicated that it continues research activities in an effort to revise these reference points to account for ecosystem dynamics (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021).					
5	Newfoundland and Labrador	Snow crab – 2J, 3KLNO and 3Ps; Cautious, Healthy	✓2019/20 ✓2020/21 ✓2021/22		Will begin to develop USR in 2019-20.	Will continue development of USR in 2020-21.	Will complete development of USR in 2021-22.	**Delayed**
			A CSAS process was held in June 2018 to develop a precautionary approach (PA) framework for snow crab in the Newfoundland and Labrador Region. The research document published from this meeting indicates LRPs were established and includes USRs and HCRs proposed by scientists.[277] An					

[273] DFO (2020). Terms of Reference: Assessment of Northern Shrimp in Shrimp Fishing Areas (SFAs) 4, 5 and 6. Regional Peer Review – Newfoundland and Labrador Region, February 18–20, 2020, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_18-20-eng.html

[274] DFO (2021). An Assessment of Northern Shrimp (*Pandalus borealis*) in Shrimp Fishing Areas 4–6 in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/010. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_010-eng.html

[275] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[276] DFO (2021). Assessment of Northern Shrimp *(Pandalus borealis*) and Striped Shrimp *(Pandalus montagui*) in the Eastern and Western Assessment Zones, February 2021. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/014. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_014-eng.html

[277] Mullowney, D., Baker, K., Pedersen, E. & Osborne, D. (2018). Basis for a Precautionary Approach and Decision Making Framework for the Newfoundland and Labrador Snow Crab (*Chionoecetes opilio*) Fishery. DFO Can. Sci. Advis. Sec. Res. Doc. 2018/054. iv + 66 p. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2018/2018_054-eng.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			additional CSAS process was held in February 2019.[278] The resultant CSAS Science Advisory Report includes details about the LRPs and stock statuses in relation to them and indicates that upper removal references, HCRs, and USRs that have been proposed have not been adopted into the framework and that USRs remained under development.[279] According to the proceedings from the February 2019 meeting, all fishers in attendance were not in agreement with the inclusion of the PA framework or bullets related to it in the resultant Science Advisory Report.[280] Several participants expressed concerns that the proposed PA framework was even presented. However, it was clarified that LRPs defining the critical zone were established by a peer review CSAS process, that USRs defining the cautious and healthy zones remain under development, and that the proposed cautious and healthy zones (i.e., zones created by a proposed USR) would not be used by Resource Management for the 2019 fishing season. Several participants stated that Resource Management should consult harvesters to finalize the PA framework. The proceedings indicate that DFO Science noted the proposed PA framework includes the best science advice available and that proposed cautious and healthy zones will be included in all science advice going forward. The IFMP for the stock, which was posted online in May 2019, indicates industry consultations on the PA framework were held in fall 2018 and a number of concerns were raised.[281] It indicates that during winter 2019, a working group was formed and a meeting was held to discuss harvest control rules and the USR levels but that further discussion was required. The IFMP indicates it is anticipated that the PA framework will be finalized and accepted in 2020. Snow crab in the region were assessed again at a CSAS meeting held in February 2020.[282] The report from this meeting uses the provisional USR developed by DFO Science to evaluate status but notes that the USRs have been proposed but not adopted into the framework and are tentative.[283] The report also notes that in early 2020, members of the harvesting sector submitted an alternative precautionary approach framework for snow crab to be reviewed by DFO Science. It was also noted in the report that during the February 2020 meeting, several participants from the harvesting sector indicated they do not support DFO Science's current proposed precautionary approach framework for use in decision-making. The results of the 2019/20 work plan indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[284] During Oceana Canada's evaluation in 2020, DFO indicated that industry has expressed divergent views on reference points but that efforts will continue in 2020/21 towards the development of USRs (Fisheries and Aquaculture Management, Newfoundland and Labrador region, personal communication, June 23, 2020). Despite the deliverable description indicating that development of the USR would only begin, not be complete, this deliverable was evaluated as delayed during Oceana Canada's 2020 evaluation because the DFO 2019/20 work plan results indicated delays. The 2020/21 fiscal year work plan indicated work would continue to develop the USR in the 2020/21 fiscal year. The most recent results of the DFO Sustainability Survey for Fisheries (2019) indicate no USR is in place and notes a precautionary framework has been proposed by DFO Science but has not been implemented in this fishery due to resistance from industry.[285] It further notes that the union representing harvesters in the province has proposed their alternate framework and that it should be going through a peer review process in 2020. In fiscal 2020/21 there was a CSAS process held in September 2020 to evaluate an alternative precautionary approach					

[278] DFO (2019). Terms of Reference: 2HJ3KLNOP4R Snow Crab Assessment. Regional Peer Review Process – Newfoundland and Labrador Region, February 19–21, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_19-21-eng.html

[279] DFO (2019). Assessment of Newfoundland and Labrador (Divisions 2HJ3KLNOP4R) Snow Crab. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/041. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_041-eng.html

[280] DFO (2020). Proceedings of the Newfoundland and Labrador Regional Peer Review of the 4R Iceland Scallop Assessment, and the 2HJ3KLNOP4R Snow Crab Assessment, February 19–21, 2019. DFO Can. Sci. Advis. Sec. Proceed. Ser. 2020/003. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2020/2020_003-eng.html

[281] DFO (2019). Integrated Fisheries Management Plan: Snow Crab – Newfoundland and Labrador Region. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/snow-crab-neige/2019/index-eng.html

[282] DFO (2020). Terms of Reference: 2HJ3KLNOP4R Snow Crab Assessment. Regional Peer Review Process – Newfoundland and Labrador Region, February 25–27, 2020, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_25-27-eng.html

[283] DFO (2021). Assessment of Newfoundland and Labrador (Divisions 2HJ3KLNOP4R) Snow Crab. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/009. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_009-eng.html

[284] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[285] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			framework for snow crab in the Newfoundland and Labrador region. The terms of reference for the meeting indicate reference point methodologies and proposed approaches for the identification of reference points would be reviewed.[286] The reports expected from this meeting are not yet available. The stock group was assessed again in February 2021, but the terms of reference do not mention reference point development.[287] The reports expected from this meeting are not yet available. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2021/22 work plan includes completion of the development of USR this fiscal year. An annual assessment is on the CSAS schedule again for winter 2022, but the terms of reference are not yet posted to indicate whether USR advice will be included. This deliverable remains evaluated as delayed due to the previously acknowledged delays and lack of completion. During Oceana Canada's 2021 evaluation, DFO indicated USRs have not yet been established (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). DFO noted that a Snow Crab Precautionary Approach Working Group was developed to continue work to develop USRs and HCRs and that this group met a number of times in 2020/21 (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021).					
6	Pacific	Pacific herring – Haida Gwaii; Healthy	✓2019/20[288] ✓2020/21[289] ✓2021/22[290]		Will begin to develop USR in 2019-20. *(Haida Gwaii, Prince Rupert District, Central Coast)*	Will continue development of USR in 2020-21. *(Haida Gwaii, Prince Rupert District, Central Coast)*	Will continue exploration and development of USR in 2021-22. *(Prince Rupert District, Central Coast, Strait of Georgia, West Coast Vancouver Island)*	**Ongoing**
		Pacific herring – Prince Rupert District; Cautious Pacific herring – Central Coast; Cautious Pacific herring – Strait of Georgia; Healthy	**Details:** In August 2019 a CSAS Science Response Process (SRP) was held to evaluate management procedures for Pacific herring (*Clupea pallasii*) in the Haida Gwaii, Prince Rupert District, and Central Coast management areas of British Columbia developed under Management Strategy Evaluation (MSE). The resultant Science Response report summarizes progress to date and next steps.[291] It indicates that LRPs were developed and accepted by scientists at a meeting in 2017 and that closed-loop feedback simulation testing of candidate management procedures was recommended as a next step to evaluate the consequences of LRP choice for each area. However, the selection of preferred management procedures requires a full set of measurable objectives for conservation and the fishery (e.g., related to catch, catch variability, and socio-cultural goals) that have yet to be developed. Therefore, at the 2019 CSAS SRP only core fisheries management objectives and potential stock-specific objectives previously proposed by DFO at the Integrated Herring Harvest Planning Committee in May 2017 were included in this first cycle of MSE. (SRPs are smaller, usually DFO-only peer review processes without external participation.) The report provides results indicating the relative performance of candidate management procedures for the Haida Gwaii, Prince Rupert District, and Central Coast management areas against the core conservation objective – to ensure a high probability (75–95%) of avoiding the LRP over three herring generations. The report noted that DFO will continue to collaborate with coastal First Nations to					

[286] DFO (2020). Terms of Reference: Review of an Alternate Precautionary Approach Framework for Snow Crab in the Newfoundland and Labrador Region. Regional Peer Review – Newfoundland and Labrador Region, September 24–25, 2020, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/09_24-25-eng.html

[287] DFO (2021). Terms of Reference: 2HJ, 3KLNOP, and 4R Snow Crab Assessment. Regional Advisory Meeting – Newfoundland and Labrador Region, February 16–18, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/02_16-18-eng.html

[288] In 2019/20 this was included as one deliverable pertaining to three Pacific herring stocks: Haida Gwaii, Prince Rupert District, and Central Coast.

[289] In 2020/21 this was included as one deliverable pertaining to three Pacific herring stocks: Haida Gwaii, Prince Rupert District, and Central Coast. Deliverable completion was evaluated in 2021 for these three stocks only.

[290] In 2021/22 this was included as four deliverables, each pertaining to a single Pacific herring stock: Prince Rupert District, Central Coast, Strait of Georgia, and West Coast Vancouver Island. Given these deliverables included two of the stocks previously included in the single deliverable, these stocks were added to this record for continuity and will be evaluated as a single deliverable in 2022.

[291] DFO (2020). Evaluation of Management Procedures for Pacific Herring (*Clupea pallasii*) in Haida Gwaii, Prince Rupert District, and the Central Coast Management Areas of British Columbia. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/003. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_003-eng.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
		Pacific herring – West Coast Vancouver Island; Cautious	develop area-specific objectives specific to Food, Social and Ceremonial fisheries and spawn-on-kelp fisheries. In September 2019, another CSAS SRP was held to update the status of the stocks and provide harvest advice for 2019/20. The report from this process indicated harvest advice was informed by multiple methods, including newly tested management procedures that passed the core conservation objective.[292] The report also indicates that four candidate USRs were first introduced at a CSAS meeting in October 2017[293] and implemented as biomass objectives in the simulation analyses. Although not indicated as a candidate USR in the report from the August 2019 meeting, one candidate USR (0.6 SB0) from the October 2017 meeting is included in the tables of results for each stock. The report from the September 2019 meeting further elaborates that the simulation-evaluations did not select a single USR; however, a USR of 0.6SB0 is included in the update because this candidate is sufficiently above the LRP (2*LRP) and it is a repeatable calculation across all stocks. Stock status relative to the assessment model estimates $0.3SB_0$ (e.g., the LRP) and $0.6SB_0$ (e.g., the proposed USR) are presented in the report for each stock. The 2019/20 IFMP provided a synopsis of progress to date with the MSE and alignment of Pacific herring management with the DFO precautionary approach, indicating the four proposed methods for determining the USRs are a starting point for consultations.[294] It reiterated that engagement with rights-holders and stakeholders would be ongoing in 2020/21. The results of the 2019/20 work plan evaluation indicated this deliverable was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[295] The 2020/21 fiscal year work plan indicated work would continue towards development of USRs that fiscal year. During Oceana Canada's 2020 evaluation, DFO confirmed that this deliverable is considered "ongoing" given that more simulation work and consultation is needed to "select" a USR for each area. There were several candidate USRs being considered for these areas at the time (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). In September 2020 there was a CSAS Science Response process held to update stock status of Pacific herring in B.C. with application of the MSE management procedures. Although the resultant report continues to use the proposed USR of $0.6*B_0$ in objectives, it notes that a fully specified set of objectives has not yet been developed for each management area and that DFO would continue to engage with rights-holders and stakeholders and outlines all four candidate USRs in the section pertaining to reference points.[296] There were no CSAS processes held pertaining to Pacific herring in winter 2021. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. DFO includes USR-related deliverables for Pacific herring in the 2021/22 work plan. There is a CSAS Science Response Process on the schedule for September 2021 to provide a stock status update with application of management procedures for Pacific herring (*Clupea pallasii*) in British Columbia: status in 2021 and forecast in 2022. The terms of reference are not yet posted for further details. The 2020/21 IFMP indicates that a fully specified set of objectives that includes LRPs, USRs, and Target Reference Points (TRPs) is being developed to meet goals for renewal of the Pacific herring management system and ensure consistency with the DFO precautionary approach framework.[297] It includes all four candidate USRs and notes that the 2020/2021 stock assessments present option 3, $0.6SB_0$, as the USR (for all five stocks) and as the upper control point in the management procedures presented for all major stocks. The IFMP notes the Nuu-chah-nulth nations have proposed objectives for the west coast of Vancouver Island stock area that incorporate a higher upper control point of 0.65 and $0.75SB_0$, while there is also a herring industry proposed USR of $0.4SB_0$ for all major stock areas. The 2021/22 fiscal year work plan indicates DFO will continue exploration and					

[292] DFO (2020). Stock Status Update with Application of Management Procedures for Pacific Herring (*Clupea pallasii*) in British Columbia: Status in 2019 and Forecast for 2020. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/004. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_004-eng.html

[293] Cleary, J.S., Hawkshaw, S., Grinnell, M.H. & Grandin, C. (2019). Status of B.C. Pacific Herring (*Clupea pallasii*) in 2017 and Forecasts for 2018. DFO Can. Sci. Advis. Sec. Res. Doc. 2018/028. v + 285 p. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2018/2018_028-eng.html

[294] DFO (2019). Pacific Region Integrated Fisheries Management Plan: November 26, 2019–November 6, 2020, Pacific Herring. https://waves-vagues.dfo-mpo.gc.ca/Library/40851448.pdf

[295] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[296] DFO (2021). Stock Status Update with Application of Management Procedures for Pacifc Herring (*Clupea pallasii*) in British Columbia: Status in 2020 and Forecast for 2021. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/001. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_001-eng.html

[297] DFO (2020). Pacific Region Integrated Fisheries Management Plan: November 20, 2020–November 6, 2021, Pacific Herring. https://waves-vagues.dfo-mpo.gc.ca/Library/40937343.pdf

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			development of a USR this fiscal year again for Prince Rupert District and a USR for the Central Coast, but it does not include the Haida Gwaii stock, making it unclear if a USR has been selected for it. DFO does add in the other two major stock components (Strait of Georgia, West Coast Vancouver Island). In the 2021/22 work plan, DFO includes a separate deliverable for each stock component for the first time, instead of lumping them into a single deliverable as in past work plans. Oceana Canada's 2022 evaluation will evaluate all five stock components for USR completion in a single record, in keeping with previous evaluations and work plans. During Oceana Canada's 2021 evaluation, DFO indicated it had identified four candidate USRs in 2017 as a starting point for consultations and simulations as part of Herring Renewal (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). The Nuu-chah-nulth nations have proposed objectives for the West Coast Vancouver Island stock area that incorporate a higher upper control point of 0.65 and $0.75SB_0$ (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). There is also a herring industry-proposed USR of $0.4SB_0$ for all major stock areas (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). Further discussion of candidate USRs is planned in fiscal 2021/22 (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). DFO indicated a CSAS process is planned for fall 2021 for the technical review of a new operating model with application to Strait of Georgia and Haida Gwaii stock areas, but this has not yet been added to the CSAS schedule (Science, National Capital Region and Pacific region, personal communication, July 16, 2021), although it has subsequently been added as noted above. A USR for the Haida Gwaii stock area using biomass during a productive period for reference was proposed by the Haida in the rebuilding plan and is currently under internal review (Science, National Capital Region and Pacific region, personal communication, July 16, 2021).					
7	Quebec	Snow crab – coastal (12A, 12B, 12C, 13, 14, 15, 16, 16A, 17); Uncertain	✓2019/20 ✓2020/21 ✓2021/22		Will begin to develop USR in 2019-20. Possibility of completion in 2020-21.	Carry forward from 2019-20. Will begin development of USR in 2020-21.	Will continue development of USR in 2021-22.	**Delayed**
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries indicate the precautionary approach components for this stock group were currently under development with an implementation target of 2020/2021.[298] A CSAS process was held in February 2019 to assess the stocks, but reference point development was not part of the terms of reference,[299] and unsurprisingly USRs are not mentioned in the resultant report.[300] The stock was assessed again in February 2020, but again reference point development was not part of the terms of reference.[301] Again, no USRs are mentioned in the resultant report.[302] The IFMP for the stocks, last modified in June 2019, indicates that the DFO Science assessments of the stocks classify stock status based on three levels (healthy, cautious, and critical), which are delineated by reference levels (upper and lower).[303] However, it then indicates that the precautionary approach for the snow crab fishery in the inshore areas of the northern Gulf of St. Lawrence is being developed and that research priorities to support stock assessment and snow crab management in the short to medium term include the development of the precautionary approach and an ecosystem approach. The results from the 2019/20 work plan evaluation indicated this deliverable was delayed; the					

[298] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[299] DFO (2019). Terms of Reference: Assessment of the Estuary and Northern Gulf of St. Lawrence Snow Crab Stocks. Regional Peer Review – Quebec Region, February 12–13, 2019, Mont-Joli, Québec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_12-13-eng.html

[300] DFO (2019). Assessment of the Estuary and Northern Gulf of St. Lawrence (Areas 13 to 17, 12A, 12B, 12C and 16A) Snow Crab Stocks in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/047. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_047-eng.html

[301] DFO (2020). Terms of Reference: Assessment of the Estuary and Northern Gulf of St. Lawrence Snow Crab Stocks. Regional Peer Review – Quebec Region, February 11–12, 2020, Mont-Joli, Québec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_11-12-eng.html

[302] DFO (2020). Assessment of the Estuary and Northern Gulf of St. Lawrence (Areas 13 to 17, 12A, 12B, 12C and 16A) Snow Crab Stocks in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/050. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_050-eng.html

[303] DFO (2019). Integrated Fisheries Management Plan: Snow Crab – Estuary and Northern Gulf of St. Lawrence Inshore Areas (12A, 12B, 12C, 13, 14, 15, 16, 16A and 17). https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/snow-crab-neige/2019/snow-crab-neiges-eng.html#toc2

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[304] The 2020/21 fiscal year work plan indicated USR development would begin and was carried forward from last fiscal, meaning activities were not carried out as described in the deliverable description. During Oceana Canada's 2020 evaluation, DFO indicated work has begun on the Science side and would continue in 2020/21, depending on available resources (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). DFO indicated the USR development is conditional on Science being able to make progress in the development of a model and indicators, with the objective to start discussion in 2020/21, at least for some of the nine stocks (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). Despite deliverable description only indicating beginning the development of the USR and not completion, during Oceana Canada's 2020 evaluation this deliverable was evaluated as delayed because the DFO 2019/20 work plan results indicated delays. The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the precautionary approach is under development for these stocks with an implementation target for 2020–2021, depending on resources.[305] The stocks were assessed again at a CSAS process in February 2021. The terms of reference for the meeting do include an objective to provide a summary table of main indicators for the precautionary approach,[306] but the reports from this meeting are not yet available to determine if that includes a USR. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2021/22 fiscal year work plan indicates DFO will continue the development of the USR this fiscal year. The CSAS schedule for 2022 includes another annual assessment in winter 2022, but the terms of reference for it are not yet posted. During Oceana Canada's 2021 evaluation, DFO indicated a biologist was hired to make progress on LRP development (Science, National Capital Region and Quebec region, personal communication, July 16, 2021). With the hiring of the biologist, internal meetings with Fisheries Management and Science occurred and USRs were discussed (Science, National Capital Region and Quebec region, personal communication, July 16, 2021). DFO confirmed reference points have not yet been developed for this stock (Science, National Capital Region and Quebec region, personal communication, July 16, 2021). The deliverable remains evaluated as delayed due to the previously acknowledged delays and lack of completion.					
8	Quebec	Atlantic halibut – 4RST; Uncertain	✓2019/20 ✓2020/21 ✓2021/22		Will begin to develop USR in 2019-20. USR may be established in 2020-21.	Carry forward from 2019-20. Will begin development of USR in 2020-21.	Will continue development of USR in 2021-22.	**Delayed**
			Details: According to the CSAS schedule website, in fiscal year 2019/20 there were no CSAS processes pertaining to this stock. The stock was last assessed in February 2019, where the terms of reference indicate an LRP was to be developed, but there is no mention of providing advice for a USR.[307] Reference points were not developed at the meeting, but the intention to develop them over the "medium term" was mentioned in the resultant Science Advisory Report.[308] The proceedings from the meeting indicate participants agreed that existing research indices (DFO bottom trawl RV surveys and sentinel surveys) are useful and have potential in determining reference points for the precautionary approach.[309] The proceedings					

[304] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[305] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[306] DFO (2021). Terms of Reference: Assessment of the Estuary and northern Gulf of St. Lawrence Snow Crab stocks. Regional Advisory Meeting – Quebec Region, February 16–18, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/02_16-18b-eng.html

[307] DFO (2019). Terms of Reference: Assessment of the Gulf of St. Lawrence (4RST) Atlantic Halibut. Regional Peer Review – Quebec Region, February 18–19, 2019, Mont-Joli, Quebec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_18-19-eng.html

[308] DFO (2019). Stock Assessment of Gulf of St. Lawrence (4RST) Atlantic Halibut in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/038. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_038-eng.html

[309] DFO (2019). Proceedings of the Regional Peer Review of the Stock Assessment of Gulf of St. Lawrence (4RST) Atlantic Halibut. Can. Sci. Advis. Sec. Proc. Ser. 2019/013. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2019/2019_013-eng.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			also identified reference points and the precautionary approach as one of the issues for which efforts will be invested. According to the advisory report, the stock will next be assessed in 2021, and there was no intention to assess it in the intervening year (2020). The stock does not currently have an analytical assessment model and instead is assessed using trends in survey indices (two DFO bottom trawl RV surveys and sentinel survey). A longline survey and tagging program for the entire Gulf of St. Lawrence was initiated as a collaboration between DFO and industry in 2017 and should provide a more complete survey dataset (i.e., more appropriate for use as an index of abundance than a bottom trawl survey for this species) to use in development of an analytical model. It is unclear if this is the reason reference points were not developed and instead deferred to the "medium" term. The results of the 2019/20 work plan evaluation indicated this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[310] The 2020/21 fiscal year work plan indicated USR development was to begin and was carried forward from the previous plan, meaning activities were not carried out as described in the deliverable description. During Oceana Canada's 2020 evaluation, DFO confirmed that no substantial work has been done but that work will begin in 2020/21 (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). Despite the deliverable description only indicating beginning the development of the USR and not completion, during Oceana Canada's 2020 evaluation this deliverable was evaluated as delayed because the DFO 2019/20 work plan results indicated delays. There was a CSAS process held in March 2021 to assess the stock. The terms of reference for the meeting include an objective of identifying a LRP for the stock and a report on stock status relative to its LRP, but advice is not requested for USR development.[311] Reports expected from this meeting are not yet available. There is currently no process on the CSAS schedule for this stock for the remainder of 2021 or yet for 2022. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan indicates DFO will continue the development of the USR this fiscal year. During Oceana Canada's 2021 evaluation, in response to questions about HCR development, DFO indicated it will continue work on the development of the LRP and the USR in 2021/22 before beginning work on HCR development (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). This deliverable remains evaluated as delayed due to the acknowledged delays and lack of completion.					
9	Pacific	Red sea urchin – Pacific Region; Healthy	✓2019/20 ✓2020/21		Will begin to develop USR in 2019/20.	Will continue development of USR in 2020-21.		**Delayed**
			Details: According to the CSAS schedule website, in fiscal year 2019/20 there were no CSAS processes pertaining to red sea urchin (RSU) in the Pacific. The stock was last assessed in February 2019 and specifically included identification of candidate reference points in the title of the process. The resultant Science Advisory Report includes details on provisional reference points and recommends a new LRP and USR (0.3 mature RSU/m^2 and 0.6 mature RSU/m^2, on RSU habitat, respectively; mature RSU are defined as ≥ 50 mm test diameter and RSU habitat is defined as hard substrate larger than gravel (>0.25 cm) where mud is not the predominant substrate).[312] However, the 2019/20 IFMP indicated there was currently no limit or upper stock reference points in place for the commercial red sea urchin fishery in B,C.[313] It does note that the February 2019 process occurred (but not in the context of reference point development), that the research from it was accepted, and that recommendations from the report will be incorporated into the management of the fishery starting next season after further consultation with First Nations and industry. The results of the 2019/20 work plan evaluation indicated this deliverable was met: the commitment or action as defined in the description of deliverables (2019/20) is					

[310] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[311] DFO (2021). Terms of Reference: Assessment of the Gulf of St. Lawrence (4RST) Atlantic halibut. Regional Advisory Meeting – Quebec Region, March 16–17, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/03_16-17-eng.html

[312] DFO (2019). The Identification of Provisional Reference Points and Harvest Rate Options for the Commercial Red Sea Urchin (*Mesocentrotus franciscanus*) Fishery in British Columbia. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/036. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_036-eng.html

[313] DFO (2019). Pacific Region Integrated Fisheries Management Plan: Red Sea Urchin, August 1, 2019 to July 1, 2020. https://waves-vagues.dfo-mpo.gc.ca/Library/40797879.pdf

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			complete without a tangible deliverable.[314] The 2020/21 fiscal year work plan indicated work would continue towards development of a USR in the 2020/21 fiscal year. During Oceana Canada's 2020 evaluation, DFO indicated a USR will be chosen once a long-term monitoring program has been developed (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). The most recent results (2019) of the DFO Sustainability Survey for Fisheries are ambiguous about whether a USR is in place for the stock.[315] In questions pertaining to the documentation for answers in the survey, the respondent cites a Research Document from the February 2019 CSAS meeting and indicates it includes information about the USR. But then later when asked if there is a USR in place, the respondent answers no. There were no CSAS processes held in fiscal 2020/21 specific to this stock group, and none are yet on the schedule for the remainder of 2021 or 2022. However, there is a CSAS process on the schedule for winter 2022 to provide science advice on the optimal design of the multispecies benthic marine invertebrates and habitat dive survey program. The terms of reference are not yet posted to confirm meeting objectives. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2020/21 IFMP indicates a USR was recommended at the last stock assessment (held in 2019) and the stock status in the three regions of the coast that are commercially harvested was evaluated against it.[316] All three regions were assessed individually, and the three regions were combined to give a big picture look at the commercially harvestable stock status in B.C. The IFMP indicates that in all three regions, as well as all three combined, the stock is above the recommended USR and is therefore within the healthy zone as defined in the precautionary approach. However, the IFMP acknowledges that the data used in the assessment were from surveys that were designed to estimate biomass at the management area or subarea level for the purpose of providing quota options, not to provide representative data for the assessment of stock status. The IFMP again confirmed DFO Science is currently developing a new multispecies benthic marine invertebrate survey designed specifically to generate the time series data needed to monitor and assess marine invertebrate stock status. The new monitoring program is intended to provide an efficient way to monitor multiple benthic invertebrate stocks and support the implementation of reference points in multiple fisheries. The IFMP further indicates the new monitoring program will be vetted through the CSAS peer review process. The IFMP confirms that the LRP and USR recommended by DFO Science in 2019 will be formally implemented once the new stock monitoring program is operational and that continuing to manage the commercial fishery without implementing the recommended reference points is a low-risk approach, the reasons for which are further outlined in the IFMP. Despite this indication of ongoing work, this deliverable was not included in the 2021/22 fiscal year work plan. Although work appears to be ongoing, it is evaluated as delayed due here due to lack of continued inclusion in the 2021/22 work plan (implying completion), and the DFO 2020/21 work plan results, while indicating actions were met, also do not have a completed status assigned.					
10	Pacific	Albacore tuna – north Pacific; Healthy	✓2019/20 ✓2020/21		Will begin to develop USR in 2019-20.	Canada will continue to update USR through the MSE process with RFMOs [regional fisheries management organizations].		**Delayed**
			Details: DFO coordinates management of this stock with the U.S.A. under the Pacific Albacore Tuna Treaty and with multiple other nations under the Inter-American Tropical Tuna Commission and the Western and Central Pacific Fisheries Commission (WCPFC). The 2018 results of the DFO Sustainability Survey for Fisheries indicated the LRP is the only precautionary approach component established; there was no USR yet. [317] The 2019/20 IFMP indicated the stock is assessed approximately every three years by the Albacore Working Group (ALBWG), part of the of the					

[314] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[315] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[316] DFO (2020). Pacific Region Integrated Fisheries Management Plan: Red Sea Urchin, August 1, 2020 to July 31, 2021. https://waves-vagues.dfo-mpo.gc.ca/Library/40882056.pdf

[317] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC).[318] The IFMP outlines several uncertainties that are affecting the ability of the ALBWG to assess the utility of biological reference points for North Pacific albacore and outlines several research priorities to address the uncertainties. It also indicates that the ALBWG is working to advance a management strategy evaluation (MSE) for North Pacific albacore tuna that will evaluate possible target reference points and alternative harvest control rules and supports the application of the precautionary approach at the international level. According to the IFMP, management objectives have been established and a suite of candidate reference points have been proposed through three albacore tuna MSE workshops involving managers, scientists, and stakeholders. The working group has been working on evaluation of performances of these proposed biological reference points and harvest control rules through the MSE processes. The working group met from February 26 to March 4, 2019, where a working paper was presented describing the results of the first round of modelling, which included biomass reference points.[319,320] The MSE has three reference points: limit reference point, threshold reference point, and target reference point (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). The threshold reference point functions as an operational control point. During Oceana Canada's 2020 evaluation, DFO indicated it would be a collective decision whether the threshold reference point is adopted as a USR under DFO's precautionary approach framework and appears in the IFMP as such (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). A stock assessment was conducted in April 2020 by video conference by the ALBWG (Science, National Capital Region, personal communication, June 23, 2020). The results of the stock assessment were to be finalized by the ISC at their annual meeting in July 2020. During the 2020 evaluation, DFO indicated that in winter 2021, the second round of MSE modelling was scheduled to be reviewed at the 5th Albacore MSE workshop (Science, National Capital Region, personal communication, June 23, 2020). The results of the 2019/20 work plan evaluation indicated this deliverable was met: the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[321] The 2020/21 fiscal year work plan indicated Canada would continue the development of the USR with regional fisheries management organizations in fiscal year 2021/21. During the 2020 evaluation DFO indicated this would be accomplished through the continuation of the MSE process (Science, National Capital Region, personal communication, June 23, 2020). The report by the ALBWG from the July 2020 meeting indicates that for the 2020 stock assessment, the reference points that would be estimated and presented in the assessment would be the same as in the 2017 assessment using the existing spawner per recruit (SPR) approach.[322] However, this work is separate from the MSE. The report also provided an update on the second round of MSE modelling but did not indicate any updates to reference points considered. The report indicated the working group was considering a webinar in August 2020 to review the ongoing work on the MSE and expected a complete report in December 2020. It further recommended the 5th MSE workshop be held in person rather than by webinar and that it should be in February or March 2021, contingent on resolution of current travel issues. Another webinar was held in September 2020, but no materials other than the agenda are available.[323] According to the ISC meeting schedule, no other ALBWG meeting occurred in 2020, but there was an MSE workshop scheduled for May 2021 and an ABLWG webinar on July 8th, 2021.[324] The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable.				

[318] DFO (2020). Pacific Region Integrated Fisheries Management Plan. April 1, 2019–March 31, 2020. Albacore Tuna. https://waves-vagues.dfo-mpo.gc.ca/Library/4077790x.pdf

[319] Tommasi, D. & Teo, S. (2020). Summary of Results for the North Pacific Albacore Tuna (*Thunnus alalunga*) Management Strategy Evaluation. http://isc.fra.go.jp/pdf/ALB/ISC19_ALB_1/ISC19-ALBWG-01_01.pdf

[320] ISC (2019). ISC/19/ANNEX/06. Annex 6. 19th Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. Taipei, Taiwan, July 11–15, 2019. Report of the ALBWG Working Group Workshop, July 2019. http://isc.fra.go.jp/pdf/ISC19/ISC19_ANNEX06_Report_of_the_ALBACORE_Working_Group_Workshop_February2019.pdf

[321] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[322] ISC (2020). ISC/20/ANNEX/09 ANNEX 09 20th Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. Held virtually July 15-20, 2020. Report of the ALBWG Working Group Workshop, July 2020. http://isc.fra.go.jp/pdf/ISC20/ISC20_ANNEX09_Report_of_the_ALBACORE_Working_Group_Workshop_April2020.pdf

[323] ISC (2020). Albacore Working Group Workshop – MSE Updates. International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. http://isc.fra.go.jp/reports/alb_mse_workshop_2020_1.html

[324] ISC (2021). ISC Schedule of Future Meetings for 2021. Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. http://isc.fra.go.jp/meetings/future_meetings.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			The most recent IFMP (2021/22) does not document a USR for this stock, although it notes an MSE is ongoing to evaluate possible target reference points and alternative harvest control rules and the MSE supports the application of the precautionary approach at the international level.[325] It appears that this work is ongoing, however, given it is not repeated in the 2021/22 work plan. Because it was not included in the work plan this year (implying completion) and the DFO 2020/21 work plan results considered the actions met, but not completed, it is evaluated as delayed here in 2021. During Oceana Canada's 2021 evaluation, DFO indicated that in March 2021 the second round of MSE modelling was completed and reviewed at the 5th Albacore MSE workshop, which was held virtually (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). The final MSE report will be reviewed and adopted at the upcoming International Scientific Committee for Tuna and Tuna-like Species in the North Pacific (ISC) meeting in July 2021 (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). Once the report is adopted by the ISC, discussions will occur at upcoming WCPFC and IATTC meetings to decide on what management strategy, HCR, LRP, and USR to adopt for this stock (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). DFO noted that this deliverable is no longer included in the SFF work plan because this stock is managed under a regional fisheries management organization (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). Considering this stock is still in the harvest control rule section of the 2021/22 work plan, this latter statement implies some confusion internally within DFO about the work plans.					
11	Pacific	Giant red sea cucumber – Pacific; Healthy	✓2019/20 ✓2020/21 ✓2021/22		Will begin to update USR in 2019-20.	Will begin development of USR in 2020-21.	Carry forward from 2020-21. Will begin development of USR in 2021-22.	**Delayed**
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries indicate the stock does not have a USR.[326] The most recent IFMP (2019/20) indicates reference points are of limited use in the current assessment framework because harvest areas must be monitored on a regular basis to see whether changes are occurring; the time, money and effort required to survey all areas multiple times would be prohibitive. However, earlier in the document it does indicate surveys of selected subareas are conducted annually to obtain estimates of the density, albeit even if it appears that no estimates beyond 2014 have been published.[327] The IFMP does indicate that science work is ongoing and that DFO Science is analyzing the entire time series of data from the Experimental Fishing Areas (1997 to 2015; program halted in 2017). Results will be published in a CSAS Research Document in late 2019. During Oceana Canada's 2020 evaluation, it was unclear what CSAS process would have led to this publication. According to the schedule website, the last CSAS process involving sea cucumbers was in 2010,[328] and none were on the CSAS schedule for 2020. But DFO did indicate a CSAS process on reference points for giant red sea cucumber was planned for 2020/21 (Science, National Capital Region, personal communication, June 23, 2020). The IFMP also indicates that DFO Science is now moving towards a new, multispecies approach for providing science advice. It indicates DFO Science is developing a multispecies benthic invertebrate survey protocol that will a) promote an ecosystem approach to stock assessments and b) gain efficiencies by combining single-species survey protocols for the commercial dive fisheries. It is also intended to allow assessment of stock status relative to the three health status zones in the precautionary approach framework. The IFMP noted that a CSAS research document with peer reviewed recommendations on this approach is expected to be delivered by fall 2020. Again, it is unclear what research					

[325] DFO (2021). Pacific Region Integrated Fisheries Management Plan: April 1, 2021–March 31, 2022, Pacific Tuna. https://waves-vagues.dfo-mpo.gc.ca/Library/40948171.pdf

[326] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[327] Duprey, N.M.T. & Stanton, L.M. (2018). Biomass Estimates for Sea Cucumbers (*Parastichopus californicus*, *Cucumaria miniata*, *C. pallida*) as Determined Through Surveys Conducted June 2013 to May 2014. Canadian Manuscript Report of Fisheries and Aquatic Sciences 3112. https://waves-vagues.dfo-mpo.gc.ca/Library/40657437.pdf

[328] DFO (2010). Terms of Reference: Update to the Assessment Framework for the Pink and Spiny Scallop (*Chlamys rubida, C. hastata*) Dive Fishery in Waters off the West Coast of Canada. Assessing Potential Habitat Impacts of Small-scale, Intertidal Geoduck Clam (*Panopea generosa*) Aquaculture. Assessment Update of Sea Cucumber (*Parastichopus californicus*) in British Columbia. Assessment Update of Manila Clam in the Central Coast of British Columbia and Evaluation of the Area 7 Manila Clam Fisheries Management Strategy. Assessment of Inshore Shrimp Stocks along the Coast of British Columbia. Pacific Regional Advisory Process — November 30–December 2, 2010, Nanaimo, British Columbia. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2010/11/11_30-02-eng.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			documents, given there were no processes in 2020 related to this stock listed on the CSAS website. It is unclear whether this ongoing DFO Science work will lead to development of a USR, given DFO Science only advises on USR development and the comments related to LRPs in the IFMP. The results of the 2019/20 work plan evaluation indicated this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[329] The 2020/21 fiscal year work plan indicated work would begin in the 2020/21 fiscal year to develop a USR. During Oceana Canada's 2020 evaluation, DFO confirmed that Science's work on developing a USR was temporarily delayed but would resume in fiscal 2020/21. DFO indicated that once work is complete, DFO Science will recommended a USR in a CSAS Research Document that will be vetted through the CSAS Regional Peer Review Process (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). During Oceana Canada's current (2021) evaluation, the most recent results (2019) of the DFO Sustainability Survey for Fisheries indicate there is no USR in place for this stock group. In the comments section, the respondent indicates n USR and a LRP have been recommended for this fishery.[330] They go on to detail that: "The use of the LRP has been limited to small portions of the coast that have been surveyed multiple times. In order for reference points to be useful, the resource needs to be assessed multiple times to get an idea of whether stock status changes over time. The time, money and effort required to survey all sea cucumber harvest areas in BC multiple times would be prohibitive, so reference points are of limited use for sea cucumber management at this time. Commercial no-take reserves have been implemented in this fishery as an alternative to reference points. These reserves are closed to commercial harvest, placed all over the coast and are meant to provide insurance against uncertainties in stock assessment or management and to hopefully provide spillover of adults and larvae into surrounding commercial harvest areas." The 2020/21 IFMP indicates DFO Science is analyzing the entire time series of experimental fishery data (here indicating 1998 to 2015) and results will be published in a CSAS Research Document in 2021 or 2022 (year varies by section in the IFMP) that is expected to provide advice on a range of harvest rates, update the current LRP and recommend an USR for the commercial fishery, thereby aligning this fishery with the DFO precautionary approach framework.[331] It further indicates that DFO Science is now moving towards a new, multispecies approach for providing science advice that should collect data necessary to assess stock status against reference points. There were no CSAS processes held in fiscal 2020/21 related to this stock. There is a CSAS process scheduled for fall 2021 to review sea cucumber experimental fishing area data (1998–2015), but the terms of reference for this meeting are not yet posted to confirm if reference point development will be included. There is also a CSAS process on the schedule for winter 2022 to provide science advice on the optimal design of the multispecies benthic marine invertebrates and habitat dive survey program. The terms of reference are not yet posted to confirm meeting objectives. This stock group is included again in the 2021/22 work plan, indicating work to develop the USR will begin this fiscal, and was carried forward from last fiscal, meaning activities were not carried out as expected.					
12	Maritimes	Snow crab – CFAs 20-22, 23, 24, 4X Critical, Healthy	✓2020/21			Will complete update of USR in 2020-21.		Completed
			Details: The most recent results (2019) of the DFO Sustainability Survey for Fisheries includes three stocks in this stock group (4X, ENS-N, ENS-S).[332] The survey respondent indicates there is a USR in place for each stock, set at 50% of carrying capacity based on commercial biomass with an absolute value that floats annually based on the stock assessment model. Absolute values for 2018 were provided, and a Science Advisory Report from a meeting held in February 2019 (Science Advisory Report 2019/053) is cited as the source for the USR approach documentation. The publicly available IFMP for this stock was effective as of 2013 and posted in October 2016.[333] It also outlines the same approach for USR determination, as well as eight research priorities with regards to formulating more appropriate reference points, including modelling improvements. This stock group was included in the 2020/21 work plan to complete an update of the USR. There was a framework stock assessment process held by CSAS in February 2020. The					

[329] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[330] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[331] DFO (2021). Pacific Region Integrated Fisheries Management Plan. Sea Cucumber by Dive. October 1, 2020 to September 30, 2021. https://waves-vagues.dfo-mpo.gc.ca/Library/40892657.pdf

[332] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[333] DFO (2016). Integrated Fisheries Management Plan: Eastern Nova Scotia and 4X Snow Crab (*Chionoecetes Opillio*) – Effective as of 2013. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/snow-crab-neige/snow-crab-neiges2013-eng.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			terms of reference for this meeting do not include mention of reference point development but do indicate the intention to review a new proposed spatiotemporal modelling approach.[334] There are no documents published from this meeting yet. The day after the framework meeting ended, there was a second CSAS process held to assess the stock. The resultant Science Advisory Report indicates a reference points-based precautionary approach has been implemented in this fishery, including the USR of 50% of carrying capacity.[335] Although the same approach was used for reference point development (e.g., percentage of carrying capacity), the report does indicate the new modeling approach was used to estimate them. Estimation of a fishable biomass index was conducted using a newly developed lattice-based approach using conditional, auto-regressive spatiotemporal models. The resultant index was coupled with a logistic population dynamics fishery model to determine fishable biomass and relevant biological reference points. It cites an unpublished CSAS research document that appears to be from the framework meeting.[336] The 2020/21 DFO work plan results indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result. During Oceana Canada's 2021 evaluation, DFO confirmed the proposed USR and the associated harvest control rules were implemented by Fisheries Management in the 2020 fishery decisions (Science, National Capital Region and Maritimes region, personal communication, July 16, 2021). DFO noted that the IFMP has not been updated to reflect these changes because the points relevant to the PA framework remain the same (i.e., LRP at 25%, USR at 50% CC), as do the related harvest control rules. When the IFMP is next updated, a more recent estimate of carrying capacity may be included for reference (in keeping with the current section 2.7) (Science, National Capital Region and Maritimes region, personal communication, July 16, 2021).					
13	Quebec	Cod – 4RS-3Pn; Critical	✓2020/21			Will begin to revise USR in 2020-21.	Carry forward from 2020-21. Will begin revision of USR in 2021-22.	**Delayed**
			Details: The most recent results of the DFO Sustainability Survey for Fisheries (2019) indicate the current USR is 188,000 t, established in a process that was not peer reviewed.[337] There is no publicly available (approved) IFMP including this stock to seek for further information. This stock was included in the 2020/21 work plan to begin revision of the USR. In January 2020/21 there was a CSAS Science Response Process held to update stock status indicators for the stock. The resultant report indicates that there was a full assessment of this stock scheduled for February 2021 that was canceled to allow for the review of the assessment framework, including the review of available data and the establishment of a new stock assessment model.[338] The report provided an update of the main indicators of the stock to determine if major changes in stock status have occurred. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The stock was included in the 2021/22 work plan, indicating DFO would begin to revise the USR this fiscal year, and it was carried forward from 2020/21, indicating activities were not carried out as anticipated. In April 2021 the first CSAS process pertaining to the framework assessment occurred, reviewing the data inputs. Reports from this meeting are not yet available. The second part of the framework, to review the model, will occur at a CSAS meeting in September 2021. The terms of reference covering both meetings indicate the second meeting will provide direction for an approach to estimating reference points for this stock.[339] There is another CSAS Science Response Process on the schedule to provide an update on the main indicators for the stock in winter 2022.					

[334] DFO (2020). Terms of Reference: A Framework for the Assessment of Snow Crab (*Chionoecetes opilio*) in Maritimes Region (NAFO Division 4VWX). Regional Science Advisory Process – Maritimes Region, February 25–26, 2020, Dartmouth, NS. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_25-26-eng.html

[335] DFO (2020). Assessment of Scotian Shelf Snow Crab. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/042. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_042-eng.html

[336] Choi, J.S. 2020. A Framework for the assessment of Snow Crab (*Chioneocete opilio*) in Maritimes Region (NAFO Div 4VWX). DFO Unpublished Report.

[337] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[338] DFO (2021). Update of Stock Status Indicators for Northern Gulf of St. Lawrence (3Pn, 4RS) Atlantic Cod in 2020. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/006. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_006-eng.html

[339] DFO (2021). Terms of Reference: Northern Gulf of St-Lawrence Cod (3Pn, 4RS) Assessment Framework. Regional Advisory Meeting – Quebec Region. Part 1: April 21–23, 2021; Part 2: September 13–15, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/04_21-23-eng.html

#	Region	Stock and health status zone	Develop USR	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
14	National Capital Region	Northern Shrimp (Borealis) – Western Assessment Zone; Healthy	✓2021/22				Will continue development of USR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
15	National Capital Region	Northern Shrimp (Montagui) – Western Assessment Zone; Healthy	✓2021/22				Will continue development of USR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
16	Newfoundland and Labrador	Capelin - 4RST; Uncertain	✓2021/22				Will begin development of USR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
17	Newfoundland and Labrador	Atlantic Cod – 2J3KL (Northern cod); Critical	✓2021/22				Will begin development of USR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
18	Newfoundland and Labrador	Atlantic Cod - 3Ps; Critical	✓2021/22				Will begin development of USR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
19	Maritimes	Atlantic Halibut – 3NOPs4VWX5; Healthy	✓2021/22				Will begin review of USR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
20	Maritimes	Shrimp – Scotian Shelf; Healthy	✓2021/22				Will begin review of USR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
21	Quebec	Gulf of St. Lawrence Shrimp – SFA 8, 9, 10, 12; Cautious	✓2021/22				Will begin revision of USR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
22	Quebec	Iceland Scallop – SFA 16ef, 18a; Uncertain	✓2021/22				Will begin development of USR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan

Table 4. Work plan section 1E; determining precautionary approach harvest control rules (HCRs): In section 1 of its annual work plan, Fisheries and Oceans Canada (DFO) prioritizes the stocks or stock groups for which it will develop precautionary approach reference points and harvest control rules. Within section 1, the sub-sections have varied in structure across the five fiscal year work plans, but there has always been a single sub-section dedicated to HCR development or evaluation. In 2020/21, section 1 is broken down into three sub-sections, with sub-section 1C identifying stocks prioritized for HCR development. The table below summarizes all fiscal year HCR deliverables[340] from section 1 of annual work plans across all years by stock or stock group, with most recent health status[341] and status towards completion as assessed by Oceana Canada. Checkmark symbols with fiscal year indicate inclusion in the work plans, while annual deliverable descriptions provided by DFO are also included in associated columns. Stocks with new or recently evaluated HCRs in documentation available online are noted as completed, stocks that have had deadlines shifted or delays in progress indicated by DFO are noted as delayed, and stocks for which the deadline has not yet passed or for which the work plan's deliverable was only to make progress are noted as ongoing. (Please note that the table does not include an assessment of HCR quality.) Details on status determinations are provided for stocks included in the 2017/18, 2018/19, 2019/20, and 2020/21 work plans. Stocks appearing first, before the bold line separating rows (rows 1–5), were previously assessed as completed or suspended in the 2018, 2019, or 2020 evaluation. Stocks after the bold line but before the dashed bold line (rows 6–21) were evaluated this year and included in the evaluation summary table above (Table 1). Stocks appearing after the bold dashed line (row 22–25) appear only in the 2021/22 work plan and were not evaluated for status completion.

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
1	Gulf	Lobster – southern Gulf LFA 23, 24, 25, 26A, 26B; Healthy	✓2017/18 ✓2018/19	Harvest control rules will be evaluated and implemented by March 31, 2018.	HCR to be implemented pending approval. HCRs for the lobster Southern Gulf stocks were previously noted for completion in 2017-18.				Previously completed (2019)
			Details: No CSAS processes for this stock were held in fiscal 2017/18. As noted in the 2018/19 work plan, work to develop and implement HCRs was not completed and continued into 2018/19. One CSAS process was held in November 2018 to update the status of lobster in the southern Gulf of St. Lawrence, but HCRs were not noted in the terms or reference or the resulting published report. [342,343] This is surprising, considering they appear to have been developed prior to the CSAS process: a joint DFO and industry working group was convened in 2017/18 to develop HCRs and submitted a recommendation to the southern Gulf of St. Lawrence (sGSL) Lobster Advisory Committee, which supported the approach during the meeting in January 2017 (N. Schjott, personal communication, June 25, 2019). The Minister approved the HCRs for implementation in June 2018 and published them on the DFO website, with the indication that they would be incorporated in the next update of the IFMP.[344] During Oceana Canada's 2020 evaluation, the updated IFMP scheduled to be developed in 2018/19 was delayed. The IFMP for lobster in the Gulf Region that is currently available is still the old (2014) dated plan.[345]				
2	Newfoundl and and Labrador	Greenland halibut (turbot) –	✓2018/19		Development of exceptional circumstances protocol (within NAFO) to				Previously completed (2019)

[340] As stated in DFO work plans.

[341] Health status was assigned primarily using Oceana Canada's Fishery Audit dataset (Oceana Canada 2021), with † denoting assignments for marine mammals, diadromous fish, and freshwater fish using the 2019 Sustainability Survey for Fisheries results and †† denoting uncertain status assigned when stocks were not included in either dataset. As some records represent multiple stocks that appear as more than one record in the datasets used to assign status, all unique statuses for stocks within stock groups are included when applicable.

[342] DFO (2018). Terms of Reference: Update of the Indicators of the American Lobster (*Homarus americanus*) Stocks of the Southern Gulf of St. Lawrence. Regional Science Response Process – Gulf Region, November 21, 2018, Moncton, New Brunswick. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/11_21b-eng.html

[343] DFO (2019). Update of the Stock Status Indicators of the American Lobster (*Homarus americanus*) Stock of the Southern Gulf of St. Lawrence to 2018. DFO Can. Sci. Advis. Sec. Sci. Resp. 2019/008. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2019/2019_008-eng.html

[344] DFO (2018). Precautionary Approach Harvest Decision Rules for the Lobster Fishery in the Southern Gulf of St. Lawrence: Lobster Fishing Areas 23, 24, 25, 26A, 26B. https://www.dfo-mpo.gc.ca/fisheries-peches/commercial-commerciale/atl-arc/lobster-precaution-homard-eng.html

[345] DFO (2014). Integrated Fisheries Management Plan: Lobster in the Southern Gulf of St. Lawrence – Lobster Fishing Areas 23, 24, 25, 26A, 26B, March 2014. http://www.glf.dfo-mpo.gc.ca/Gulf/FAM/IMFP/2014-Lobster-Gulf-Region

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
		2+3KLMNO; Uncertain			monitor performance of recently adopted HCR.				
			Details: According to the recently published (2019) IFMP, this stock is assessed by the Northwest Atlantic Fisheries Association (NAFO).[346] The 2018 results of the DFO Sustainability Survey for Fisheries indicate there is an HCR in place for this stock.[347] The annual report from the NAFO commission in 2017 indicated a working group intended to meet in August 2018 to finalize the exceptional circumstances protocol associated with the HCR for adoption at the 2018 annual meeting.[348] According to the 2018 NAFO annual report, this was accomplished, and the exceptional circumstances adopted.[349] The HCR and exceptional circumstance protocol to monitor performance of the HCR are available in NAFO documentation.[350]					
3	Pacific	Coho salmon – southern inside; Uncertain††	✓2017/18	Undertake work to refine reference points based on new science information.					Previously completed (2020)
			Details: In 2017/18 work was undertaken to refine reference points. A CSAS process was held in September 2017, in part to determine reference points for Canadian Pacific Salmon Treaty southern coho management units. The meeting focused on evaluating the effects of exploitation rate changes on meeting conservation objectives across a range of smolt-to-adult survival rates that can be used to define status across three Pacific Salmon Treaty status categories (low, moderate, and abundant) using a range of stock-recruitment (S-R) models that incorporated hatchery smolt-adult survival as a surrogate for population productivity. [351] S-R parameters were derived for the individual Interior Fraser River (IFR) conservation units (CUs) and the Interior Fraser Coho (IFC) management unit (MU) as a whole and the Strait of Georgia (SOG) MU, as represented by the Black Creek indicator stock. But due to a lack of suitable data, no S-R analysis was conducted for the Lower Fraser River (LFR) MU. Retrospective and forward simulations were completed for the IFC MU and resulted in a set of decision tables that could be used to inform the selection of status benchmarks and management reference points (also known as operational control points) using hatchery survival as an index of productivity. But, due to lack of data, comparable analyses for the SOG and LFR MUs were not possible. The resultant report provides examples to illustrate how the results from the framework could be used to inform the development of management reference points for setting low, moderate, and abundant status categories under the Pacific Salmon Treaty, but formal recommendations on reference points to use for management purposes were not provided. The report indicated that the selection of these reference points would require input from government, First Nations, and stakeholders on acceptable probabilities of achieving conservation outcomes given the data gaps and uncertainties. In April and May 2018, DFO held consultations to seek feedback on the approach for identifying reference points (i.e., low, moderate, or abundant) and determining corresponding exploitation rate caps (i.e., HCRs) for Canadian coho management units.[352] Given the DFO Science process could only provide advice on developing reference points and associated exploitation rates for the IFR MU, the engagement process predominantly focused on reviewing the proposed approach for IFR coho.[353] The 2018 to 2019 annual report of the Wild Salmon Policy implementation plan indicated that the development of reference points and associated decision rules was ongoing and on track and that IFMPs will document them.[354] During Oceana Canada's 2019 evaluation, departmental officials indicated a workshop was held in May 2018 to use the science information from the 2017 CSAS process to develop management reference points, which were planned to be incorporated in the 2019/20 IFMP (N.					

[346] DFO (2019). IFMP Groundfish Newfoundland and Labrador Region NAFO Subarea 2 + Divisions 3KLMNO. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/2019/groundfish-poisson-fond-2_3klmno-eng.htm

[347] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[348] NAFO (2017). Northwest Atlantic Fisheries Organization Report of the Commission and its Subsidiary Bodies (STACTIC and STACFAD). 39th Annual Meeting of NAFO, 18–22 September 2017, Montréal, Québec, Canada. Serial No. N6766. NAFO/COM Doc. 17-29 (Revised) https://www.nafo.int/Portals/0/PDFs/com/2017/comdoc17-29.pdf

[349] NAFO (2018). NAFO Annual Report 2018. https://www.nafo.int/Portals/0/PDFs/ar/ar2018/AR-2018.pdf

[350] NAFO (2018). Northwest Atlantic Fisheries Organization Serial No. N6888 NAFO/COM-SC Doc. 18-05. https://www.nafo.int/Portals/0/PDFs/COM-SC/2018/com-scdoc18-05.pdf

[351] DFO (2018). Framework for Determination of Pacific Salmon Commission Reference Points for Status Determination and Associated Allowable Exploitation Rates for Select Canadian Southern Coho Salmon Management Units. DFO Can. Sci. Advis. Sec. Sci. Adv. Rep. 2018/016. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_016-eng.html

[352] DFO (2018). Consultation on the Pacific Salmon Treaty Southern Coho Reference Points and Exploitation Rate Caps. http://www.pac.dfo-mpo.gc.ca/consultation/smon/pst-coho-tsp/index-eng.html

[353] Hall, A. & Semmens, C. (2018). PST Southern Coho Reference Points and Exploitation Rate Caps: Engagement Report. Prepared by ESSA Technologies Ltd. for the Department of Fisheries and Oceans (DFO) and the Pacific Salmon Commission (PSC). v + 18pp.+ Appendices. https://waves-vagues.dfo-mpo.gc.ca/Library/40712072.pdf

[354] DFO (2019). Wild Salmon Policy 2018 to 2022 Implementation Plan. Annual Report 2018 to 2019. http://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/annual-annuel/2018-2019-eng.html#highlights

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			Schjott, personal communication, June 25, 2019). Although this deliverable did not appear in the 2018/19 fiscal year work plan, in the work plan results for 2018/19 the department indicates in the HCR work plan results section that the deliverable (i.e., management reference points will be evaluated and implemented by March 31, 2019) is completed with a tangible deliverable that is available.[355] However, in the additional work section it indicates the deliverable (i.e., "undertake work to refine reference points based on new science information") was only met; commitment or action as defined in the description of deliverables (2018/19) is complete without a tangible deliverable. The 2019 to 2020 Wild Salmon Policy implementation plan report confirms that the consultations on revised reference points and exploitation rate caps for IFR coho were completed and documented in the 2019/20 southern BC salmon IFMP.[356] The consultation report revealed little support for the approach proposed by DFO, and changes were recommended. The 2019/20 IFMP does not include a limit reference point (LRP) for any coho salmon stocks; only mixed-stock chum fisheries in Johnstone Strait have an LRP documented.[357] However, the IFMP section pertaining to the precautionary approach (section 2.6) indicates Wild Salmon Policy benchmarks of biological status will inform the development of a precautionary approach to management of salmon resources and that benchmarks had been reviewed for conservation units of several of the southern inside coho stocks (Interior Fraser River, Georgia Strait Mainland, East Vancouver Island) and that consultations to seek feedback on the approach for identifying reference points (i.e., low, moderate, or abundant) and determining corresponding exploitation rate caps (i.e., HCRs) for Canadian coho management units were held.[358] Table 13.3-1 in the IFMP identifies Pacific Salmon Treaty abundance-based exploitation rate limits on coho salmon stocks in fisheries harvesting southern BC coho in the low, moderate, and abundant categories that appear to align with feedback obtained during consultation focused on the IFR MU and differ from the same table included in the previous IFMP.[359] It could be clarified whether the low limits will function as an LRP, and if so, they should be identified as such and details on them included in section 2.6 outlining the precautionary approach. Similarly, the exploitation rate caps should be identified as PA-compliant HCRs, if they are to function as such. Although unclear, it appears that the reference point and HCR work has been completed, and here it is assumed they have been selected (using information from the DFO Science advice and following consultations) and are implemented.						
4	Maritimes	Lobster – inshore LFA 27–33; Healthy	✓2019/20 ✓2020/21			Will complete HCR for 8 LFAs (27–33) in 2019-20.	Will complete development of HCR in 2020-21.		Previously completed (2020)
			Details: New reference points were accepted at a framework meeting for LFAs 27–33 in January 2018, according to documents available from a stock status update process held in February 2018.[360] During Oceana Canada's evaluation in 2020, the reports from the January 2018 meeting were yet to be published. The Research Document published in November 2020 includes two potential removal reference options based on the Continuous Change in Ratio (CCIR) method used to estimate exploitation rate.[361] It also outlines a simulation-based approach to evaluating HCRs for inshore lobster fisheries that are subject to input-based management measures (e.g., seasons, trap limits; not quota-based). In 2019, two CSAS processes were held to assess LFAs 27–32 (in February) and update the stock status in LFA 33 (in October), but neither of these meetings mention HCR evaluation in their terms of reference.[362,363] The reports						

[355] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[356] DFO (2020). Wild Salmon Policy 2018 to 2022 Implementation Plan: Annual Report 2019 to 2020. http://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/annual-annuel/2019-2020-eng.html

[357] DFO (2019). Pacific Region Final Integrated Fisheries Management Plan: June 1, 2019 – May 31, 2020, Salmon, Southern BC. https://waves-vagues.dfo-mpo.gc.ca/Library/40799104.pdf

[358] DFO (2018). Consultation on the Pacific Salmon Treaty Southern Coho Reference Points and Exploitation Rate Caps. http://www.pac.dfo-mpo.gc.ca/consultation/smon/pst-coho-tsp/index-eng.html

[359] DFO (2018). Integrated Fisheries Management Plan: June 1, 2018–May 31, 2019, Salmon, Southern BC. https://waves-vagues.dfo-mpo.gc.ca/Library/40694306.pdf

[360] DFO (2018). Stock Status Update of American Lobster (*Homarus americanus*) in Lobster Fishing Areas (LFAs) 27–33. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/030. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2018/2018_030-eng.html

[361] Cook, A.M., Hubley, P.B., Denton, C. & Howse, V. (2020). 2018 Framework Assessment of American Lobster (*Homarus americanus*) in LFA 27–33. DFO Can. Sci. Advis. Sec. Res. Doc. 2020/017. vi + 251 p. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2020/2020_017-eng.html

[362] DFO (2019). Terms of Reference: Stock Assessment of American Lobster in Lobster Fishing Areas (LFAs) 27–32. Regional Peer Review – Maritimes Region, February 11–12, 2019, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_11-12-eng.html

[363] DFO (2019). Terms of Reference: Stock Status Update of American Lobster in Lobster Fishing Area (LFA) 33. Regional Peer Review – Maritimes Region, October 4, 2019, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/10_04-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			from these meetings include removal references for the healthy zone.[364][365] The 2018 results of the DFO Sustainability Survey for Fisheries did not indicate any removal references for any health status zone, [366] indicating these are new. In February 2020, there was a CSAS process held to update the stock status for LFAs 27–32, but again there was no mention of HCR evaluation in the terms of reference, and reports are not yet available.[367] The newly published IFMP (March 2020) includes removal references for the healthy zone for LFAs 27–33.[368] The results of the 2019/20 fiscal year work plan indicated this deliverable is complete; a tangible deliverable is complete and available as a result.[369] However, it was repeated in the 2020/21 fiscal year work plan, where it is indicated work will continue towards the completion of an HCR that fiscal year. During Oceana Canada's 2020 evaluation, DFO indicated that the HCRs for these stocks were adopted in July 2019 and have been fully implemented (Fisheries and Aquaculture Management, and Science, Maritimes Region, personal communication, June 23, 2020). Thus, it was evaluated as complete here in 2020. The 2020/21 DFO work plan results again indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result. Although deliverable quality is not evaluated in this review, quality of this HCR could be questioned given the HCR only contains removal references for one of three health status zones (healthy) and therefore could be considered incomplete.[370] Furthermore, while having a removal reference is an important benchmark, it does not indicate how harvest levels will change if it is exceeded, as an HCR is expected to outline. It is noted that the types of measures tested in the simulation testing of proposed HCRs in the January 2018 meeting do not appear to have been implemented.						
5	Pacific	Sablefish – Pacific; Cautious	✓2019/20			Will begin update of HCR in 2019-20.			Previously completed (2020)
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries indicate the stock has harvest decision rules that have been developed, implemented, and evaluated.[371] The rules are conducted through Management Strategy Evaluation (MSE), which has been taking place since 2009, with updates in 2011 and 2014.[372] In 2016 the core operating models were revised, and in 2017 a process was held to evaluate the performance of the current management procedure (MP), which includes an HCR and nine alternative MPs against five plausible operating model scenarios that represent alternative hypotheses about stock productivity and spawning biomass. In September 2019, there was a CSAS Science Response Process held to update the core models again, following the three-year schedule, and provide advice about the performance of the current MP, as well as possible alternatives including measures aimed at reducing sub-lethal mortality.[373] The resultant advisory report from this process ranked candidate MPs under the reference and robustness operating models based on performance against						

[364] DFO (2020). Assessment of American Lobster (*Homarus americanus*) in Lobster Fishing Areas 27–32. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/026. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_026-eng.html

[365] DFO (2020). Stock Status Update for American Lobster (*Homarus americanus*) in Lobster Fishing Area 33 for 2019. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/047. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_047-eng.html

[366] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[367] DFO (2020). Terms of Reference: Stock Status Update of American Lobster in Lobster Fishing Areas (LFAs) 27-32. Regional Peer Review – Maritimes Region, February 11, 2020, Dartmouth, NS. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_11-eng.html

[368] DFO (2020). Lobster Fishing Areas 27–38 Integrated Fisheries Management Plan. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/maritimes/2019/inshore-lobster-eng.html

[369] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[370] DFO policy requires a removal reference for all three health status zones (DFO 2009). Although these lobster stocks are considered healthy and have been for the entire time series used to determine health status, this does not mean health status will not decline in the future. If that is the case, it will be much more difficult to come to a consensus on harvest control rules or removal references for the cautious or critical zone once the stock has declined from the healthy zone (e.g., see comments by DFO Gulf Region regarding the HCR for Greenland halibut in NAFO 4RST, above). Harvest control rules are supposed to be pre-agreed rules on how to harvest a stock under all health statuses, specifically to avoid such a scenario.

[371] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[372] DFO (2017). Evaluating the Robustness of Management Procedures for the Sablefish (*Anoplopoma fimbria*) Fishery in British Columbia, Canada for 2017–18. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2017/017. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2017/2017_017-eng.html

[373] DFO (2019). Terms of Reference: An Evaluation of the Performance of Alternative Management Procedures for the Sablefish Fishery in British Columbia, Canada. Regional Science Response Process – Pacific Region, September 23, 2019, Nanaimo, BC. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/09_23-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			fishery objectives.[374] The 2020/21 IFMP also indicates that candidate MPs to reduce sub-lethal mortality have been evaluated via an MSE process. [375] It indicates DFO has formed a working group drawing from existing advisory bodies comprising the key sectors encountering the highest frequency of sub-lethal sablefish mortality. This group is meant to collaborate on the development of management measures aimed at reducing the frequency and volume of sub-lethal sablefish bycatch. The IFMP presented the 2020/21 Total Allowable Catch and noted that it is determined annually using information from an annual fishery-independent sablefish survey and the commercial sablefish fishery. These indices are used to estimate sablefish biomass, which is incorporated into a harvest control rule, presumably one of those tested in the 2019 MSE update. The results of the 2019/20 work plan evaluation indicate this deliverable is completed; a tangible deliverable is complete and available as a result.[376]					
6	Pacific	Pacific herring – Strait of Georgia; Healthy	✓2018/19 ✓2021/22		Development of USRs and evaluation of PA-aligned HCR for the west coast of Vancouver Island and Strait of Georgia stocks in 2018-19.			Will continue exploration and development of HCRs in 2021-22. (*Pacific herring – Strait of Georgia*) Will continue exploration and development of HCRs in 2021-22. (*Pacific herring – west coast of Vancouver Island*)	**Delayed**[377]
		Pacific herring – west coast of Vancouver Island; Cautious	**Details:** A CSAS processes was held in January 2018 to evaluate management procedures for Pacific herring in the Strait of Georgia (SOG) and the west coast of Vancouver Island (WCVI) management areas, including the testing of various HCRs in a Management Strategy Evaluation (MSE) framework.[378] The report published from this process indicates no USR was selected for adoption, but candidate USRs are presented.[379] Importantly, the report provides the relative performance of 10 management procedures (with HCRs) in achieving objectives developed by management, rights-holders, and stakeholders. The 2018/19 IFMP indicated the consistent use of one candidate USR across all five major Pacific herring stocks.[380] For the SOG and WCVI stocks, catch limits for 2019/20 were calculated based on the best-performing management procedure. The results of the DFO 2018/19 work plan evaluation indicated this deliverable was met, the commitment or action as defined in the description of deliverables (2018/19) was completed without a tangible deliverable.[381] Based on these findings, this deliverable was evaluated as completed in the Oceana Canada 2019 evaluation. However, these two stock components were again included in the 2021/22 work plan, indicating exploration and development of HCRs will continue in 2021/22, implying the work was not completed and implemented. Given the exclusions of these stock components in the work plans since 2018/19 and still no HCRs formally implemented, this deliverable is evaluated as delayed this year. The results of the most recent (2019) DFO Sustainability Survey for Fisheries					

[374] DFO (2020). Evaluating the Robustness of Candidate Management Procedures in the BC Sablefish (*Anoplopoma fimbria*) Fishery for 2019–2020. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/025. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_025-eng.html

[375] DFO (2020). Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective, February 21, 2020, Version 1.0. https://waves-vagues.dfo-mpo.gc.ca/Library/40854450.pdf

[376] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[377] This deliverable was previously evaluated as completed in 2019. However, it was included again in the 2021/22 work plan indicating work will continue exploration and development of HCRs in 2021/22, implying the deliverable actually was not completed and the HCR implemented.

[378] DFO (2018). Terms of Reference. Evaluation of Management Procedures for Pacific Herring (*Clupea pallasii*) in the Strait of Georgia and the West Coast of Vancouver Island Management Areas of British Columbia. Regional Peer Review Process – Pacific Region, July 25–26, 2018, Nanaimo, BC. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/07_25-26-eng.html

[379] DFO (2019). Evaluation of Management Procedures for Pacific Herring (*Clupea pallasii*) in the Strait of Georgia and the West Coast of Vancouver Island Management Areas of British Columbia. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/001. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_001-eng.html

[380] DFO (2019). Pacific Region Integrated Fisheries Management Plan: Pacific Herring, November 7, 2018–November 6, 2019, Updated February 12, 2019. https://waves-vagues.dfo-mpo.gc.ca/Library/40762713.pdf

[381] DFO (2019). Fisheries and Oceans Canada's Work Plans Results for fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 - Sustaining Canada's Major Fish Stocks - Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			indicate harvest decision rules for both stock components have been developed, implemented, and evaluated.[382] But this appears to be referring to the old harvest strategy and not the new one under development, as the respondent indicates HCRs are currently being evaluated using simulation, within a MSE process for each component. However, the respondent notes that in 2018, harvest decision rules for the SOG and WCVI stocks were evaluated through a peer review process. The respondent also notes that for SOG, a 20% harvest rate was successful in achieving the conservation objective, and in 2019, based on these evaluations, a decision rule of 20% harvest rate with two operational control points at 30% and 60% of the unfished biomass (B_0) was implemented. For WCVI the respondent indicates no simulated harvest decision rules could meet the minimum conservation objective and therefore no harvest was permitted in 2019. The 2019/20 IFMP summaries the MSE progress to date, indicating that in 2020, a second round of management procedure evaluations were performed for the SOG and WCVI using similar methods as before.[383] It indicates that a fully specified set of objectives has not yet been developed for each management area and that DFO will continue to collaborate with coastal First Nations to develop area-specific objectives specific to Food, Social and Ceremonial fisheries, as well as commercial fisheries. The IFMP indicates DFO will continue to engage with the herring industry, government, and nongovernment organizations to describe broader objectives related to conservation, economics, and access. The report from the September 2020 CSAS Science Response Process held to update the MSE for these two stock components indicated the simulation results showed that all candidate management procedures (including HCRs) met the conservation objectives (i.e., were able to avoid the LRP with at least 75% probability), under all updated operating model scenarios.[384] Similarly, for the SOG all management procedures, except the one with a target harvest rate of 30%, were able to avoid the LRP with at least 75% probability under all updated operating models. The report notes future improvements to the MSE process, including a pre-specified process for decision-making under MSE that identifies how simulation results will be applied to fisheries management decision-making. There is a CSAS Science Response Process on the schedule for September 2021 to provide a stock status update with application of management procedures for Pacific herring (*Clupea pallasii*) in British Columbia: status in 2021 and forecast in 2022. The terms of reference are not yet posted for further details. The 2021/22 work plan for the first time breaks down the Pacific herring HCR deliverables into stock components and includes four separate deliverables associated with HCRs for four of the five major spawning components (SOG, WCVI, Central Coast, Prince Rupert District). During Oceana Canada's 2022 evaluation, work will continue to be evaluated as the components were first included in the work plans, with a record for SoG and WCVI (as done here) and another for the Central Coast, Prince Rupert District, and Haida Gwaii components (see below). During Oceana Canada's 2021 evaluation, DFO indicated a new operating model for MSE simulations was developed in order to include several additional scenarios about the Pacific herring system, such as spatial and fleet dynamics and additional natural mortality scenarios. A technical review of this new operating model is planned for fall 2021, with application to the Strait of Georgia and Haida Gwaii stock areas (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). This CSAS review will not include evaluations of new HCRs but will evaluate those already simulation-tested under the new operating model scenarios (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). Once the review is complete, steps will be taken to apply the new operating model to evaluate management procedures in all stock areas (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). When asked when the region expects the Pacific herring management framework renewal to be completed, DFO indicated the bulk of the scientific work for the framework renewal has been completed but this is an ongoing process, in that periodic reviews and updates will occur (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021).						
7	Gulf	Atlantic herring – 4T fall spawner[385] (fixed gear) (mobile gear); [386] Cautious	✓2017/18 ✓2018/19 ✓2019/20 ✓2020/21 ✓2021/22	HCRs will be evaluated and implemented by March 31, 2018.	Meetings with working groups are planned to reconvene and to revisit HCR with stakeholders. HCRs for the herring 4T stocks were previously	Will continue to develop HCR in 2019-20. Deliverable previously noted for completion in 2018-19.	Will continue development of HCR in 2020-21.	Carry forward from 2020-21. Will continue development of HCR in 2021-22.	**Delayed**

[382] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[383] DFO (2020). Pacific Region Integrated Fisheries Management Plan: November 20, 2020–November 6, 2021, Pacific Herring. https://waves-vagues.dfo-mpo.gc.ca/Library/40937343.pdf

[384] DFO (2021). Updated Evaluation of Management Procedures for Pacific Herring (*Clupea pallasii*) in the Strait of Georgia and the West Coast of Vancouver Island Management Areas of British Columbia. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/013. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_013-eng.html

[385] Note that until the 2020/21 fiscal year work plan, DFO listed this stock as two: one for each gear type, which is appropriate given they catch the same fish stock. This change has been made in this year's (2020) evaluation as well.

[386] Note that in the 2017/18 work plan 1, the mobile gear component of this stock was incorrectly listed as 4T spring spawner (mobile gear), but departmental officials indicated it was meant to read 4T fall spawner (mobile gear) (M. Clemens, personal communication, June 7, 2018).

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
					noted for completion in 2017-18.				
			Details: The 2018/19 work plan indicated that this deliverable was delayed (i.e., the 2017/18 work was not completed as intended). A CSAS process was held in March 2018 to assess Atlantic herring (*Clupea harengus*) from the southern Gulf of St. Lawrence (NAFO Div. 4T-4Vn) to 2017 and provide advice for the 2018 and 2019 fisheries,[387] but it did not evaluate potential HCRs.[388,389] No further CSAS processes occurred in 2018/19, but resource management meetings with working groups did occur as planned on December 13, 2018, and February 20, 2019 (N. Schjott, personal communication, August 1, 2019). In the work plan results for 2018/19, the department indicated this deliverable was met; the commitment or action as defined in the description of deliverables (2018/19) was completed without a tangible deliverable.[390] But the department also noted in the 2019/20 work plan that this HCR deliverable was delayed. The 2019/20 work plan indicated work to develop and implement an HCR would continue into 2019/20. During Oceana Canada's 2019 evaluation, departmental officials indicated that a CSAS process might occur in winter 2020 and that implementation was currently planned for fall 2020 (N. Schjott, personal communication, June 25, 2019). In March 2020 there was a CSAS process intended to review the status of the stock and harvest advice for 2020 and 2021. Although the terms of reference indicated various quantitative risk analyses of harvest options were requested, there was no mention of a harvest control rule.[391] However, the Science Advisory Report from this meeting does include mention of harvests in relation to the provisional harvest decision rule in the DFO precautionary approach framework.[392] This is presumably in reference to a previously defined healthy zone fishing removal reference of F0.1, corresponding to F=0.32. The results of the 2019/20 work plan evaluation indicate this deliverable is delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[393] The 2020/21 fiscal year work plan indicated work would continue towards the development of an HCR. During Oceana Canada's 2020 evaluation, DFO indicated that it was planning on re-doing the HCR for the 4T fall spawner in the 2020/21 fiscal year, as the previous HCR that was developed was not compliant with the precautionary approach. Plans included consulting the Gulf Small Pelagics Working Group on the draft HCR in the fall and then having the Gulf Small Pelagics Advisory Committee review (and potentially endorse) those findings in March 2021 (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). There were no CSAS processes held pertaining to this stock in fiscal 2020/21, and none currently on the schedule for the rest of 2021. However, a CSAS process is on the schedule for winter 2022 to assess the stock and provide advice for the fishery in 2022 and 2023. The terms of reference for this meeting are not yet posted. The results of the most recent (2019) DFO Sustainability Survey for Fisheries indicate harvest decision rules are being developed in consultation with the industry.[394] The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. This deliverable is included again in the 2021/22 fiscal year work plan, indicating DFO will continue HCR development this fiscal year, and the deliverable was carried forward from last year, thus DFO is indicating delayed progress. During Oceana Canada's 2021 evaluation, DFO indicated the COVID-19 pandemic impacted DFO operations and fisheries in 2020/21. In in addition to creating capacity issues (including staff turnover), it delayed progress with developing HCRs for this stock (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted a new model was used for the				

[387] DFO (2018). Terms of Reference: Assessment of Stock Status of Atlantic Herring (*Clupea harengus*) from the Southern Gulf of St. Lawrence (NAFO Div. 4T-4Vn) to 2017 and Advice for the 2018 and 2019. Fisheries Regional Science Peer Review – Gulf Region, March 14–15, 2018, Moncton, New Brunswick. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/03_14-15b-eng.html

[388] DFO (2018). Assessment of the Southern Gulf of St. Lawrence (NAFO Div. 4T) Spring and Fall Spawner Components of Atlantic Herring (*Clupea harengus*) with Advice for the 2018 and 2019 Fisheries. DFO Can. Sci. Advis. Sec. Sci. Adv. Rep. 2018/029. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_029-eng.html

[389] McDermid, J.L., Swain, D.P., Turcotte, F., Robichaud, S.A. & Surette, T. (2018). Assessment of the NAFO Division 4T Southern Gulf of St. Lawrence Atlantic Herring (*Clupea harengus*) in 2016 and 2017. DFO Can. Sci. Advis. Sec. Res. Doc. 2018/052. xiv + 122 p. http://dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2018/2018_052-eng.html

[390] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[391] DFO (2020). Terms of Reference: Assessment of Stock Status of Atlantic Herring (*Clupea harengus*) from the Southern Gulf of St. Lawrence (NAFO Div. 4T-4Vn) to 2019 and Advice for the 2020 and 2021 Fisheries. Regional Science Peer Review – Gulf Region, March 12–13, 2020, Moncton, NB. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/03_12-13-eng.html

[392] DFO (2020). Assessment of the Southern Gulf of St. Lawrence (NAFO Division4T-4Vn) Spring and Fall Spawner Components of Atlantic Herring (*Clupea harengus*) with Advice for the 2020 and 2021 Fisheries. DFO Can. Sci. Advis. Sec.Sci. Advis. Rep.2020/029. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_029-eng.html

[393] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[394] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			assessment that included changes in natural mortality over time with spawning stock biomass (SSB), projections for short and long-term as well as recalculated reference points. DFO indicated discussions with stakeholders and Science will continue over the next year to explore other options to promote stock growth and implement harvest decision rules based on the new assessment model and recalculated reference points. DFO is planning to continue the development of these HCRs in 2021/22 (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).						
8	Gulf	Atlantic herring – 4T spring spawner; Critical	✓2017/18 ✓2018/19 ✓2019/20 ✓2020/21 ✓2021/22	HCRs will be evaluated and implemented by March 31, 2018.	Meetings are planned with stakeholders to develop HCR. The herring 4T stocks were previously noted for completion in 2017-18.	Will continue to develop HCR in 2019-20. Deliverable previously noted for completion in 2018-19. The precautionary approach will be addressed in the rebuilding plan.	Will continue development of HCR in 2020-21. HCR will be developed during consultations on rebuilding plan.	Will continue development of HCR in 2021-22	**Delayed**
			Details: The 2018/19 work plan indicated that this deliverable was delayed (i.e., the 2017/18 work was not completed as intended). A CSAS process was held in March 2018 to assess Atlantic herring (*Clupea harengus*) from the southern Gulf of St. Lawrence (NAFO Div. 4T-4Vn) to 2017 and provide advice for the 2018 and 2019 fisheries,[395] but it did not evaluate potential HCRs.[396,397] No further CSAS processes occurred in 2018/19, but resource management meetings with working groups did occur as planned on December 13, 2018, and February 20, 2019 (N. Schjott, personal communication, August 1, 2019). In the work plan results for 2018/19, the department indicated this deliverable was met; the commitment or action as defined in the description of deliverables (2018/19) was completed without a tangible deliverable.[398] But the department also noted in the 2019/20 work plan that this HCR deliverable was delayed. The 2019/20 work plan indicated work to develop and implement an HCR would continue into 2019/20. During Oceana Canada's 2019 evaluation, departmental officials indicated a CSAS process might occur in winter 2020 and implementation was currently planned for fall 2020 (N. Schjott, personal communication, June 25, 2019). In March 2020 there was a CSAS process intended to review the status of the stock and harvest advice for 2020 and 2021. Although the terms of reference indicated various quantitative risk analyses of harvest options were requested, there was no mention of a harvest control rule.[399] However, the Science Advisory Report from this meeting does include mention of harvests in relation to the provisional harvest decision rule in the DFO precautionary approach framework.[400] This is presumably in reference to a previously defined healthy zone fishing removal reference of F0.1, corresponding to F=0.35. The results of the 2019/20 work plan evaluation indicate this deliverable is delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[401] The 2020/21 fiscal year work plan indicated work would continue towards the development of an HCR. During Oceana Canada's 2020 evaluation, DFO indicated that they were planning on re-doing the HCR for the 4T fall spawner in 2020/21, as the previous HCR that was developed was not compliant with the precautionary approach. Plans included consulting the Gulf Small Pelagics Working Group on the draft HCR in the fall and then having the Gulf Small Pelagics Advisory Committee review (and potentially						

[395] DFO (2018). Terms of Reference: Assessment of Stock Status of Atlantic Herring (*Clupea harengus*) from the Southern Gulf of St. Lawrence (NAFO Div. 4T-4Vn) to 2017 and Advice for the 2018 and 2019. Fisheries Regional Science Peer Review – Gulf Region, March 14–15, 2018, Moncton, New Brunswick. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/03_14-15b-eng.html

[396] DFO (2018). Assessment of the Southern Gulf of St. Lawrence (NAFO Div. 4T) Spring and Fall Spawner Components of Atlantic Herring (*Clupea harengus*) with Advice for the 2018 and 2019 Fisheries. DFO Can. Sci. Advis. Sec. Sci. Adv. Rep. 2018/029. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_029-eng.html

[397] McDermid, J.L., Swain, D.P., Turcotte, F., Robichaud, S.A. & Surette, T. (2018). Assessment of the NAFO Division 4T Southern Gulf of St. Lawrence Atlantic Herring (*Clupea harengus*) in 2016 and 2017. DFO Can. Sci. Advis. Sec. Res. Doc. 2018/052. xiv + 122 p. http://dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2018/2018_052-eng.html

[398] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[399] DFO (2020). Terms of Reference: Assessment of Stock Status of Atlantic Herring (*Clupea harengus*) from the Southern Gulf of St. Lawrence (NAFO Div. 4T-4Vn) to 2019 and Advice for the 2020 and 2021 Fisheries. Regional Science Peer Review – Gulf Region, March 12–13, 2020, Moncton, NB. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/03_12-13-eng.html

[400] DFO (2020). Assessment of the Southern Gulf of St. Lawrence (NAFO Division4T-4Vn) Spring and Fall Spawner Components of Atlantic Herring (*Clupea harengus*) with Advice for the 2020 and 2021 Fisheries. DFO Can. Sci. Advis. Sec.Sci. Advis. Rep.2020/029. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_029-eng.html

[401] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			endorse) those findings in March 2021 (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). There were no CSAS processes held pertaining to this stock in fiscal 2020/21, and none currently on the schedule for the rest of 2021. However, a CSAS process is on the schedule for winter 2022 to assess the stock and provide advice for the fishery in 2022 and 2023. The terms of reference for this meeting are not yet posted. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. This deliverable is included again in the 2021/22 fiscal year work plan, indicating DFO will continue HCR development this fiscal year, and the deliverable was carried forward from last year, with DFO here indicating delayed progress. During Oceana Canada's 2021 evaluation, DFO indicated the COVID-19 pandemic impacted DFO operations and fisheries in 2020/21. In addition to creating capacity issues (including staff turnover), it delayed progress with developing a rebuilding plan and HCRs for this stock (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted a new model was used for the assessment that included changes in natural mortality over time with spawning stock biomass (SSB), projections for short and long-term, and recalculated reference points. Discussions with stakeholders and Science will continue over the next year to explore other options to promote stock growth and implement harvest decision rules based on the new assessment model and recalculated reference points (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO indicated work on the plan will continue into 2021/22, and this will include new science from the last stock assessment, which will help inform management measures and harvest control rule options for the commercial and bait fisheries (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).						
9	Newfoundland and Labrador	Atlantic cod – 2J3KL; Critical	✓2017/18 ✓2018/19	Current timelines anticipate being able to develop HCRs in 2017-18 to inform the 2018 fishery management decisions. Targeting to complete work early in the 2018-19 early fiscal year.	Continued evaluation of HCR. HCRs for the Atlantic cod 2J3KL stock were previously noted for completion in 2017-18.				Completed
			Details: A working group made up of a subset of the 2J3KLMNO Groundfish Advisory Committee has been established and tasked with the development of a rebuilding plan and associated HCR. As noted in the 2018/19 work plan, work to develop and implement an HCR was not completed in fiscal 2017/18 and therefore continued into 2018/19. DFO presented a draft HCR at the groundfish advisory meeting in April 2018, but it was still in draft form and was not used to inform the 2018 management decisions. In January 2019, a CSAS process was held to re-evaluate the LRP, where it was concluded the previous approach to adopting the LRP (as well as the LRP itself) remains valid.[402] The stock was assessed in March 2019, but although harvest advice was sought, HCR development or evaluation was not in the terms of reference for the meeting or discussed in the resultant report.[403,404] At the April 2019 2J3KLMNO Groundfish Advisory Committee meeting, the department indicated the next steps towards the rebuilding plan and associated HCR were to be determined. In the work plan results for 2018/19, the department indicated this deliverable was again delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[405] The stock was scheduled for a complete assessment in March 2020, but due to the COVID-19 pandemic, this meeting was cancelled and instead a Science Response Process was held on April 1–2, 2020 to provide 2020 harvest advice. Again, an HCR was not included in the terms of reference for this meeting,[406] and none is mentioned in the resultant report.[407] The development of a rebuilding plan or HCR was not on the agenda for the April 2020 2J3KLMNO Groundfish Advisory Committee meeting, although when asked, departmental officials did						

[402] DFO (2019). Evaluation of the Biomass Limit Reference Point for Northern Cod (NAFO Divisions 2J3KL). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/058. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_058-eng.html

[403] DFO (2019). Terms of Reference: Stock Assessment of Northern Cod (Divs. 2J3KL). Regional Peer Review Process – Newfoundland and Labrador Region, March 26–29, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/03_26-29-eng.html

[404] DFO (2019). Stock Assessment of Northern Cod (NAFO Divisions2J3KL) in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/050. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_050-eng.html

[405] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[406] DFO (2020). Terms of Reference: Stock Assessment of Northern Cod (Divs. 2J3KL). Regional Peer Review Process – Newfoundland and Labrador Region, April 1–2, 2020, virtual meeting. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/04_01-02b-eng.html

[407] DFO (2021). 2020 Stock Status Update for Northern Cod. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/004. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_004-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			indicate the rebuilding plan remained a priority. It is unclear what progress was made towards HCR development in fiscal 2019/20, and it is suspected no working group meetings have been held since early 2018. Section 2 of the 2020/21 fiscal year work plan, pertaining to rebuilding plans, indicates progress has been delayed and that to date, divergent stakeholder views have limited the progress in defining an HCR. This HCR-specific deliverable was not repeated in either the 2019/20 or 2020/21 fiscal year work plans. During Oceana Canada's 2020 evaluation, DFO confirmed that a draft HCR was developed and tabled for industry in 2018 but consensus among stakeholders had not been reached (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador Region, personal communication, June 23, 2020). In late December 2020, DFO published a rebuilding plan for northern cod that includes a Harvest Decision Rule (HDR).[408] The HDR appears to be the same as that presented at the 2018 advisory meeting. While evaluated as completed here, it is noted that HDR quality is not evaluated. The HDR and associated rebuilding plan have received external critiques on its adequacy.[409,410]					
10	Quebec	Greenland halibut (turbot) – 4RST; Cautious	✓2019/20 ✓2020/21 ✓2021/22			Will complete development of HCR in 2019-20.	Carry-forward from 2019-20. Will complete development of HCR in 2020-21.	Carry forward from 2020-21. Will complete development of HCR in 2021-22.	**Delayed**
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries indicate the precautionary approach framework for this stock is under development and consultations are underway to adopt it.[411] But it is unclear if this includes HCR development. The stock was assessed during a CSAS process held in February 2019, where the terms of reference indicated reference points were to be developed, but there is no mention of HCR evaluation.[412] The resultant Science Advisory Report indicated that fishery managers at DFO, with support from the Science Sector, are holding consultations with the fishing industry and other stakeholders to adopt the proposed upper stock reference (USR) point, and that HCR development will be part of those consultations.[413] The stock status was re-evaluated during a CSAS Science Response Process held in December 2019, but no HCR evaluation was mentioned in any resulting reports.[414] This stock is included in the Gulf mixed-species groundfish IFMP (2017), which cannot be found by searching the DFO IFMP website[415] but can be found via a search of the internet.[416] This online posting may be a mistake, given this IFMP is still considered to be under development according to the 2020/21 fiscal year work plan. Regardless, it does not indicate an HCR for the stock or intentions to develop one. However, the IFMP was last updated in 2017, prior to the development of this deliverable in 2019/20. The IFMP does indicate an overall medium-term objective of implementing all elements of the precautionary approach, including harvest decision rules, for all groundfish stocks. During Oceana Canada's 2019 evaluation, departmental officials clarified that this stock is likely to be included in two IFMPs: the Gulf Region multispecies groundfish IFMP and a single-stock IFMP developed by the Quebec Region. The latter IFMP will be specific to harvesters based in Quebec and will likely contain more detailed information on the stock than the multispecies groundfish IFMP for the Gulf Region. During the 2019 evaluation it was indicated that the IFMP was drafted and awaiting approvals (N. Schjott, personal communication, June 25, 2019). The results of DFO's 2019/20 work plan evaluation					

[408] DFO (2021). Rebuilding Plan for Atlantic Cod – NAFO Divisions 2J3KL. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/cod-morue/2020/cod-atl-morue-2020-eng.html

[409] Hutchings, J.A., Rose, G.A. & Shelton, P.A. (2021). The Flawed New Plan to Rebuild Canada's Iconic Northern Cod. Policy Options, March 22, 2021. https://policyoptions.irpp.org/magazines/march-2021/the-flawed-new-plan-to-rebuild-canadas-iconic-northern-cod/

[410] Archibald, D.W. & Rangeley, R. (2021). Comment on 2021 Management Measures for Northern Cod. Oceana Canada. https://oceana.ca/en/publications/reports/comment-2021-management-measures-northern-cod

[411] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[412] DFO (2019). Terms of Reference: Assessment of the Gulf of St. Lawrence (4RST) Greenland Halibut. Regional Peer Review – Quebec Region, February 20–21, 2019, Mont-Joli, Quebec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_20-21-eng.html

[413] DFO. (2019). Assessment of the Gulf of St. Lawrence (4RST) Greenland Halibut Stock in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/023. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_023-eng.html

[414] DFO. (2020). Update of Stock Status Indicators for Greenland Halibut in the Gulf of St. Lawrence (4RST) in 2019. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/005. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_005-eng.html

[415] DFO (2020). Integrated Fisheries Management Plans. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/index-eng.html

[416] DFO (2017). Integrated Fisheries Management Plan: Groundfish – Gulf of St. Lawrence (NAFO) Subdivisions 3Pn, 4Vn and Divisions 4RST, January 2017. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/groundfish-poisson-fond-div3pn-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			indicate this deliverable (HCR development) was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[417] The 2020/21 fiscal year work plan indicated HCR development would be completed that fiscal year and was carried forward from the previous fiscal year, meaning activities were not carried out as described in the deliverable description. During Oceana Canada's 2020 evaluation, DFO indicated that despite significant progress made at a February 2020 workshop, discussions remain difficult regarding the development of an HCR to reduce the quota or exploitation rate, given the current status of the stock (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). The stock was assessed at a CSAS process held in February 2021, and the resultant Science Advisory Report indicates a precautionary approach is being developed for the stock, implying it is not yet finalized.[418] The report indicates that at the last workshop of the working group in February 2020, the group accepted the new LRP and USR proposals. But the report also notes that defining the HCR remains difficult due to current stock status. The newly published stock-specific IFMP for this stock indicates the precautionary framework is still under development and includes details of a proposed USR, indicating consultations were still required before adoption.[419] It also indicates decision-making rules for adjusting catches should be determined during these consultations. However, although the IFMP was published recently (May 2021), most of the information it contains is from 2018 and is likely dated. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). This stock is included in the 2021/22 fiscal year work plan for HCR completion, with an indication that the deliverable was a carry-forward from 2020/21, implying progress was not made as anticipated. During Oceana Canada's 2021 evaluation, DFO indicated the working group will continue its work this fall to complete the decision rules (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). The work plan is to complete the precautionary approach in 2021/22 (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021).					
11	Gulf	Atlantic salmon – Gulf Region; Uncertain†[420]	✓2019/20 ✓2020/21 ✓2021/22			Will continue to develop HCR in 2019-20. Development of PA framework will continue in 2019-20 with consultations on proposed USR and decision rules for the recreational fishery in the Miramichi River system. Deliverable previously noted for completion in 2018-19.[421]	Will continue development of HCR in 2020-21. Consultations on options for the Miramichi River recreational fishery USR and HCR are planned for Fall 2020.	Carry forward from 2020-21. Will continue development of HCR for the Miramichi River in 2021-22.	**Delayed**
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries indicate harvest decision rules have not been developed. The respondent does indicate that a USR and removal reference for each stock status zone are to be established after discussions with First Nations and stakeholders and that this work was in progress.[422] The survey results also indicate that the IFMP is currently being updated and could be completed in spring 2020 but that this was not confirmed. The IFMP in use during Oceana Canada's 2020 evaluation (IFMP – Atlantic salmon in Salmon Fishing Areas 15 to 18 (2008 to 2012)) was not available online, and there remains no updated version available yet. The survey indicates the stock was not harvested					

[417] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[418] DFO (2021). Assessment of the Gulf of St. Lawrence (4RST) Greenland Halibut Stock in 2020. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/017. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_017-eng.html

[419] DFO (2021). Integrated Fisheries Management Plan: Greenland Halibut Integrated Fisheries Management Plan in NAFO Divisions 4RST. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/2020/halibut-fletan-eng.htm

[420] Stock status of Atlantic salmon in the Gulf region is reported as "uncertain" in the 2019 results of the DFO Sustainability Survey for Fisheries; however, the comments indicate that in 2019 most assessed stocks (i.e., rivers) were in the critical zone, with the exception of one that was in the cautious zone.

[421] Although the 2019/20 work plan has a footnote indicating this deliverable was previously noted for completion in 2018/19, this is not the case. Atlantic salmon is listed in both 2017/18 and 2018/19 fiscal year work plans, but deliverables were related to LRP development (2017/18), IFMP updating (2017/18) ,and IFMP posting (2018/19), not HCR development.

[422] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			within approved levels in 2018 and indicates this is because it cannot be verified, given there is no reporting requirement in the (catch and release) recreational fishery and incomplete information about catches in the Food, Social and Ceremonial fisheries. These issues will no doubt make establishment of an HCR challenging. The results of the 2019/20 work plan evaluation indicated this deliverable (HCR development) is delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[423] The 2020/21 fiscal year work plan indicated that work would continue towards the development of an HCR and that consultations on options for the Miramichi River recreational fishery USR and HCR were planned for fall 2020. During Oceana Canada's 2020 evaluation, DFO confirmed that the Region will be consulting on and working through options for the precautionary approach to the recreational fishery in the Miramichi watershed (including a USR and HCR) in fall 2020 through a special meeting of a new working group comprised of First Nations and various stakeholders (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). The most recent (2019) results of the DFO Sustainability Survey for Fisheries again indicate a USR and removal reference for status zones are to be established after discussions with First Nations and stakeholders and that this is a work in progress.[424] It indicates the IFMP update is well underway and will be completed by March 2021. The IFMP is still not available. The CSAS schedule indicates there was a CSAS process intended to be held in March 2021 that was postponed. The process was intended to assess the status of Atlantic salmon in the Gulf Region and provide an assessment of reference points and decision rules that conform to the precautionary approach. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. This stock is included again in the 2021/22 work plan for continued development of the HCR for the Miramichi River, here indicating the deliverable was carried forward from 2020/21. This implies progress was not made as anticipated. During Oceana Canada's 2021 evaluation, DFO indicated the CSAS process planned for March 2021 was postponed until additional stakeholder consultations can be completed and is expected to be held in 2021/22 (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). The Working Group on the precautionary approach for the Miramichi River Atlantic Salmon has completed the development of two USR and HCR scenarios. DFO is currently reviewing both scenarios and discussing next steps internally (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).					
12	Newfoundland and Labrador	Snow crab – 2J, 3KLNO and 3Ps; Cautious, Healthy	✓2019/20 ✓2020/21 ✓2021/22			Will begin to develop HCR in 2019-20.	Will continue development of HCR in 2020-21.	Carry forward from 2020-21. Will continue revision of HCR in 2021-22.	**Delayed**
			Details: A CSAS process was held in June 2018 to develop a precautionary approach framework for snow crab in the Newfoundland and Labrador Region. The research document published from this meeting indicates LRPs were established and includes USRs and HCRs proposed by scientists.[425] An additional CSAS process was held in February 2019,[426] and the CSAS Science Advisory Report included: a) details about the LRPs and stock statuses in relation to them; b) upper removal references, HCRs, and USRs that have been proposed but have not been adopted into the framework; and c) USRs remain under development.[427] According to the proceedings from the February 2019 meeting, not all fishers in attendance at the meeting were in agreement with the inclusion of the precautionary approach framework or bullets related to it in the resultant Science Advisory Report.[428] Several participants expressed concerns the proposed precautionary approach (PA) framework was even presented. It was clarified by DFO that LRPs defining the critical zone were established by a peer review CSAS process; that USRs defining the cautious and healthy zones remain under development; and that the proposed cautious and healthy zones (i.e., zones created by a proposed USR) would not be used by DFO Resource Management for the 2019 fishing season. Several participants stated that Resource Management should consult harvesters to finalize the PA framework. The proceedings					

[423] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[424] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[425] Mullowney, D., Baker, K., Pedersen, E. & Osborne, D. (2018). Basis for a Precautionary Approach and Decision Making Framework for the Newfoundland and Labrador Snow Crab (*Chionoecetes opilio*) Fishery. DFO Can. Sci. Advis. Sec. Res. Doc. 2018/054. Iv + 66 p. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2018/2018_054-eng.html

[426] DFO (2019). Terms of Reference: 2HJ3KLNOP4R Snow Crab Assessment. Regional Peer Review Process – Newfoundland and Labrador Region, February 19–21, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_19-21-eng.html

[427] DFO (2019). Assessment of Newfoundland and Labrador (Divisions 2HJ3KLNOP4R) Snow Crab. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/041. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_041-eng.html

[428] DFO (2020). Proceedings of the Newfoundland and Labrador Regional Peer Review of the 4R Iceland Scallop Assessment, and the 2HJ3KLNOP4R Snow Crab Assessment, February 19–21, 2019. DFO Can. Sci. Advis. Sec. Proceed. Ser. 2020/003. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2020/2020_003-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			indicate that DFO Science noted the proposed PA framework included the best science advice available and that proposed cautious and healthy zones would be included in all science advice going forward. The IFMP for the stock, which was posted online in May 2019, indicates industry consultations on the precautionary approach framework were held in fall 2018 and a number of concerns were raised.[429] It indicates that during winter 2019 a working group was formed and a meeting was held to discuss HCRs and the USRs but that further discussion was required. The IFMP indicates it is anticipated that the precautionary approach will be finalized and accepted in 2020. Snow crab in the region were assessed again at a CSAS meeting held in February 2020.[430] The report from this meeting uses the provisional USR developed by DFO Science to evaluate status but notes that the USRs and HCRs have been proposed but not adopted into the framework and are tentative.[431] The report also notes that in early 2020, members of the harvesting sector submitted an alternative precautionary approach framework for snow crab to be reviewed by DFO Science. It was also noted in the report that during the February 2020 meeting, several participants from the harvesting sector indicated they do not support DFO Science's current proposed precautionary approach framework for use in decision-making. The results of the 2019/20 work plan evaluation indicate this deliverable (HCR development) is delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[432] The 2020/21 fiscal year work plan indicates work would continue towards the development of an HCR. During Oceana Canada's 2020 evaluation, DFO indicated that industry has expressed divergent views on reference points but that progress continues towards the development of HCRs in 2020/21 (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador Region, personal communication, June 23, 2020). The most recent results of the DFO Sustainability Survey for Fisheries (2019) indicate no harvest decision rules have been developed but not implemented. The respondent notes a precautionary framework has been proposed by Science but has not been implemented in this fishery due to resistance from industry.[433] It further notes the union representing harvesters in the province has proposed their alternate framework and it should be going through a peer review process in 2020. In fiscal 2020/21 there was a CSAS process held in September 2020 to evaluate an alternative precautionary approach framework for snow crab in the Newfoundland and Labrador region. The terms of reference for the meeting indicate reference point methodologies and proposed approaches for the identification of reference points would be reviewed, including removal reference points to guide harvest rates.[434] The reports expected from this meeting are not yet available. The stock group was assessed again in February 2021, but the terms of reference do not mention HCR development.[435] The reports expected from this meeting are not yet available. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. This deliverable is included again in the 2021/22 fiscal year work plan for continued progress towards HCR revisions. The work plan indicates this deliverable was carried forward from 2020/21, here implying progress was not made as anticipated. An annual assessment is on the CSAS schedule again for winter 2022, but the terms of reference are not yet posted to indicate whether HCR advice will be included. During Oceana Canada's 2021 evaluation, DFO indicated the scientific peer review process determined that the proposed alternate precautionary approach framework (PA Framework) (including the USR) would not be accepted (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). However, it was agreed that the information gathered from harvester consultations could be helpful in developing HCRs (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). DFO noted the Snow Crab PA Framework Working Group, which has been mandated to bring forward a series of recommendations to the department on the PA Framework, met on seven occasions between November 2020 and February 2021 (Science, National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). The focus of discussions was on Upper Stock Reference and Harvest Control Rules. Discussions were productive and the working group decided to reconvene after the conclusion of the 2021 snow crab fishery, in the fall of 2021 (Science,					

[429] DFO (2019). Integrated Fisheries Management Plan: Snow crab – Newfoundland and Labrador Region. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/snow-crab-neige/2019/index-eng.html

[430] DFO (2020). Terms of Reference: 2HJ3KLNOP4R Snow Crab Assessment. Regional Peer Review Process – Newfoundland and Labrador Region, February 25–27, 2020, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_25-27-eng.html

[431] DFO (2021). Assessment of Newfoundland and Labrador (Divisions 2HJ3KLNOP4R) Snow Crab. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2021/009. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_009-eng.html

[432] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[433] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[434] DFO (2020). Terms of Reference: Review of an Alternate Precautionary Approach Framework for Snow Crab in the Newfoundland and Labrador Region. Regional Peer Review – Newfoundland and Labrador Region, September 24–25, 2020, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/09_24-25-eng.html

[435] DFO (2021). Terms of Reference: 2HJ, 3KLNOP, and 4R Snow Crab Assessment. Regional Advisory Meeting – Newfoundland and Labrador Region, February 16-18, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/02_16-18-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			National Capital Region and Newfoundland and Labrador region, personal communication, July 16, 2021). This deliverable remains evaluated as delayed due to the previously acknowledged delays, implied delays by the carry-forward designation in the 2021/22 work plan, and lack of completion.						
13	Quebec	Snow crab – coastal (12A, 12B, 12C, 13, 14, 15, 16, 16A, 17); Uncertain	✓2019/20 ✓2020/21			Will begin to develop HCR in 2019-20. Development may be completed in 2020-21.	Carry-forward from 2019-20. Will begin development of HCR in 2020-21	Carry forward from 2020-21. Will begin development of HCR in 2021-22.	**Delayed**
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries indicate the precautionary approach components are currently under development, with an implementation target of 2020/2021.[436] A CSAS process was held in February 2019 to assess the stocks, but HCR evaluation was not part of the terms of reference[437] and therefore is not mentioned in the resultant report.[438] The stock was assessed in February 2020, but again HCR evaluation was not part of the terms of reference.[439] Again, no HCRs are mentioned in the resultant report.[440] The IFMP for the stocks, last modified in June 2019, indicates that decision rules are in place, based in part on indicators that allow the exploitation rate to be adjusted based on the productivity of the stock and its capacity to support exploitation.[441] However, it then indicates that the precautionary approach for the snow crab fishery in the inshore areas of the northern Gulf of St. Lawrence is being developed. The results of the 2019/20 work plan evaluation indicated this deliverable (HCR development) is delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[442] The 2020/21 fiscal year work plan indicated HCR development would begin and was carried forward from last fiscal year, meaning activities were not carried out as described in the deliverable description. During Oceana Canada's 2020 evaluation, DFO indicated that HCR work is conditional on DFO Science being able to make progress in the development of a model and indicators but that the objective was to start discussions in 2020/21, for at least some of the nine stocks in the stock group (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate harvest decision rules have been developed and evaluated but not implemented. However, it also indicates the precautionary approach is under development for these stocks with an implementation target for 2020/21, depending on resources.[443] In the description of the decision rules in the survey, the respondent notes the most recent Science opinion provides an outlook for each area that includes three possible scenarios for establishing the 2019 TAC. These scenarios takes into account the value and uncertainty of a combined indicator, formed from the catch per unit of commercial effort (CPUE) and number per unit effort (NUE) from the post-season scientific survey. They also take into account related indicators of stock status (crab size, shell condition, and expected recruitment), with the objective being sustainable management of the resource. These appear to be projection scenarios for management to consider when making harvest decisions, not pre-agreed decision rules establishing how harvests will vary by stock status zone as expected for a harvest decision rule. The stocks were assessed again at a CSAS process in February 2021. The terms of reference for the meeting do include an objective to provide a summary table of main						

[436] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[437] DFO (2019). Terms of Reference: Assessment of the Estuary and Northern Gulf of St. Lawrence Snow Crab Stocks. Regional Peer Review – Quebec Region, February 12–13, 2019, Mont-Joli, Québec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_12-13-eng.html

[438] DFO (2019). Assessment of the Estuary and Northern Gulf of St. Lawrence (Areas 13 to 17, 12A, 12B, 12C and 16A) Snow Crab Stocks in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/047. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_047-eng.html

[439] DFO (2020). Terms of Reference: Assessment of the Estuary and Northern Gulf of St. Lawrence Snow Crab Stocks. Regional Peer Review – Quebec Region, February 11–12, 2020. Mont-Joli, Québec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_11-12-eng.html

[440] DFO (2020). Assessment of the Estuary and Northern Gulf of St. Lawrence (Areas 13 to 17, 12A, 12B, 12C and 16A) Snow Crab Stocks in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/050. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_050-eng.html

[441] DFO (2019). Integrated Fisheries Management Plan: Snow Crab – Estuary and Northern Gulf of St. Lawrence Inshore Areas (12A, 12B, 12C, 13, 14, 15, 16, 16A and 17). https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/snow-crab-neige/2019/snow-crab-neiges-eng.html#toc2

[442] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[443] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			indicators for the precautionary approach,[444] but the reports from this meeting are not yet available to determine whether that includes a USR or HCR. The DFO 2020/21 work plan results evaluate this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The CSAS schedule for 2022 includes another annual assessment in winter 2022, but the terms of reference for it are not yet posted. The 2021/22 fiscal year work plan indicates that DFO will begin HCR development this fiscal year and that the deliverable was carried forward from last fiscal, implying delays. During Oceana Canada's 2021 evaluation, DFO provided further details on the recent Science advice. DFO indicated the Science Advisory Report outlook for each area includes three possible scenarios for establishing the allowable catch for the next fishing season (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). These scenarios were developed by taking into account an indicator combining the commercial catch rate (standardized catch per unit effort, CPUE) and the abundance of commercial-size adult males (number per unit effort, NPUE) from the post-season scientific survey, the uncertainty associated with this indicator, and related stock status indicators (crab carapace size and condition, expected recruitment, and females' spermatheca load, when available), with the objective of ensuring sustainable resource management (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). Proposed changes are relative to the landings of the previous fishing season (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). The characteristics of each scenario are: *High scenario* •Greater likelihood of increased harvesting intensity for the upcoming season compared to the previous season; •Harvest level that may result in fishing mortality exceeding the historical average; •Harvesting pressure that may not be sustainable in the long term; and •Likely decrease in abundance compared to the previous year if recruitment remains relatively stable or decreases. *Intermediate scenario* •Likelihood of moderate harvesting intensity for the upcoming season, similar to the previous season; •Harvest level assumed to maintain fishing mortality close to the historical average; and •Possibility of maintaining the stock at a level of abundance similar to the previous year. *Low scenario* •Greater likelihood of lower harvesting intensity for the upcoming fishing season compared to the previous one; •Cautious harvest level assumed to result in fishing mortality below the historical average; and •A possible increase in stock abundance compared to the previous year or the maintenance existing biomass over a longer period of time (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). DFO noted that all scenarios are considered to ensure sustainable resource management and that decisions for all areas are based on these scenarios and their respective objectives and characteristics (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). These scenarios are used as decision rules while DFO works on the development of a full PA framework (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). While Science has started working on different aspects of the PA framework, meetings with industry representatives will start during fall 2021 (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). Here this is considered to be robust science advice for management to consider when making harvest decisions but still not pre-agreed decision rules establishing how harvests will vary by stock status zone as indicated in DFO policy for HCRs.						
14	Quebec	Atlantic halibut – 4RST; Uncertain	✓2019/20 ✓2020/21			Will begin to develop HCR in 2019-20. Development may be completed in 2020-21.	Carry-forward from 2019-20. Will begin development of HCR in 2020-21.		**Delayed**
			Details: The stock was assessed in February 2019, but the terms of reference for the meeting do not indicate intentions to evaluate a HCR.[445] LRP development was intended to occur, according to the terms of reference, but it was not developed at the meeting. The intention to develop it over the "medium term" was mentioned in the resultant Science Advisory						

[444] DFO (2021). Terms of Reference: Assessment of the Estuary and Northern Gulf of St. Lawrence Snow Crab Stocks. Regional Advisory Meeting – Quebec Region, February 16–18, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/02_16-18b-eng.html

[445] DFO (2019). Terms of Reference: Assessment of the Gulf of St. Lawrence (4RST) Atlantic Halibut. Regional Peer Review – Quebec Region, February 18–19, 2019, Mont-Joli, Quebec. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_18-19-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			Report.[446] The proceedings from the meeting indicate participants agreed existing research indices (DFO bottom trawl RV surveys and sentinel survey) are useful and have potential in determining reference points for the precautionary approach.[447] The proceedings also identified reference points and the precautionary approach as one of the issues for which efforts will be invested. According to the advisory report, the stock would next be assessed in 2021 and there was no intention to assess it in the intervening year (2020). The stock does not currently have an analytical assessment model and instead is assessed using trends in survey indices (two DFO bottom trawl RV surveys and sentinel survey). A longline survey and tagging program for the entire Gulf of St. Lawrence was initiated as a collaboration between DFO and industry in 2017. It should provide a more complete survey dataset (i.e., more appropriate for use as an index of abundance for this species than a bottom trawl survey) to use in the development of an analytical model that will support development of the precautionary approach framework for the stock. It is unclear if this is the reason reference points were not developed and were deferred to the "medium" term or how this impacts HCR development and timelines. But the results of the 2019/20 work plan evaluation indicated this deliverable (HCR development) was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[448] The 2020/21 fiscal year work plan indicated that HCR development would begin and was carried forward from the previous fiscal year, meaning activities were not carried out as described in the deliverable description. During Oceana Canada's 2020 evaluation, DFO confirmed that no progress was made in 2019/2020 towards HCR development but that discussions would begin in 2020/21 (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). There was a CSAS process held in March 2021 to assess the stock. The terms of reference for the meeting include an objective of identification of an LRP for the stock and a report on stock status relative to the LRP, but advice is not requested for USR or HCR development.[449] Reports expected from this meeting are not yet available. There is currently no process on the CSAS schedule for this stock for the remainder of 2021 or for 2022. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan does not include a deliverable related to HCR development for this stock. During Oceana Canada's 2021 evaluation, DFO indicated it will continue work on the development of the LRP and the USR in 2021/22 before beginning work on HCR development (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021).						
15	Pacific	Red sea urchin – Pacific region; Healthy	✓2019/20 ✓2020/21 ✓2021/22			Will begin to update HCR in 2019-20.	Will continue to update HCR in 2020-21.	Will continue to update HCR in 2020-21.	**Ongoing**
			The 2018 results of the DFO Sustainability Survey for Fisheries indicats harvest decision rules for red sea urchin have been developed and implemented but not evaluated. [450] However, it cites a 2014 research document to support this answer, indicating these harvest decision rules are likely older than the intended work in the 2019/20 fiscal year work plan.[451] The stock was assessed in February 2019, and the resultant Science Advisory Report includes details on provisional reference points and recommends a new LRP and USR. However, the report does not mention HCR development or evaluation.[452] It does indicate a new model was developed and used to project forward 100 years: the results were used to create decision tables showing the probability of breaching reference points after varying time periods and for a range of harvest rates (2–24%) to inform Fisheries Management decisions. This is helpful advice to inform decision-making but not the same as detailed, pre-agreed HCRs or a more general harvest strategy that outlines removal rate reference limits for each stock status zone. Furthermore, although the 2019/20 IFMP notes the February 2019 CSAS process occurred, it indicates there is currently no limit or upper stock reference points in place for the commercial red sea						

[446] DFO (2019). Stock Assessment of Gulf of St. Lawrence (4RST) Atlantic Halibut in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/038. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_038-eng.html

[447] DFO (2019). Proceedings of the Regional Peer Review of the Stock Assessment of Gulf of St. Lawrence (4RST) Atlantic Halibut. Can. Sci. Advis. Sec. Proc. Ser. 2019/013. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2019/2019_013-eng.html

[448] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[449] DFO (2021). Terms of Reference: Assessment of the Gulf of St. Lawrence (4RST) Atlantic halibut. Regional Advisory Meeting – Quebec Region, March 16–17, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/03_16-17-eng.html

[450] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[451] Leus, D., Campbell, A., Merner, E., Hajas, W.C. & Barton, L.L. (2014). Framework for Estimating Quota Options for the Red Sea Urchin (*Strongylocentrotus franciscanus*) Fishery in British Columbia Using Shoreline Length and Linear Density Estimates. DFO Can. Sci. Advis. Sec. Res. Doc. 2013/094. Vi + 68 p. https://waves-vagues.dfo-mpo.gc.ca/Library/361328.pdf

[452] DFO (2019). The Identification of Provisional Reference Points and Harvest Rate Options for the Commercial Red Sea Urchin (*Mesocentrotus franciscanus*) Fishery in British Columbia. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/036. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_036-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			urchin fishery in B.C., so the new approach is yet to be implemented.[453] It notes that the research was accepted and that recommendations from the report will be incorporated into the management of the fishery starting next season after further consultation with First Nations and industry. It is unclear if that will involve a new HCR. The results of the 2019/20 work plan evaluation indicate this deliverable (HCR development) was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[454] The 2020/21 fiscal year work plan indicated work would continue to update the HCR. However, during Oceana Canada's 2020 evaluation, DFO indicated no changes to HCRs for the 2020/21 season (Fisheries and Aquaculture Management, and Science, Pacific region, personal communication, June 23, 2020). The most recent results (2019) of the DFO Sustainability Survey for Fisheries indicate harvest decision rules have been developed and implemented but not yet evaluated, citing a Research Document produced from the February 2019 assessment for details.[455] As noted above, this process resulted in decision tables specifying the estimated probability of breaching the LRP and USR across a range of harvest rates,[456] which is important, but not the same as pre-agreed rules pertaining to harvest levels at different stock statuses. The document does indicate the Science program will investigate data-limited tools and other assessment tools that may allow an evaluation of the provisional reference points recommended, as well as the opportunity to test harvest control rules under different management objectives through Management Strategy Evaluations. There were no CSAS processes held in fiscal 2020/21 specific to this stock group, and none are yet on the schedule for the remainder of 2021 or 2022. However, there is a CSAS process on the schedule for winter 2022 to provide science advice on the optimal design of the multispecies benthic marine invertebrates and habitat dive survey program that should facilitate long-term development of the precautionary approach framework for this stock group. The terms of reference are not yet posted to confirm meeting objectives. The 2020/21 IFMP indicates harvest control rules compliant with the precautionary approach have been developed for the red sea urchin fishery.[457] However, it fails to include any details about the rules, instead citing the same Research Document and the indication of the use of provisional reference points, stating an USR was recommended at the last stock assessment (held in 2019) and it was used to evaluate the stock status in the three regions of the coast that are commercially harvested. All three regions were assessed individually, and the three regions were combined to give a big picture look at the commercially harvestable stock status in B.C. The IFMP indicates that in all three regions, as well as all three combined, the stock is above the recommended USR and is therefore within the healthy zone as defined in the precautionary approach. However, the IFMP further acknowledges that the data used in the assessment were from surveys that were designed to estimate biomass at the management area or subarea level for the purpose of providing quota options, not to provide representative data for the assessment of stock status. The IFMP again confirmed DFO Science is currently developing a new multispecies benthic marine invertebrate survey designed specifically to generate the time series data needed for marine invertebrate stock status monitoring and assessment. The new monitoring program is intended to provide an efficient way to monitor multiple benthic invertebrate stocks and support the implementation of reference points in multiple fisheries. The IFMP further indicates the new monitoring program will be vetted through the CSAS peer review process. The IFMP confirms that the LRP and USR recommended by DFO Science in 2019 will be formally implemented once the new stock monitoring program is operational and that continuing to manage the commercial fishery without implementing the recommended reference points is a low-risk approach, the reasons of which are further outlined in the IFMP. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. This deliverable was included in the 2021/22 fiscal year work plan, indicating continued work to update the HCR. During Oceana Canada's 2021 evaluation, DFO indicated that in 2019 DFO Science recommended a USR and a LRP in Lochead et al., 2019 (the same Research Document noted above) (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO indicated the plan is to implement these reference point recommendations once a stock monitoring program has been developed and implemented. DFO confirmed that DFO Science is currently developing a multispecies benthic invertebrate survey that will hopefully support efficient stock monitoring for multiple invertebrate stocks and give the information needed to properly implement reference points in the red sea urchin fishery (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). HRCs will follow the PA framework. DFO Fisheries Management will choose the level of harvest from the decision tables to avoid preventable decline in the critical zone and to promote stock growth through the cautious zone into the healthy zone (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021).					

[453] DFO (2019). Pacific Region Integrated Fisheries Management Plan: Red Sea Urchin, August 1, 2019 to July 1, 2020. https://waves-vagues.dfo-mpo.gc.ca/Library/40797879.pdf

[454] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[455] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[456] Lochead, J., Zhang, Z. & Leus, D. (2019). Identification of Provisional Reference Points and Harvest Rate Options for the Commercial Red Sea Urchin (*Mesocentrotus franciscanus*) Fishery in British Columbia. DFO Can. Sci. Advis. Sec. Res. Doc. 2019/061. Viii+ 66 p. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2019/2019_061-eng.html

[457] DFO (2020). Pacific Region Integrated Fisheries Management Plan: Red Sea Urchin, August 1, 2020 to July 31, 2021. https://waves-vagues.dfo-mpo.gc.ca/Library/40882056.pdf

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
16	Pacific	Albacore tuna – north Pacific; Healthy	✓2019/20 ✓2020/21 ✓2021/22			Will begin update of HCR in 2019-20.	Will continue to update HCR in 2020-21.	Canada will continue work to develop an HCR with Regional fisheries management organizations (RFMOs) in 2021-22.	Ongoing
			Details: DFO coordinates management of this stock with the U.S.A. under the Pacific Albacore Tuna Treaty and with multiple other nations under the Inter-American Tropical Tuna Commission (IATTC) and the Western and Central Pacific Fisheries Commission (WCPFC). The 2018 results of the DFO Sustainability Survey for Fisheries indicate the LRP is the only DFO precautionary approach component established.[458] However, the respondent does indicate harvest decision rules have been developed, implemented, and evaluated, citing obligations under international agreements to ensure that total fishing effort does not exceed 2002–2004 levels.[459] This resolution, although likely appropriate, does not constitute an HCR or even a more general harvest strategy under the DFO precautionary approach but rather a maximum overall fishing effort. Furthermore, it is concerning that despite this requirement under international agreement, the 2019/20 IFMP indicated that there is no restriction on the number of licences available for harvest in the high seas or Canadian waters and that there is no limit to the total allowable catch in Canada's commercial Pacific albacore tuna fishery.[460] Yet the IFMP does reiterate that fishing effort is maintained at or below levels specified in the IATTC resolution. The IFMP indicates the stock is assessed approximately every three years by the Albacore Working Group (ALBWG), part of the of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean (ISC).[461] It also indicates that the ALBWG is working to advance a management strategy evaluation (MSE) for North Pacific albacore tuna that will evaluate possible target reference points and alternative harvest control rules and support the application of the precautionary approach at the international level. According to the IFMP, management objectives have been established and a suite of candidate reference points have been proposed through three albacore tuna MSE workshops involving managers, scientists, and stakeholders. The working group has been working on evaluation of performances of these proposed biological reference points and harvest control rules through the MSE processes. The working group met from February 26 to March 4, 2019, where a working paper with the results of the first round of modelling was presented.[462,463] A stock assessment was conducted in April 2020 over webinar by the ALBWG. The results of the stock assessment were to be finalized by the ISC at its annual meeting in July 2020. During Oceana Canada's 2020 evaluation, DFO indicated that in winter 2021 the second round of MSE modelling was scheduled to be reviewed at the 5th Albacore MSE workshop (Science, National Capital Region, personal communication, June 23, 2020). The results of the 2019/20 work plan evaluation indicate this deliverable (HCR development) was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[464] The 2020/21 fiscal year work plan indicated Canada would continue the update of the HCR. During Oceana Canada's 2020 evaluation, DFO indicated this would be accomplished through the continuation of the MSE process (Science, National Capital Region, personal communication, June 23, 2020). The report by the ALBWG from the July 2020 meeting indicates that for the 2020 stock assessment the reference points that would be estimated and presented in the assessment would be the same as in the 2017 assessment using the existing spawners per recruit (SPR) approach.[465] However, this work is separate from the MSE. The report also provided an update on the second round of MSE modelling but did not indicate it was finalized. The report indicated the working group was considering a webinar in August 2020 to review the ongoing work on the MSE and expected a complete report in December 2020. It further recommended that the 5th MSE workshop be held in person rather than by					

[458] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[459] IATTC (2005). Inter-American Tropical Tuna Commission 73rd Meeting, Lanzarote (Spain), 20–24 June. Resolution C-05-02, Resolution on Northern Albacore Tuna. https://www.iattc.org/PDFFiles/Resolutions/IATTC/_English/C-05-02-Active_Northern%20albacore%20tuna.pdf

[460] DFO (2020). Pacific Region Integrated Fisheries Management Plan: April 1, 2019–March 31, 2020, Albacore Tuna. https://waves-vagues.dfo-mpo.gc.ca/Library/4077790x.pdf

[461] DFO (2020). Pacific Region Integrated Fisheries Management Plan. April 1, 2019–March 31, 2020, Albacore Tuna. https://waves-vagues.dfo-mpo.gc.ca/Library/4077790x.pdf

[462] Tommasi, D. & Teo, S. (2020). Summary of Results for the North Pacific Albacore Tuna (*Thunnus alalunga)* Management Strategy Evaluation. http://isc.fra.go.jp/pdf/ALB/ISC19_ALB_1/ISC19-ALBWG-01_01.pdf

[463] ISC (2019). ISC/19/ANNEX/06. Annex 6. 19th Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. Taipei, Taiwan, July 11–15, 2019. Report of the ALBWG Working Group Workshop, July 2019. http://isc.fra.go.jp/pdf/ISC19/ISC19_ANNEX06_Report_of_the_ALBACORE_Working_Group_Workshop_February2019.pdf

[464] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[465] ISC (2020). ISC/20/ANNEX/09 ANNEX 09 20th Meeting of the International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. Held virtually July 15–20, 2020. Report of the ALBWG Working Group Workshop, July 2020. http://isc.fra.go.jp/pdf/ISC20/ISC20_ANNEX09_Report_of_the_ALBACORE_Working_Group_Workshop_April2020.pdf

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			webinar and that it should be in February or March 2021, contingent on resolution of current travel issues. Another webinar was held in September 2020, but no materials other than the agenda are available.[466] According to the ISC meeting schedule, no other ALBWG meeting occurred in 2020, but there is an MSE workshop scheduled for May 2021 and an ABLWG webinar on July 8th, 2021.[467] The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The most recent IFMP (2021/22) does not document a new HCR for this stock, although it notes the ongoing MSE to evaluate possible target reference points and alternative harvest control rules and support the application of the precautionary approach at the international level.[468] It appears that this work is ongoing, and DFO has included an HCR deliverable for this stock in the 2021/22 work plan, indicating Canada will continue to work to develop an HCR with regional fisheries management organizations. During Oceana Canada's 2021 evaluation, DFO indicated the MSE simulations were completed and presented to the various governments and stakeholders in March 2021 (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). The technical work of the MSE is considered completed and next steps will involve agreement among members of the WCPFC and IATTC on the adoption of an HCR and the incorporation of its elements into a new binding conservation and management measure (WCPFC) and resolution (IATTC) (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). Although there is no set timeline that members are required to operate under, it is expected that the process may play out over one or more years (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO noted that on the domestic Canadian front, work is underway with stakeholders to determine the most appropriate HCR(s) for North Pacific albacore tuna. Subsequent steps will involve engaging with key international partners to advance these in both regional fisheries management organizations (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021).						
17	Pacific	Pacific herring – Haida Gwaii; Healthy Pacific herring – Prince Rupert District; Cautious Pacific herring – Central Coast; Cautious	✓2019/20 ✓2020/21 ✓2021/22			Will begin update of HCR in 2019-20.	Will continue to update HCR in 2020-21.	Will continue exploration and development of HCRs in 2021-22. (*Pacific herring – Prince Rupert District*) Will continue exploration and development of HCRs in 2021-22. (*Pacific herring – Central Coast)*	**Ongoing**
			Details: In August 2019 a CSAS Science Response Process (SRP) was held to evaluate management procedures for Pacific herring (*Clupea pallasii*) in the Haida Gwaii (HG), Prince Rupert District (PRD) and Central Coast (CC) management areas of British Columbia developed under Management Strategy Evaluation (MSE). The resultant Science Response report summarizes progress to date and next steps.[469] It indicates that LRPs were developed and accepted by scientists at a meeting in 2017 and that closed-loop-feedback simulation testing of candidate management procedures, including HCRs, was recommended as a next step to evaluate the consequences of LRP choice for each area. However, the selection of preferred management procedures requires a full set of measurable objectives for conservation and the fishery (e.g., related to catch, catch variability, and socio-cultural goals) that have yet to be developed. Therefore, at the 2019 CSAS SRP (which are smaller DFO-only peer review processes), only core fisheries management objectives and potential stock-specific objectives proposed by DFO at the Integrated Herring Harvest Planning Committee in May 2017 were included in this first cycle of MSE. The report noted that DFO will continue to collaborate with coastal First Nations to develop area-specific objectives specific to Food, Social and Ceremonial fisheries and spawn-on-kelp fisheries. These and additional objectives may be captured within the Heiltsuk-DFO joint fisheries management plan for herring in the Central Coast and through the development of a rebuilding plan for Haida Gwaii herring (under development through a partnership between the Council of Haida Nation, DFO, and Parks Canada). Lastly, the summary indicated DFO will continue to engage with the herring industry, government, and non-government organizations to describe broader objectives related to conservation, economics, and access. The report provides results indicating the relative performance of candidate management procedures for the Haida Gwaii, Prince Rupert District, and Central Coast management areas against the core conservation objective — to avoid with a high probability (75–						

[466] ISC (2020) Albacore Working Group Workshop – MSE updates. International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. http://isc.fra.go.jp/reports/alb_mse_workshop_2020_1.html

[467] ISC (2021). ISC Schedule of Future Meetings for 2021. International Scientific Committee for Tuna and Tuna-like Species in the North Pacific Ocean. http://isc.fra.go.jp/meetings/future_meetings.html

[468] DFO (2021). Pacific Region Integrated Fisheries Management Plan: April 1, 2021–March 31, 2022, Pacific Tuna. https://waves-vagues.dfo-mpo.gc.ca/Library/40948171.pdf

[469] DFO (2020). Evaluation of Management Procedures for Pacific Herring (*Clupea pallasii*) in Haida Gwaii, Prince Rupert District, and the Central Coast Management Areas of British Columbia. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/003. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_003-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			95%) stocks declining to the LRP over three herring generations. Further development and ranking of the other objectives is needed in order to eliminate undesirable choices and provide decision-makers with a tractable set of trade-off choices. The report indicates that mechanisms for ranking objectives can include workshops and explicit identification of existing harvest or access priorities. During Oceana Canada's 2020 evaluation, it was presumed that discussions pertaining to additional objectives were ongoing in 2019/20 and were planned to continue in 2020/21. In September 2019, another CSAS SRP was held to update the status of the stocks and provide harvest advice for 2019/20. The report from this process indicated harvest advice was informed by multiple methods, including newly tested management procedures that passed the core conservation objective.[470] The 2019/20 IFMP reiterated that engagement with rights-holders and stakeholders was to be ongoing in 2020/21 and provided a synopsis of progress to date with the MSE and alignment of Pacific herring management with the DFO precautionary approach.[471] The results of the 2019/20 work plan evaluation indicate this deliverable (HCR development) was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[472] The 2020/21 fiscal year work plan indicated work would continue to update the HCRs. During Oceana Canada's 2020 evaluation, DFO confirmed that while a version of the HCR was selected for each area for application in 2019/20, the work of selecting an HCR for each area is "ongoing," given the need for more simulation work and consultations with First Nations and industry partners (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). In September 2020 there was a CSAS Science Response process held to update stock status of Pacific herring in B.C. with application of the MSE management procedures. Although the resultant report indicates a second MSE cycle was initiated in summer 2020 to update the MSE for the other two major spawning components, West Coast Vancouver Island (WCVI) and Strait of Georgia (SOG), it also goes on to note that a fully specified set of objectives has not yet been developed for each management area and that DFO would continue to engage with rights-holders and stakeholders.[473] There were no CSAS processes held pertaining to Pacific herring in winter 2021 and none yet on the schedule for the remainder of 2021 or 2022. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2020/21 IFMP indicates a fully specified set of objectives that includes LRPs, USRs, and Target Reference Points (TRPs) is being developed to meet goals for renewal of the Pacific herring management system and ensure consistency with the DFO precautionary approach framework.[474] The 2021/22 fiscal year work plan indicates DFO will continue exploration and development of HCRs this fiscal year for Prince Rupert District and Central Coast but does not include the Haida Gwaii stock, making it unclear if an HCR has been selected for it. The 2021/22 work plan for the first time breaks down the Pacific herring HCR deliverables into stock components and includes four separate deliverables associated with HCRs for four of the five major spawning components (SOG, WCVI, CC, PRD). During Oceana Canada's evaluation in 2022, work will continue to be evaluated as the components were first included in the work plans, with a record for SOG and WCVI (see above) and another for the CC, PRD, and HG components (as done here). During the 2021 evaluation, DFO indicated a new operating model for MSE simulations was developed in order to include several additional scenarios about the Pacific herring system, such as spatial and fleet dynamics and additional natural mortality scenarios. DFO also indicated that a technical review of this new operating model is planned for Fall 2021 with application to the Strait of Georgia and Haida Gwaii stock areas (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). This CSAS review will not include evaluations of new HCRs but will evaluate those already simulation tested under the new operating model scenarios (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). Once the review is complete, steps will be made to apply the new operating model to evaluate management procedures in all stock areas (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). When asked when the region expects the Pacific herring management framework renewal to be completed, DFO indicated that the bulk of the scientific work for the framework renewal has been completed but that this is an ongoing process, in that periodic reviews and updates will occur (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO further noted that rebuilding strategy HCRs were identified and simulation tested for the Haida Gwaii stock during the development of the rebuilding plan, which is currently under internal review (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021).					

[470] DFO (2020). Stock Status Update with Application of Management Procedures for Pacific Herring (*Clupea pallasii*) in British Columbia: Status in 2019 and Forecast for 2020. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/004. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_004-eng.html

[471] DFO (2019). Pacific Region Integrated Fisheries Management Plan: November 26, 2019–November 6, 2020, Pacific Herring. https://waves-vagues.dfo-mpo.gc.ca/Library/40851448.pdf

[472] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[473] DFO. 2021. Stock Status Update with Application of Management Procedures for Pacifc Herring (*Clupea pallasii*) in British Columbia: Status in 2020 and Forecast for 2021. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/001. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_001-eng.html

[474] DFO (2020). Pacific Region Integrated Fisheries Management Plan: November 20, 2020–November 6, 2021, Pacific Herring. https://waves-vagues.dfo-mpo.gc.ca/Library/40937343.pdf

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
18	Pacific	Giant red sea cucumber – Pacific; Healthy	✓2019/20 ✓2020/21 ✓2021/22			Will begin to update HCR in 2019-20.	Will continue to update HCR in 2020-21.	Carry forward from 2020-21. Will continue to update HCR in 2021-22.	Delayed
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries (SFF) indicates that harvest decision rules have been developed and implemented for the stock but not evaluated,[475] citing science advice on harvest decision rules from 2008 and documentation of DFO management's interpretation of the advice and resultant HCR in the IFMP.[476, 477] Given that the advice pertaining to these harvest decisions rules is dated, it is likely this is not the HCR referred to in the 2019/20 fiscal year work plan. The IFMP states that various harvest rates are applied to management areas based on the advice developed in 2008 and several other management changes since it was provided. However, harvest rates do not appear to be available for all stock status zones. According to the SFF respondent, there are removal references for the healthy zone (an exploitation rate of 3.5–10.3% of the estimated biomass in a subarea) and critical zone (no harvest permitted), defined using the old LRP, but no removal references for the cautious zone. This is likely related to there being no USR to define the boundary between the cautious and healthy zones. According to the DFO 2019/20 fiscal year work plan, the LRP is also being revised. The IFMP does not discuss HCRs but does indicate generally that science work is ongoing. DFO Science is analyzing the entire time series of data from the Experimental Fishing Areas (1997 to 2015; program halted in 2017), and the IFMP indicates that results will be published in a CSAS Research Document in late 2019. During Oceana Canada's 2020 evaluation, it was unclear what CSAS process would have led to this publication, as according to the schedule website, the last CSAS process involving sea cucumbers was in 2010;[478] there were no CSAS process held in 2019, and none were currently planned for 2020. The IFMP also indicated that DFO Science is now moving towards a new, multispecies approach for providing science advice. It indicates DFO Science is developing a multispecies benthic invertebrate survey protocol and will promote an ecosystem approach to stock assessment and gain efficiencies by combining single species survey protocols for the commercial dive fisheries. It is also intended to allow assessment of stock status relative to the three health status zones in the precautionary approach framework. The IFMP noted a CSAS research document with peer reviewed recommendations on this approach was expected to be delivered by fall 2020. However, during Oceana Canada's 2020 evaluation, DFO indicated Science is now targeting fiscal year 2021/22 for the multispecies benthic survey protocol, but plans remained uncertain due to COVID-19 (Science, National Capital Region, personal communication, June 23, 2020). The results of the 2019/20 work plan evaluation indicate this deliverable is delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[479] The 2020/21 fiscal year work plan indicated work would continue to update the HCR. During Oceana Canada's 2020 evaluation, DFO confirmed that DFO Science's work on recommended harvest rates was temporarily delayed but would resume in 2020/21. Once work is complete, DFO indicated Science would present recommended harvest rates in a CSAS Research Document that would be vetted through the CSAS Regional Peer Review Process (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). The most recent results (2019) of the DFO Sustainability Survey for Fisheries indicate harvest decision rules have been developed and implemented but not evaluated; however, it cites the 2008 CSAS Research Document and the IFMP for further information, indicating it was not an updated approach.[480] The 2020/21 IFMP indicates DFO Science is analyzing the entire time series of experimental fishery data (here indicated as 1998 to 2015) and results will be published in a CSAS Research Document in 2021 or 2022 (year varies by section in the IFMP) that is expected to provide advice on a range of harvest rates, update the current LRP, and recommend a USR for the commercial fishery, thereby aligning this fishery						

[475] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[476] Hand, C., Hajas, W., Duprey, N., Lochead, J., Deault, J. & Caldwell, J., (2008). An Evaluation of Fishery and Research Data Collected during the Phase 1 Sea Cucumber Fishery in British Columbia, 1998 to 2007. DFO Cdn. Sci. Advis. Sec. Res. Doc. 2008/065. http://www.dfo-mpo.gc.ca/csas-sccs/publications/resdocs-docrech/2008/2008_065-eng.htm

[477] DFO (2019). Pacific Region Integrated Fisheries Management Plan: Sea Cucumber by Dive, October 1, 2019 to September 30, 2020. https://waves-vagues.dfo-mpo.gc.ca/Library/40815870.pdf

[478] DFO (2010). Terms of Reference: Update to the Assessment Framework for the Pink and Spiny Scallop (*Chlamys rubida, C. hastata*) Dive Fishery in Waters off the West Coast of Canada. Assessing Potential Habitat Impacts of Small-scale, Intertidal Geoduck Clam (*Panopea generosa*) Aquaculture. Assessment Update of Sea Cucumber (*Parastichopus californicus*) in British Columbia. Assessment Update of Manila Clam in the Central Coast of British Columbia and Evaluation of the Area 7 Manila Clam Fisheries Management Strategy. Assessment of Inshore Shrimp Stocks along the Coast of British Columbia. Pacific Regional Advisory Process – November 30–December 2, 2010, Nanaimo, British Columbia. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2010/11/11_30-02-eng.html

[479] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[480] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			with the DFO precautionary approach framework.[481] It further indicates that DFO Science is now moving towards a new, multispecies approach for providing science advice that should collect data necessary to assess stock status against reference points. There were no CSAS processes held in fiscal 2020/21 related to this stock. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. This stock group is included again in the 2021/22 work plan, indicating DFO will continue work to update the HCR this fiscal, and was carried forward from last fiscal, meaning activities were not carried out as expected. There is a CSAS process scheduled for fall 2021 to review sea cucumber experimental fishing area data (1998–2015), but the terms of reference for this meeting are not yet posted to confirm whether harvest decision rule development will be included. There is also a CSAS process on the schedule for winter 2022 to provide science advice on the optimal design of the multispecies benthic marine invertebrates and habitat dive survey program. The terms of reference are not yet posted to confirm meeting objectives. During Oceana Canada's 2021 evaluation, DFO indicated HCR options will be included in the upcoming Experimental Fishing Area research document (Hajas et al., in prep) (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021).					
19	Pacific	Yelloweye rockfish – outside; Healthy	✓2019/20 ✓2020/21 ✓2021/22			Will begin update of HCR in 2019-20.	Will continue to update HCR in 2020-21.	Will begin development of target reference points (TRP) and new management procedures (MP) to support the continued rebuilding process for *Inside Yelloweye and Outside Yelloweye Rockfish*.	**Ongoing**
			Details: A CSAS process was held in October 2019 to evaluate potential rebuilding strategies for the yelloweye rockfish outside population (OYE). The resultant Science Advisory Report provided advice on rebuilding the stock formulated using closed-loop simulation modelling similar to Management Strategy Evaluation (MSE), testing the performance of a set of candidate management procedures (MPs) that included various HCRs, relative to stated rebuilding objectives.[482] Specifically, three assessment methods were used in combination with different HCRs or implementation error scenarios to create a set of candidate MPs that were simulation-tested for each of the four operating model scenarios for north and south areas independently. All operating model scenarios implied that, coast-wide, the stock is currently above the LRP, even though the stock biomass had declined rapidly over the past two generations by 49–71% in the north and by 57–79% in the south. The report concluded that several potential MPs that were identified could increase or stabilize OYE biomass in both north and south areas. However, it is not possible at this time to recommend a specific MP for each area without further guidance on fishery objectives and timelines from managers, First Nations, and fishery stakeholders, which should be sought. However, an interim MP could be selected and implemented from the MPs evaluated in the short term while that work is done. The rebuilding plan was updated in 2020, indicating an increase in the mortality cap for the stock based on updated science information, from 100 to 194 t in 2020/21.[483] The rebuilding plan indicates further discussions with stakeholders and Indigenous groups are required to determine a target biomass, given that the current conservation objectives of growing the stock above the LRP have already been satisfied. The results of the 2019/20 work plan evaluation indicate this deliverable (HCR development) was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[484] The 2020/21 fiscal year work plan indicated work would continue to update the HCR. During the 2020 update DFO indicated that, as noted during consultation on the 2020/21 IFMP, science advice was unpublished at the time of drafting the IFMP, and management changes would be considered once science advice is publicly available.[485] In balancing timely and responsible management that reflects the best available science, interim mortality caps are outlined in the IFMP/rebuilding plan to satisfy current rebuilding plan conservation objectives. Work to refine rebuilding objectives and management measures that will continue to satisfy mortality caps and eventually transition from management under a rebuilding plan to management under the standard IFMP process would occur throughout 2020 and 2021 (Fisheries and Aquaculture Management,					

[481] DFO (2021). Pacific Region Integrated Fisheries Management Plan: Sea cucumber by Dive, October 1, 2020 to September 30, 2021. https://waves-vagues.dfo-mpo.gc.ca/Library/40892657.pdf

[482] DFO (2020). Evaluation of Potential Rebuilding Strategies for Outside Yelloweye Rockfish in British Columbia. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/024. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_024-eng.html

[483] DFO (2020). Appendix 9: Rebuilding Plans for Groundfish Species, *in* Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective February 21, 2020, Version 1.0. https://waves-vagues.dfo-mpo.gc.ca/Library/40854450.pdf

[484] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[485] Now available as of the drafting of this report; see first footnote in details section of the Yelloweye rockfish – outside record for the report title and URL to access it.

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			and Science, Pacific Region, personal communication, June 23, 2020). Presumably, this also means continuation of the closed-loop simulation modelling once objectives are defined, along with selection of an MP and associated HCR after considering the results. There were no CSAS processes held pertaining to the outside population in fiscal 2020/21, nor are any currently on the schedule for the remainder or 2021 or 2022. The 2019 results of the DFO Sustainability Survey for Fisheries indicate harvest decision rules have been developed, implemented, and evaluated, citing a report from a 2015 stock assessment and the 2019 CSAS meeting discussed above.[486] The 2021/22 IFMP indicates that updated harvest advice is anticipated for the outside population during the 2021/22 fishery season.[487] The IFMP indicates further discussions with stakeholders and Indigenous groups are planned for 2021/22 to define target biomass for the outside yelloweye rockfish stock, given that the current conservation objectives of growing the stocks above the LRP have already been satisfied, but it does not mention a HCR. The rebuilding plan (Appendix 9 of the IFMP) indicates the 2021/22 mortality cap for the yelloweye rockfish outside population was increased again, to 217 t, and does not mention a HCR. The 2020/21 DFO work plan results indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result. However, this deliverable was included again in the 2021/22 fiscal year work plan to begin development of target reference points (TRPs) and new management procedures to support the continued rebuilding process for both the inside and outside populations of yelloweye rockfish. Both will be evaluated as a single deliverable here in 2022. During Oceana Canada's 2021 evaluation, DFO indicated harvest advice for the outside yelloweye stock in 2021/22 was determined by updating the interim empirical management procedure that calculates the catch limit by adjusting the previous year's catch limit according to the estimated proportional change in stock biomass as measured by scientific surveys (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO noted that this management procedure was simulation tested as part of the 2020 CSAS document entitled *Evaluation of Potential Rebuilding Strategies for Outside Yelloweye Rockfish in British Columbia* (Can. Sci. Advis. Rep.2020/024) (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO also noted that updating the peer reviewed management procedure for the outside yelloweye stock does not require an additional CSAS process (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). Consultations on the development of further objectives for the outside yelloweye stock (i.e., a Target Reference Point) were delayed last year due in part to impacts of COVID-19 (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO plans on renewing discussions through fall 2021 with groundfish advisory boards and more broadly through the IFMP consultation processes in December 2021 (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). If DFO has selected a management procedure among the several tested for the outside population, including several versions of those using proportional changes in survey indices, it should document the choice and rationale for its selection in the rebuilding plan and/or IFMP. As of now it is not clear which was selected among the management procedures tested, as that choice and how the rule works are not publicly available.					
20	Pacific	Hake – Pacific; Healthy	✓2019/20 ✓2020/21 ✓2021/22			Will begin development of HCR in 2019-20.	Canada will continue development of management procedure through international MSE meeting of Joint Management Committee.	Canada will continue to support the Joint Management Committee, established under the Pacific Hake Treaty, in the development of an MSE for Pacific Hake.	**Ongoing**
			Details: Pacific hake is co-managed with the United States according to the Pacific Whiting Treaty. This agreement creates a process through which scientists and fisheries managers from both countries recommend the total catch of Pacific hake each year, with input from stakeholders from both countries.[488] The agreement was signed in 2003 and first implemented in 2012, creating four bodies to assist both governments to jointly manage the stock: 1) a Joint Management Committee (JMC) responsible for determining the Total Allowable Catch (TAC) of hake/whiting every year, 2) an industry Advisory Panel (AP) responsible for reviewing the management of the fishery and making recommendations to the JMC regarding the TAC, 3) a Joint Technical Committee (JTC) responsible for annually providing the JMC with a stock assessment that includes scientific advice, and 4) the Scientific Review Group (SRG) that is responsible for providing independent peer review of the work of the JTC. In February 2020 the SRG reviewed the JTC draft 2020 assessment and ongoing Management Strategy Evaluation (MSE), a process that will presumably be used to develop a new HCR.[489] The 2020 assessment report indicates the default harvest policy previously existing was applied again in 2020 to provide harvest advice. However, the report indicates MSE work that was first initiated in 2013 is being revisited, and research to improve future MSE efforts through the Pacific Hake MSE					

[486] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[487] DFO (2021). Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective February 21, 2021, Version 1.0. https://waves-vagues.dfo-mpo.gc.ca/Library/4093732x.pdf

[488] DFO (2020). Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective, February 21, 2020, Version 1.0. https://waves-vagues.dfo-mpo.gc.ca/Library/40854450.pdf

[489] NOAA (2020). Pacific Hake/Whiting Treaty: Scientific Review Group Meeting. https://www.fisheries.noaa.gov/event/pacific-hake-whiting-treaty-scientific-review-group-meeting

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			Working Group is outlined in the report.[490] The SRG indicated in its review that they are encouraged by the progress made in developing models for the MSE and highlighted the need for further work on objectives related to conservation of the Pacific hake stock, variability in yield, and total yield.[491] The JMC met via video conference on March 11–12, 2020, but the meeting notice indicates this was to advise on an annual quota and not focused on the MSE process.[492] The 2020/21 DFO IFMP does not include the management measures, including the TAC, for the offshore Pacific hake 2020 season.[493] It indicates they will be released in-season in an addendum to the IFMP, with industry consultations on the addendum to be initiated in February 2020. The results of the 2019/20 work plan evaluation indicate this deliverable (HCR development) was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[494] The 2020/21 fiscal year work plan indicated work would continue towards the development of an HCR. Specifically, Canada will continue development of management procedure through the international MSE meeting of the JMC. During Oceana Canada's 2020 evaluation, DFO indicated the JMC meeting agenda was abridged due to COVID-19 concerns and the MSE was not discussed (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). DFO confirmed that the MSE process is still ongoing, but there is no date on when the MSE would be completed and an HCR developed. DFO reiterated that the default harvest policy previously existing for Pacific hake has a default spawners per recruit approach (SPR40%-40-10) HCR as specified in the joint Canada-U.S. treaty document. The default rule is used for harvest advice, with TAC decisions subject to domestic jurisdictions (Science, National Capital Region, personal communication, June 23, 2020). The 2019 results of the DFO Sustainability Survey for Fisheries indicate harvest decision rules have been developed, implemented, and evaluated, but the details included indicate this is still the default SPR40%-40-10 HCR.[495] The JMC met again for a unique closed session in July and August 2020,[496] largely to discuss process and outline new procedures for how new science produced outside of the JTC activities would be considered by the JMC. However, the report from these meetings does discuss the MSE process, indicating the JMC supports the MSE as an additional tool to be considered in the development of quota advice and possible management procedure.[497] The report indicates continuing the development of the MSE has the advantage of being able to reveal the trade-offs among a range of possible management decisions and should assist the JMC and AP in determining whether objectives should be weighted differently. It notes an MSE can be an essential part of the process of developing the annual TAC recommendation and possible long-term harvest strategy. According to the report, the JMC intends to continue to discuss how to shape the MSE to optimize its effectiveness at informing decision-making. The JMC met again later in August to discuss the ongoing MSE in a public meeting,[498] but no documents are available to summarize the discussions. The JMC met three more times in fall 2020 (October, November, and December) to discuss the MSE,[499] but again no documents are available to summarize discussions. The SRG met in February 2021, and the meeting report indicates the SRG continues to support ongoing MSE development and progress on the work plan identified by the MSE team for 2021. The SRG also applauded the work of the MSE technical team conducted in 2020 despite challenges imposed by the COVID-19 pandemic and competing workloads on all members (i.e., no members are solely dedicated to the MSE modelling).[500] The report outlines progress to date with the MSE process, indicating the MSE technical team continued to engage with the JMC in 2020 to better define the objectives and performance metrics that will be used to evaluate alternative simulation results, including spatial objectives and performance metrics linked to the distribution of quota and catch among countries. It notes considerable work was undertaken over the past year to improve the flexibility of the code for adding new scenarios that should result in rapid MSE analysis in the future. The report confirms that the management procedures being tested include variations					

[490] Grandin, C.J., Johnson, K.F., Edwards, A.M. & Berger, A.M. (2020). Status of the Pacific Hake (Whiting) Stock in U.S. and Canadian Waters in 2020. Prepared by the Joint Technical Committee of the U.S. and Canada Pacific Hake/Whiting Agreement, National Marine Fisheries Service and Fisheries and Oceans Canada. 273p. https://www.fisheries.noaa.gov/resource/document/2020-pacific-hake-whiting-stock-assessment

[491] SRG (2020). Joint US-Canada Pacific Hake/Whiting Scientific Review Group Report for 2020. https://www.fisheries.noaa.gov/resource/document/2020-pacific-hake-whiting-scientific-review-group-report

[492] NOAA (2020). Pacific Hake/Whiting Treaty: Joint Management Committee Meeting. https://www.fisheries.noaa.gov/event/pacific-hake-whiting-treaty-joint-management-committee-meeting

[493] DFO (2020). Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective February 21, 2020, Version 1.0. https://waves-vagues.dfo-mpo.gc.ca/Library/40854450.pdf

[494] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[495] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[496] NOAA (2021). Pacific Whiting Treaty Past Meetings. https://www.fisheries.noaa.gov/west-coast/laws-and-policies/pacific-whiting-treaty-past-meetings

[497] JMC (2020). JMC Closed Session Meetings Summary Report. September 23, 2020. https://s3.amazonaws.com/media.fisheries.noaa.gov/2020-09/JMC-ClosedSessionReport-FINAL.pdf?sXaXZeBfKMOzs4dpYd911uUW2.sUQEjO

[498] NOAA (2021). Pacific Hake/Whiting Treaty: Joint Management Committee Meeting. https://www.fisheries.noaa.gov/event/pacific-hake-whiting-treaty-joint-management-committee-meeting-0

[499] NOAA (2021). Meetings: Pacific Hake/Whiting Treaty Schedule, 2020–2021. https://www.fisheries.noaa.gov/west-coast/laws-and-policies/pacific-hake-whiting-treaty#meetings

[500] SRG (2021). Joint U.S.A.-Canada Scientific Review Group Report for 2021. Virtual meeting held via Webex February 22–25, 2021. https://media.fisheries.noaa.gov/2021-03/2021_SRG-Report_Draft_V5_20210303.pdf?null

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			on data, estimation model, and HCR. The SRG expressed support for the five major areas of future work identified. These include: 1) resolving recruitment and movement implications, 2) simulating attainment scenarios, 3) implementing uncertainty in historical simulated trajectories (i.e., initial conditions), 4) developing and testing new management procedures, and 5) incorporating environmentally driven scenarios. The SRG made several recommendations for improvements and concluded by stating it strongly supports the MSE process, which is valuable for strategically advancing Pacific hake stock assessment science and management. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2021/22 fiscal year work plan from DFO includes this stock group in the HCR subsection again, indicating Canada will continue to support the JMC, established under the Pacific Hake Treaty, in the development of an MSE for Pacific hake. There are no additional meetings beyond March 2021 posted yet on the NOAA Pacific Hake Treaty website.[501]					
21	Quebec	Cod 4RS-3Pn; Critical	✓2020/21 ✓2021/22				Will begin to revise HCR in 2020-21.	Carry forward from 2020-21. Will begin revision of HCR in 2021-22	**Delayed**
			Details: The most recent results of the DFO Sustainability Survey for Fisheries (2019) indicate harvest decision rules have been developed, implemented, and evaluated.[502] However the respondent did not provide documentation for it in the question asking for it, instead stating that in 2017/18 and 2018/19 the Total Allowable Catch (TAC) was fixed at 3,185 t in agreement with the recovery plan (2013–2018) and rules described in a previous section. It then outlined the TAC was fixed at 1,000 t/year in 2019/20 and 2020/20 but did not note that this did not follow the harvest decision rules in the expired rebuilding plan (expired in May 2018). The expired rebuilding plan harvest decision rule was outlined in the response to the question asking for details on the critical zone removal reference. Arguably, that is not a removal reference but instead a form of HCR. It established rules for setting quotas based on estimates of spawning stock biomass but did not establish a maximum removal rate, usually expressed in terms of fishing mortality or exploitation rate, for the stock while it remains in the critical zone. Regardless, the rules outlined are those of the old HCR, intended to be revised as indicated by the 2020/21 fiscal year work plan. In January 2020/21 a CSAS Science Response Process was held to update status indicators for the stock. The resultant report indicates that there was a full assessment of this stock scheduled for February 2021 that was canceled to allow for the review of the assessment framework, including the review of available data and the establishment of a new stock assessment model.[503] The report provided an update of the main indicators of the stock to determine whether major changes in stock status have occurred. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). This deliverable was included in the 2021/22 work plan, indicating revisions to the HCR will begin this fiscal year, and were carried forward from last year, indicating activities weren't carried out as anticipated. In April 2021 the first CSAS process pertaining to the framework assessment occurred, reviewing the data inputs. Reports from this meeting are not yet available. The second part of the framework, to review the model, will occur at a CSAS meeting in September 2021. The terms of reference covering both meetings indicate the second meeting will discuss whether the assessment methodology has the potential to support quantitative evaluation of harvest control rules.[504] There is another CSAS Science Response Process on the schedule to provide an update on the main indicators for the stock in winter 2022. During Oceana Canada's 2021 evaluation, DFO indicated discussions on HCRs would occur as part of the process to develop a rebuilding plan for 4RS3Pn cod (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). The department will establish a working group to begin the development of a proposed rebuilding plan for 4RS3Pn cod that includes management objectives, HCRs, and other rebuilding plan elements (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). This working group will consist of DFO Resource Management, DFO Science, and fishery stakeholders (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). Further details on this working group process, including the timing of its first meeting, will be made available at a later date (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021).					

[501] NOAA (2021). Meetings: Pacific Hake/Whiting Treaty Schedule, 2020–2021. https://www.fisheries.noaa.gov/west-coast/laws-and-policies/pacific-hake-whiting-treaty#meetings

[502] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[503] DFO (2021). Update of Stock Status Indicators for Northern Gulf of St. Lawrence (3Pn, 4RS) Atlantic Cod in 2020. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/006. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_006-eng.html

[504] DFO (2021). Terms of Reference: Northern Gulf of St-Lawrence Cod (3Pn, 4RS) Assessment Framework. Regional Advisory Meeting – Quebec Region, Part 1: April 21–23, 2021; Part 2: September 13–15, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/04_21-23-eng.html

#	Region	Stock and health status zone	Develop/ evaluate HCR	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
22	Newfoundland and Labrador	Atlantic Cod - 3Ps; Critical	✓2021/22					Will continue development of HCR in 2021-22 as part of process to develop Rebuilding Plan.	Not yet evaluated – new addition in 2021/22 work plan
23	Newfoundland and Labrador	Redfish – 3LN; Healthy	✓2021/22					Will continue the review of the existing HCRs in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
24	National Capital Region	Northern Shrimp (Borealis) – Western Assessment Zone; Healthy	✓2021/22					Will continue development of HCR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
25	National Capital Region	Northern Shrimp (Montagui) – Western Assessment Zone; Healthy	✓2021/22					Will continue development of HCR in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan

Table 5: Work plan section 2; rebuilding plans: In section 2 of its annual work plan, Fisheries and Oceans Canada (DFO) updates the progress on the development of rebuilding plans for 19 fish stocks and, starting in the 2019/20 fiscal year plan, identifies other stocks for inclusion in rebuilding plans in an additional sub-section.[505] The table below summarizes all fiscal year section 2 deliverables[506] across all years by stock or stock group, with most recent health status[507] and status towards completion as assessed by Oceana Canada. Stocks with completed rebuilding plans that are available online are noted as completed, stocks that have had deadlines shifted or delays in progress indicated by DFO are noted as delayed, and stocks for which the deadline has not yet passed are noted as ongoing. (Please note that the table does not include an assessment of plan quality.) Section 2 of the work plans is the only section to include deadlines associated with deliverables. Evaluation of the status of deliverable completion are only provided for stocks originally noted to be completed by the end of fiscal 2020/21 in the work plans. Stocks appearing first, before the bold line separating rows (rows 1–8), were previously assessed as completed, suspended, or excluded from the evaluation[508] in Oceana Canada's 2018, 2019, or 2020 evaluation. Stocks after the bold line but before the dashed bold line (rows 9–23) were evaluated this year and included in the evaluation summary table above (Table 1). Stocks appearing after the bold dashed line (rows 23–25) have original deadlines dates that have not yet passed and were not evaluated for status completion.[509]

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
1	Pacific	Yelloweye rockfish, inside/ outside; Cautious, Healthy	The rebuilding plan for the outside stock will be revised to include measures for yelloweye rockfish: inside.	Completed in 2017-18.	Completed. Note: Outside yelloweye rebuilding plan to be updated in 2019-20. Inside yelloweye rebuilding plan may be updated in 2019-20 dependent on funding.	Completed.	Completed in 2017-2018.	By end of 2017-18.	Previously completed (2018)
			Details: In 2017/18 the yelloweye rockfish – inside population was added to the Pacific Region multispecies groundfish rebuilding plan, which already included the outside population and bocaccio. The first version of this rebuilding plan can be found as an appendix (9) of the 2018 Pacific Groundfish IFMP, which is not posted on the DFO website in its entirety but can be found via a search of the federal science library. The plan (available on page 252 of the PDF version of the IFMP) documents existing measures taken to minimize fishing mortality since 2012 and timelines, target, and probabilities that appear to have been estimated at the last available stock assessment, which used data up until 2009.[510,511] Thus this deliverable was evaluated as completed in 2018. There were no work plan results released for the 2017/18 work plan. But in the work plan results for 2018/19, the department indicated this deliverable was completed; a tangible deliverable is complete and available as a result.[512] In early 2019, the complete IFMP for 2019/20 was made available via a search of the federal science library, and it includes a nearly						

[505] In 2019/20 these other stocks were listed separately below the initial 19 stocks but not with a sub-section title. In 2020/21 and 2021/22 these two sections are given sub-section numbers: sub-section 2A for the original 19 stocks included in the first fiscal year work plan (2017/18) for rebuilding plan development and sub-section 2B covering other stock rebuilding plans. While the former section has had the same stocks or stock groups each year, the second section has had varying stocks or stock groups included. All stocks or stock groups from both sections of all work plans are included here.

[506] As stated in DFO work plans.

[507] Health status was assigned primarily using Oceana Canada's Fishery Audit dataset (Oceana Canada, 2021), with † denoting assignments for marine mammals, diadromous fish, and freshwater fish using the 2019 Sustainability Survey for Fisheries results and †† denoting uncertain status assigned when stocks were not included in either dataset. As some records represent multiple stocks that appear as more than one record in the datasets used to assign status, all unique statuses for stocks within stock groups are included when applicable.

[508] Bocaccio rockfish in the Pacific was newly added to section 2 of DFO's 2019/20 fiscal year work plan, with a deliverable description of "completed." However, the rebuilding plan for Bocaccio was completed in 2014. Therefore, it could be perceived as misleading to include this stock in the list of stocks for which rebuilding plans will be developed with an expected date of completion of 2017/18 and a status of completed. While the latter is true, it is not work that was completed in response to the 2016 CESD audit, since this stock was included in a rebuilding plan in 2014. The stock was not repeated in the 2020/21 or 2021/22 work plans. For these reasons, this stock was excluded from this evaluation and summary analysis, but a row remains in the table to reflect work plan deliverables in completeness.

[509] Although it is noted that these remaining three stocks or stock groups all have deadlines that remain to be determined.

[510] DFO (2011). Stock Assessment for the Inside Population of Yelloweye Rockfish (*Sebastes ruberrimus*) in British Columbia, Canada for 2010. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2011/084. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2011/2011_084-eng.html.

[511] DFO (2018). Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective February 21, 2018, Version 1.01. http://waves-vagues.dfo-mpo.gc.ca/Library/40657814.pdf

[512] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			identical version of the rebuilding plan (on page 259 of the PDF version of the IFMP).[513] The deliverables for the 2019/20 work plan indicated completion but also noted that the outside population rebuilding plan would be updated in 2019/20 dependent on funding. A CSAS process was held in October 2019 to evaluate potential rebuilding strategies for the outside population of yelloweye rockfish (OYE). The resultant Science Advisory Report provides advice on rebuilding the stock formulated using closed-loop simulation modelling similar to a Management Strategy Evaluation (MSE) that tested the performance of a set of candidate management procedures (MPs) relative to stated rebuilding objectives.[514] Specifically, three assessment methods were used in combination with different HCRs or implementation error scenarios to create a set of candidate MPs that were simulation-tested for each of the four operating model scenarios for north and south areas independently. All operating model scenarios implied that coast-wide the stock is currently above the LRP, even though the stock biomass had declined rapidly over the past two generations: by 49–71% in the north and by 57–79% in the south. The report concluded that several potential MPs that were identified could increase or stabilize OYE biomass in both north and south areas. However, it is not possible at this time to recommend a specific MP for each area without further guidance on fishery objectives and timelines from managers, First Nations, and fishery stakeholders, which should be sought. However, the report indicated an interim MP could be selected and implemented from the MPs evaluated in the short term while that work is done. The rebuilding plan was updated in 2020 (see page 244 of the PDF version of the IFMP), indicating an increase in the mortality cap for the outside stock based on updated science information, from 100 to 194 t in 2020/21.[515] The rebuilding plan indicates further discussions with stakeholders and Indigenous groups are required to determine a target biomass, given that the current conservation objectives of growing the stock above the LRP have already been satisfied. DFO indicates that, as noted during consultation on the 2020/21 IFMP, science advice was unpublished at the time the IFMP was drafted, and management changes would be considered once science advice is publicly available.[516] In balancing timely and responsible management that reflects the best available science, interim mortality caps are outlined in the IFMP/rebuilding plan to satisfy current rebuilding plan conservation objectives. During Oceana Canada's 2020 evaluation, DFO indicated work would occur throughout 2020 and 2021 to refine rebuilding objectives and management measures that will continue to satisfy mortality caps and eventually transition from management under a rebuilding plan to management under the standard IFMP process (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). Presumably, this also means continuation of the closed-loop simulation modelling once objectives are defined and selection of a MP and associated HCR after considering the results. The rebuilding plan also notes that a similar MSE-like process will be conducted for the inside population of yelloweye rockfish in 2020. A CSAS process evaluating MPs for the inside population rebuilding plan took place in June 2020.[517] The report from the meeting indicates scientific advice was provided through application of a new MSE framework recently developed for B.C. groundfish that evaluates the performance of alternative data-limited management procedures to support re-evaluation of the current rebuilding plan for inside yelloweye rockfish.[518] The process found that none of the reference set operating models estimated the median stock biomass to be below the LRP in 2019, with differences in estimates of inside yelloweye rockfish stock status between the current operating models and previous assessment attributable to model structure choices. The closed-loop simulation screened out management procedures that did not meet basic performance criteria, resulting in five remaining candidate procedures: two with annual constant-catch (10 and 15 tonnes) and three that adjust the total allowable catch (TAC) based on a survey index of abundance. Based on performance relative to the objectives, the rank order of the five candidate management procedures was consistent among reference set scenarios, with the highest-ranking procedure consistently being the constant annual catch of 10 t. This was also the highest-ranking procedure for both robustness set scenarios. There are no CSAS processes currently on the schedule for either population for the remainder of 2021 or 2022. However, the 2021/22 IFMP indicates that updated harvest advice is anticipated for the outside population during the 2021/22 fishery season.[519] The IFMP indicates further discussions with stakeholders and Indigenous groups are planned for 2021/22 to define target biomass for the outside yelloweye rockfish stock, given that the current conservation objectives of growing the stocks above the LRP have already been satisfied. The latest version of the rebuilding plan (Appendix 9 of the IFMP) indicates the 2021/22 mortality cap for the yelloweye rockfish outside population was increased again, to 217 t, while for the inside population the plan indicates the 2021/22 mortality cap will remain the same, at 15 t, based on updated science information. This deliverable is annually included in the rebuilding plan section of the work plans, like all other initial 19 stock groups first included in the first work plan, but with completion noted in the deliverable descriptions. However, it is noted that in the HCR section of the 2021/22 fiscal			

[513] DFO (2019). Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective February 21, 2019, Version 1.1. http://waves-vagues.dfo-mpo.gc.ca/Library/40765167.pdf

[514] DFO (2020). Evaluation of Potential Rebuilding Strategies for Outside Yelloweye Rockfish in British Columbia. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/024. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_024-eng.html

[515] DFO (2020). Appendix 9: Rebuilding Plans for Groundfish Species, *in* Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective February 21, 2020, Version 1.0. https://waves-vagues.dfo-mpo.gc.ca/Library/40854450.pdf

[516] Now available as of the drafting of this report, see first footnote in this details section for its title and URL to access it.

[517] DFO (2020). Terms of Reference: Evaluation of Management Procedures for the Inside Population of Yelloweye Rockfish Rebuilding Plan. Regional Peer Review – Pacific Region, June 10–11, 2020, Nanaimo, BC. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/06_10-11-eng.html

[518] DFO (2020). Evaluation of Management Procedures for the Inside Population of Yelloweye Rockfish Rebuilding Plan in British Columbia. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/056. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_056-eng.html

[519] DFO (2021). Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective February 21, 2021, Version 1.0. https://waves-vagues.dfo-mpo.gc.ca/Library/4093732x.pdf

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			year work plan, there is a deliverable that indicates DFO will begin the development of target reference points (TRP) and new management procedures (MP) to support the continued rebuilding process for both the inside and outside populations of yelloweye rockfish. Progress towards this will be evaluated as a single deliverable in the HCR evaluation table in 2022.						
2	Maritimes	Atlantic cod – 4X5Y; Critical	Develop a rebuilding plan. The plan will document measures taken to minimize fishing mortality including the harvest strategy and multiple year quotas.	Completed in 2017-18.	Completed.	Completed.	Completed in 2017-2018.	By end of 2017-18.	Previously completed (2019)
			Details: In 2017/18 a rebuilding plan was developed and approved for Atlantic cod in 4X5Y, but it was not available online by the end of the fiscal year (P. Doherty, personal communication, June 12, 2018). During Oceana Canada's 2019 evaluation, the rebuilding plan for Atlantic cod - NAFO Division 4X5Y was available on the DFO website, with a last-modified date on the webpage of January 9, 2019 and containing information up to and including 2017.[520] In the work plan results for 2018/19, the department also indicated this deliverable was completed; a tangible deliverable is complete and available as a result.[521] The rebuilding plan documents existing measures taken to minimize fishing mortality and outlines a generic harvest strategy but does not include multiple-year quotas beyond those previously put in place for 2017/18 and 2018/19.[522] This rebuilding plan was under review during Oceana Canada's 2019 evaluation, and revisions were anticipated following the stock assessment completed in fall 2018,[523] as indicated would occur in the plan itself. However, these have not yet been completed, and key aspects of the plan have now changed or are now undefined. For example, the LRP and USR have been revised, and the primary short-term objective of the rebuilding plan "to ensure that total fishing mortality from the groundfish fishery does not exceed the F_{LIM} for the Critical zone" is no longer measurable, given scientists indicated at the assessment that they could not provide a fishing mortality reference level because the stock is currently in the critical zone and expected to decline even in the absence of fishing under current productivity conditions. This rebuilding plan still requires updating. The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the rebuilding plan is being updated and is expected to be finalized in 2021.[524] This stock was included as a case study in a national DFO initiative to further the implementation of the ecosystem approach to fisheries management that will integrate environmental variables into single-species stock assessments in order to improve fisheries management decisions. For this stock, information on grey seals will be included, and it is possible this work will inform rebuilding plan revisions.						
3	National Capital Region	Northern shrimp – SFA 6; Critical	Rebuilding plan currently in draft form.	Completed in 2017-18.	Completed in 2018-19.	Completed in 2018-19.	Completed in 2018-19.	2017-18 fiscal year.	Previously completed (2019)
			Details: Although this plan is noted as completed in the 2018/19 deliverables description, departmental officials indicated it was not completed in the 2017/18 fiscal year as indicated (N. Schjott, personal communication, June 7, 2018). In 2017/18 DFO formed a working group to develop a plan. The group is a subset of the Northern Shrimp Advisory Committee, with representatives from all allocation holders from SFA 6 involved. A Science process was held in January 2017 to assess the reference points, where it was determined that there was insufficient evidence to recommend a change to the current LRP until a new assessment model could be developed.[525] A draft plan was completed in fiscal 2017/18 and was awaiting approvals and anticipated to be posted online at the same time as the updated IFMP, sometime in summer or fall 2018 (L. Edgar, personal communication, June 18, 2018). The rebuilding plan for northern shrimp SFA 6 is available on the DFO website as Annex J of the IFMP for northern shrimp and striped shrimp – shrimp fishing areas 0, 1, 4–7, the Eastern and Western Assessment Zones, and						

[520] DFO (2019). Rebuilding Plan for Atlantic Cod – NAFO Division 4X5Y. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/cod-morue/cod-morue-2018-eng.html. Note this version of the rebuilding plan is no longer available and has been replaced by an updated version in late July 2021: https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/cod-morue/2021/cod-atl-morue-2021-eng.html

[521] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[522] DFO (2019). Rebuilding Plan for Atlantic Cod – NAFO Division 4X5Y. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/cod-morue/cod-morue-2018-eng.html Note this version of the rebuilding plan is no longer available and has been replaced by an updated version in late July 2021: https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/cod-morue/2021/cod-atl-morue-2021-eng.html

[523] DFO (2019). Stock Assessment of Atlantic Cod (*Gadus morhua*) in NAFO Divisions 4X5Y. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/015. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_015-eng.html

[524] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[525] DFO (2017). Review of Reference Points Used in the Precautionary Approach for Northern Shrimp (*Pandalus borealis*) in Shrimp Fishing Area 6. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2017/009. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2017/2017_009-eng.html

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			North Atlantic Fisheries Organization (NAFO) Division 3M, effective 2018.[526] The IFMP has a last-modified date on the webpage of November 1, 2018 and contains information up to and including 2018. In the work plan results for 2018/19, the department also indicates this deliverable was completed; a tangible deliverable is complete and available as a result.[527] The rebuilding plan provides relevant context about the current state of the stock and impediments to rebuilding. It focuses on a new assessment model as the priority and summarizes current management measures in place for the stock. Although the plan mentions surpassing the LRP and eventually rebuilding to the healthy zone, it states that long-term objectives are "to be determined" and will only be implemented once the modelling exercise has been completed. It also states that the draft objectives may be modified. Therefore, the rebuilding plan lacks an abundance target, associated timelines, and probability estimates for meeting them. The plan does clearly indicate that the current precautionary approach framework and associated harvest strategy apply and will be monitored, appropriately providing explicit guidance for harvest level decisions in the interim. But the current validity of the exploitation rates outlined for the health status zones for this stock was questioned by departmental scientists in the 2017 Science process. DFO has allocated resources towards developing a model for this stock by 2020, which may inform a rebuilding plan update (L. Edgar, personal communication, June 18, 2018). A CSAS process was held in May 2019 with the key objective of reviewing the proposed population models and defining reference points consistent with the precautionary approach for northern shrimp in SFAs 4–7.[528] The terms of reference for the meeting indicate scientists developed spatially explicit population models for northern shrimp in SFAs 4–7. During the 2019 evaluation of the LRP deliverable related to this stock group, departmental officials indicated that while a new model was accepted, more work is required. Consequently, reference points were not determined at the meeting, and their development will occur later (N. Schjott, personal communication, June 25, 2019). During Oceana Canada's 2020 evaluation of the LRP deliverable, DFO indicated modelling work is still ongoing and work continues towards the development of an updated LRP (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador and National Capital regions, personal communication, June 23, 2020). This year the LRP deliverable was again evaluated as delayed (see Table 2). Model formulation is the short-term objective of the rebuilding plan, and the model will form the basis of determining long-term objectives and timelines for the rebuilding plan. The rebuilding plan indicates if a model is available, then the plan will be updating accordingly.						
4	Maritimes	Atlantic cod – 5Zjm; Critical	DFO will start work to develop a rebuilding plan. 5Z cod is an international stock, managed through international science (Transboundary Resource Assessment Committee, TRAC) and management (Transboundary Management Guidance Committee, TMGC). The rebuilding plan will identify the harvest strategies and approaches taken to rebuild the stock. It is expected that the plan will be completed by the end of 2018-19. This plan will not require joint approval from the U.S., but would be	Continue to work with U.S. and draft rebuilding plan by end of 2018-19.	Completed.	Completed.	Completed in 2018-19.	By end of the 2018-19 fiscal year.	**Previously completed (2019)**

[526] DFO (2018). Integrated Fisheries Management Plan: Northern Shrimp and Striped Shrimp – Shrimp Fishing Areas 0, 1, 4–7, the Eastern and Western Assessment Zones and North Atlantic Fisheries Organization (NAFO) Division 3M, Effective 2018. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/shrimp-crevette/shrimp-crevette-2018-002-eng.html

[527] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[528] DFO (2019). Terms of Reference: Development of a New Precautionary Approach Framework for Northern Shrimp in the Newfoundland and Labrador Region. Regional Peer Review – Newfoundland and Labrador Region, May 15–17, 2019. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/05_15-17-eng.html

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			communicated as part of an open and transparent relationship.						
			Details: This stock is co-managed with the U.S. via the Transboundary Management Guidance Committee (TMGC), which provides non-binding guidance to both countries on management measures, such as quotas. The Transboundary Resources Assessment Committee (TRAC) is the scientific arm of the TMGC; the TRAC is the forum for joint science advice. As indicated in the 2017/18 work plan deliverable description, the rebuilding plan was not intended to be co-developed. Work on developing this plan begin in 2017 when DFO officials began to draft a rebuilding plan based on the DFO guidance document. This was informed by a literature search of information related the stock and several science and management meetings held in 2018 (including the TRAC and TMGC meetings) (K. Spence, personal communication, June 14, 2018). In November 2018 departmental officials sought feedback on a draft rebuilding plan from members and observers of the primary domestic advisory body, the Gulf of Maine Advisory Committee (GOMAC) (including Oceana Canada), via email, providing 17 days for completion. At a meeting of GOMAC in April 2019, DFO indicated that the rebuilding plan was completed and would be posted online in the spring or summer (C. Karbowski, personal communication, April 16, 2019). The rebuilding plan for Atlantic cod – 5Zjm is now available on the DFO website,[529] with a last-modified date on the webpage of June 27, 2019[530] and containing information up to and including 2018. In the work plan results for 2018/19, the department also indicates this deliverable was completed; a tangible deliverable is complete and available as a result.[531] The rebuilding plan indicates that the objectives, strategies, and reference points described apply explicitly to the management of the stock within Canada and may be used to guide Canadian members who will advance positions consistent with these objectives during negotiations at the TMGC. The rebuilding plan documents existing measures taken to minimize fishing mortality and outlines the existing TMGC harvest strategy using fishing mortality reference levels. However, estimating the past year's fishing mortality and projecting the following year's in relation to this strategy has not been possible since 2016, as indicated in the plan. The stock is likely to have a framework stock assessment in conjunction with the U.S.-domestic Research Track stock assessments (i.e., benchmark or framework stock assessments) for other U.S. cod stocks in the region (e.g., Gulf of Maine) in 2022 or 2023. In the interim, TRAC scientists are exploring a framework similar to a Management Strategy Evaluation, using the Data-Limited Methods Toolkit (DLMtools) with TMGC input to simulate the fishery and assess different harvest strategies.[532] It was indicated at the April 2020 GOMAC meeting that draft fishery objectives and operating models would be reviewed at TRAC in July 2020. An update on progress was provided and reviewed at TRAC in July of 2020,[533] and it was anticipated that the new approach would be ready to provide interim catch advice in 2021.[534] It is possible results from this process may inform rebuilding plan revisions.						
5	Maritimes	Yellowtail flounder – 5Z; Uncertain	DFO will start work to develop a rebuilding plan. 5Z yellowtail is an international stock, managed through international science (Transboundary Resource Assessment Committee, TRAC) and management (Transboundary Management Guidance Committee, TMGC). The	Current rebuilding measures are included in the overarching Groundfish IFMP, developed in 2017-18. Refinement analysis ongoing.	Completed.	Completed.	Completed in 2018-19.	By end of the 2018/19 fiscal year.	**Previously completed (2019)**

[529] DFO (2019). Rebuilding Plan for Atlantic Cod – NAFO Division 5Z. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/cod-morue/cod-morue-2019-eng.html

[530] It should be noted that this rebuilding plan was not actually available to the public on the website as of July 17, 2019. The June 27, 2019 "date last modified" on the website indicates that the date last modified on DFO websites may not reflect when the webpages are made public but instead may reflect when the content was last edited by an IT specialist (i.e., webmaster). However, given there is often no other means to assess the date when management plans are published, Oceana Canada's analysis uses the date last modified to assess the timeliness of most management plans.

[531] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[532] Transboundary Resource Steering Committee (2019). Canada/United States (U.S.) Transboundary Resources Steering Committee, September 11–12, 2019, Meeting Minutes. http://www.bio.gc.ca/info/intercol/sc-cd/documents/sc_minutes_sept2019_eng.pdf

[533] TRAC (2020). Transboundary Resources Assessment Committee Status Report 2020/01: Eastern Georges Bank Cod. https://s3.amazonaws.com/nefmc.org/5d_TSR_2020_EGB-Cod-Final_200921_093931.pdf

[534] Transboundary Resource Steering Committee (2020). September 2, 2020 Meeting Minutes. https://s3.amazonaws.com/nefmc.org/Meeting-minutes-SC-Sept-2020_for-distribution.pdf

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			rebuilding plan will identify the harvest strategies and approaches taken to rebuild stock. It is expected that the plan will be completed by the end of 2018-19. This plan will not require joint approval from the U.S., but would be communicated as part of an open and transparent relationship.						
			Details: This stock is co-managed with the U.S. via the Transboundary Management Guidance Committee (TMGC) that provides non-binding guidance to both countries on management measures, such as quotas. The Transboundary Resources Assessment Committee (TRAC) is the scientific arm of the TMGC; the TRAC is the forum for joint science advice. As indicated in the 2017/18 work plan deliverable description, the rebuilding plan was not intended to be co-developed. DFO officials began to draft a rebuilding plan based on the DFO guidance document. This was informed by a literature search of information related to the stock and several science and management meetings held in 2018 (including the TRAC and TMGC meetings) (K. Spence, personal communication, June 14, 2018). In November 2018 departmental officials sought feedback on a draft rebuilding plan from members and observers of the primary domestic advisory body, the Gulf of Maine Advisory Committee (GOMAC) (including Oceana Canada), via email, providing 17 days for completion. At a meeting of GOMAC in April 2019, DFO indicated that the rebuilding plan was completed and would be posted online in the spring or summer (C. Karbowski, personal communication, April 16, 2019). The rebuilding plan for yellowtail flounder in 5Z is now available on the DFO website,[535] with a last-modified date on the webpage of June 27, 2019 and containing information up to and including 2018.[536] In the work plan results for 2018/19, the department also indicates this deliverable was completed; a tangible deliverable is complete and available as a result.[537] The rebuilding plan documents existing measures taken to minimize fishing mortality and documents a recently developed harvest strategy for the Canadian portion of the fishery using the upper bound of an exploitation rate recommended by scientists for the entire fishery (U.S. and Canada). This rebuilding plan includes an undefined target (i.e., LRP), which the plan indicates will be established in 2020/21. The stock was assessed using the established empirical approach again in 2019, but no reference points are noted as being developed.[538] Rebuilding plans were on the agenda at the April 2020 GOMAC meeting. No updates were provided specific to the yellowtail flounder rebuilding plan, but any changes noted at the assessment by TRAC in July 2020 may inform rebuilding plan revisions. The stock was assessed using the established empirical approach again in 2020, but no reference points are noted as being developed.[539]						
6	National Capital Region	Acadian redfish – Units 1 and 2;[540] Cautious	By the end of March 2018: management strategy evaluation (MSE) will be available. The MSE is a simulation computer model that is used to make	New deadline: By end of 2018-19. Management strategy evaluation (MSE) and	No longer required.	No longer required.	No longer required.	June in the 2018-19 fiscal year.*	**Previously suspended (2018)**

[535] DFO (2019). Rebuilding Plan for Yellowtail Flounder – NAFO Division 5Z. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/flounder-limande/2018/index-eng.html

[536] It should be noted that this rebuilding plan was not actually available to the public on the website as of July 17, 2019. The June 27, 2019 "date last modified" on the website indicates that the date last modified on DFO websites may not reflect when the webpages are made public but instead may reflect when the content was last edited by an IT specialist (i.e., webmaster). However, given there is often no other means to assess the date when management plans are published, Oceana Canada's analysis uses the date last modified to assess the timeliness of most management plans.

[537] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[538] Transboundary Resource Steering Committee (2019). Canada/United States (U.S.) Transboundary Resources Steering Committee, September 11–12, 2019, Meeting Minutes. http://www.bio.gc.ca/info/intercol/sc-cd/documents/sc_minutes_sept2019_eng.pdf

[539] TRAC (2020). Transboundary Resources Assessment Committee Status Report 2020/03: Georges Bank Yellowtail Flounder. https://s3.amazonaws.com/nefmc.org/5c_TSR_2020_GBYT-Flounder-Final.pdf

[540] Included in 2017/18 and 2018/19 work plan 2 as both redfish species combined, with unit 1 separate from unit 2, whereas here Oceana Canada lists each redfish species separately within unit 1 and 2 combined, as per the DFO Science definition of the stock.

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			predictions about the stock status and to test different harvest strategies. By the end of April 2018: MSE and rebuilding plan will be tabled at special meeting of the Gulf Groundfish Advisory Committee (GGAC). By the end of May 2018: MSE and rebuilding plan will be submitted for approval.	rebuilding plan will be completed in 2018-19.				*Previously committed to be completed by end of fiscal 2017-18.[541] New deadline in 2018/19 work plan: By end of 2018-19.	
			Details: The Management Strategy Evaluation (MSE) process passed CSAS scientific peer review in late April 2018,[542] but no management procedure (i.e., harvest control rule) was chosen and implemented by Management. At the newly formed Redfish Advisory Group meeting in early May 2018, DFO announced it will no longer be pursuing a rebuilding plan for redfish in units 1 and 2. Based on reference points and stock status developed in the MSE, both species are now out of the critical zone in units 1 and 2 combined, so a plan is not required by policy. In the work plan results for 2018/19, the department indicates this deliverable was "N/A": the commitment or action as defined in the description of deliverables (2018/19) was not pursued for reasons including no longer being required.[543] However, this improvement in stock status is largely due to a few recent large cohorts (2011–13), and Acadian redfish remain in the cautious zone.[544] DFO and industry recognize they have work to do to figure out how to develop a modern and sustainable redfish fishery, and in 2018 DFO initiated an experimental fishery for research addressing the ways to determine the species split in the catches, to demonstrate ability to target the more abundant deepwater redfish and avoid the less abundant Acadian redfish, and to identify ways to mitigate bycatch impacts on small redfish, depleted species, and sensitive habitats.[545,546] How this will be accomplished is not clear, as currently there is no single fisheries management plan (rebuilding plan or IFMP) that covers both species in the entire stock area. A single management plan (rebuilding plan or IFMP) should be developed for this rebuilding fishery and include measures addressing the above issues and an HCR to guide catch level decisions.					
7	National Capital Region	Deepwater redfish – Units 1 and 2;[547] Healthy	By the end of March 2018: management strategy evaluation (MSE) will be available. The MSE is a simulation computer model that is used to make predictions about the stock	New deadline: By end of 2018-19. Management strategy evaluation (MSE) and rebuilding plan will be completed in 2018-19.	No longer required.	No longer required.	No longer required.	June in the 2018-19 fiscal year.* *Previously committed to be completed by end of fiscal 2017-18.[548]	Previously suspended (2018)

[541] Canada. (2017). House of Commons, Standing Committee on Fisheries and Oceans – Evidence. Issue No. 55, April 6, 2017. 42nd Parliament, 1st Session (Online). http://www.parl.gc.ca/content/hoc/Committee/421/FOPO/Evidence/EV8870047/FOPOEV55-E.PDF

[542] DFO (2018). Units 1+2 Redfish Management Strategy Evaluation. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/033. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_033-eng.html

[543] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[544] DFO (2020). Redfish (*Sebastes mentella* and *S. fasciatus*) Stocks Assessment in Units 1 and 2 in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/019. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_019-eng.html

[545] DFO (2018). Redfish Unit 1 and 2 (2018 and 2019). https://www.dfo-mpo.gc.ca/fisheries-peches/decisions/fm-2018-gp/atl-23-eng.html

[546] DFO (2019). Experimental Fishing Plan Unit 1 Redfish (2019 season). https://www.dfo-mpo.gc.ca/fisheries-peches/commercial-commerciale/atl-arc/management-plan-gestion/redfish-sebaste-eng.html

[547] Included in 2017/18 and 2018/19 work plan 2 as both redfish species combined, with unit 1 separate from unit 2, whereas here Oceana Canada lists each redfish species separately within unit 1 and 2 combined, as per the DFO Science definition of the stock.

[548] Canada. (2017). House of Commons, Standing Committee on Fisheries and Oceans — Evidence. Issue No. 55, April 6, 2017. 42nd Parliament, 1st Session. (Online). http://www.parl.gc.ca/content/hoc/Committee/421/FOPO/Evidence/EV8870047/FOPOEV55-E.PDF

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			status and to test different harvest strategies. By the end of April 2018: MSE and rebuilding plan will be tabled at special meeting of the Gulf Groundfish Advisory Committee (GGAC). By the end of May 2018: MSE and rebuilding plan will be submitted for approval.					New deadline in 2018/19 work plan: By end of 2018-19.	
			Details: The Management Strategy Evaluation (MSE) process passed CSAS scientific peer review in late April 2018,[549] but no management procedure (i.e., harvest control rule) was chosen and implemented by Management. At the newly formed Redfish Advisory Group meeting in early May 2018, DFO announced it would no longer be pursuing a rebuilding plan for redfish in units 1 and 2. Based on reference points and stock status developed in the MSE, both species are now out of the critical zone in units 1 and 2 combined, so a plan is not required by policy. In the work plan results for 2018/19, the department indicates this deliverable was "N/A": the commitment or action as defined in the description of deliverables (2018/19) was not pursued for reasons including no longer being required.[550] However, this improvement in stock status is largely due to a few recent large cohorts (2011–13), and Acadian redfish remain in the cautious zone.[551] DFO and industry recognize they have work to do to figure out how to develop a modern and sustainable redfish fishery, and in 2018 DFO initiated an experimental fishery for research addressing the ways to determine the species split in the catches, to demonstrate ability to target the more abundant deepwater redfish and avoid the less abundant Acadian redfish, and to identify ways to mitigate bycatch impacts on small redfish, depleted species, and habitat.[552,553] How this will be accomplished is not clear, as currently there is no single fisheries management plan (rebuilding plan or IFMP) that covers both species in the entire stock area. A single management plan (rebuilding plan or IFMP) should be developed for this rebuilding fishery and include measures addressing the above issues and an HCR to guide catch level decisions.						
8	Pacific	Bocaccio – Pacific; Critical			Completed.			By end of 2017-18 (newly added to work plan in 2019/20).	Previously excluded from evaluation (2020) – completed prior to first work plan

[549] DFO (2018). Units 1+2 Redfish Management Strategy Evaluation. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/033. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_033-eng.html

[550] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[551] DFO (2020). Redfish (*Sebastes mentella* and *S. fasciatus*) Stocks Assessment in Units 1 and 2 in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/019. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_019-eng.html

[552] DFO (2018). Redfish Unit 1 and 2 (2018 and 2019). https://www.dfo-mpo.gc.ca/fisheries-peches/decisions/fm-2018-gp/atl-23-eng.html

[553] DFO (2019). Experimental Fishing Plan Unit 1 Redfish (2019 Season). https://www.dfo-mpo.gc.ca/fisheries-peches/commercial-commerciale/atl-arc/management-plan-gestion/redfish-sebaste-eng.html

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			Details: This stock was newly added to section 2 of DFO's 2019/20 fiscal year work plan, with a deliverable description of "completed." However, the rebuilding plan for bocaccio was completed in 2014.[554] Unsurprisingly, the 2019/20 work plan results also indicate it was completed.[555] Given the plan was developed years prior, it could be perceived as misleading to include this stock in the list of stocks for which rebuilding plans will be developed with an expected date of completion of 2017/18 and a status of completed in the 2019/20 work plan. While the latter is true, it is not work that was completed in response to the 2016 CESD audit, since this stock was included in a rebuilding plan in 2014. The stock was not repeated in the 2020/21 or 2021/22 work plans. For these reasons, this stock was excluded from Oceana Canada's evaluation and summary analysis. However, the rebuilding plan was updated in 2020 as per the annual IFMP update (see page 244 of the PDF version of the IFMP), and although objectives remained the same, the plan indicates an increase in the mortality cap for the stock based on updated science information (unpublished at the time of the decision), from 75 to 363 t in 2020/21.[556] The rebuilding plan indicates work will occur throughout 2020 and 2021 to refine rebuilding objectives and management measures that will continue to satisfy mortality caps and eventually transition from management under a rebuilding plan to management under the standard IFMP process. The CSAS process referred to in the plan was held in December 2019 to assess the stock and provide guidance for the rebuilding plan. The resultant report indicates that the stock is still estimated to be in the critical zone but that a significant recruitment event occurred in 2016 that is projected to rebuild the stock quickly.[557] Projections indicate the stock would rebuild above the limit reference point (LRP) with a 95 per cent probability by 2023 at catch levels up to 600 t/year (the highest levels tested in projections), with over a 90 per cent probability of being above the USR by 2025 at 400 t/year (the level chosen by management). It is anticipated work to revise the rebuilding plan would be ongoing in 2020/21. The 2020/21 IFMP again includes an updated rebuilding plan, with the objectives again remaining the same but with the 2021/22 mortality cap for bocaccio increased again, to 500 t, citing the same science advice as a basis for the decision.[558]					
9	Newfound-land and Labrador	Atlantic cod – 2J3KL; Critical	DFO is currently engaged in a process involving industry, the Government of Newfoundland and Labrador and NGOs to develop a rebuilding plan. It is anticipated that the rebuilding plan will be in place in 2018-19 to inform the 2018 fishery management decisions.	Continue to evaluate model and HCR to inform 2018 management decision. Rebuilding plan to be completed by end of 2018-19.	Delayed. Divergent stakeholder views limited progress in defining a harvest decision rule; draft plan presented by DFO to stakeholders (spring 2018); adoption / further development of the plan was put on hold pending LRP review (January 2019); next steps to be determined.	Expected date of completion revised from 2018-19 to 2020-21. To date, divergent stakeholder views have limited progress in defining a Harvest Control Rule. The draft Rebuilding Plan presented to stakeholders in 2018 was not adopted. The LRP was reviewed and deemed to be valid in 2019. Objective is to complete a Rebuilding plan by 2020-21.	Completed in 2020-21.	2018-19 fiscal year. New deadline in 2020/21 work plan: By end of 2020-21	**Completed**

[554] DFO (2014). Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective February 21, 2014, Version 1.0. http://waves-vagues.dfo-mpo.gc.ca/Library/365005.pdf

[555] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[556] DFO (2020). Appendix 9: Rebuilding Plans for Groundfish Species, *in* Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective February 21, 2020, Version 1.0. https://waves-vagues.dfo-mpo.gc.ca/Library/40854450.pdf

[557] DFO (2020). Bocaccio (*Sebastes paucispinis*) Stock Assessment for British Columbia in 2019, Including Guidance for Rebuilding Plans. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/025. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_025-eng.html

[558] DFO (2021). Appendix 9, *in:* Pacific Region Integrated Fisheries Management Plan: Groundfish, Effective February 21, 2021, Version 1.0. https://waves-vagues.dfo-mpo.gc.ca/Library/4093732x.pdf

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			Details: A working group made up of a subset of the 2J3KLMNO Groundfish Advisory Committee has been established and tasked with the development of a rebuilding plan and associated HCR. As noted in the 2018/19 work plan, work to develop and implement an HCR was not completed in fiscal 2017/18 and continued into 2018/19. DFO presented a draft HCR at the groundfish advisory committee meeting in April 2018, but it was not used to inform the 2018 management decisions. In January 2019, a CSAS process was held to re-evaluate the LRP, where it was concluded the previous approach to adopting the LRP (as well as the LRP itself) remains valid.[559] The stock was assessed in March 2019, but although harvest advice was sought, HCR development or evaluation was not in the terms of reference for the meeting or discussed in the resultant report.[560,561] At the April 2019 2J3KLMNO Groundfish Advisory Committee meeting, the department indicated the next steps towards the rebuilding plan and associated HCR were to be determined. In the work plan results for 2018/19, the department indicated both these deliverables were again delayed; the deliverable was not completed by deadline date as indicated in the description of deliverables (2018/19).[562] The stock was scheduled for a complete assessment in March 2020, but due to the COVID-19 pandemic, this meeting was cancelled and instead a Science Response Process was held on April 1–2, 2020 to provide 2020 harvest advice.[563] Neither a rebuilding plan nor HCR advice is mentioned in the resultant report.[564] Likewise, neither a rebuilding plan nor HCR development was on the agenda for the April 2020 2J3KLMNO Groundfish Advisory Committee meeting, although when asked by an Oceana Canada representative, departmental officials did indicate the rebuilding plan remained a priority. It is unclear what progress was made towards HCR development in fiscal 2019/20, and there is no evidence working group meetings have been held since early 2018. The results of the 2019/20 work plan evaluation indicate this deliverable is delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[565] The 2020/21 fiscal year work plan indicates rebuilding plan completion would happen in the 2020/21 fiscal year and was carried forward from last fiscal, meaning activities were not carried out as described in the deliverable description. The work plan indicated a shift in the expected date of completion from 2018/19 to 2020/21. The deliverable description for 2020/21 indicated that, to date, divergent stakeholder views had limited progress in defining an HCR and that the draft rebuilding plan presented to stakeholders in 2018 was not adopted. It further reiterates that the LRP was reviewed and deemed to be valid in 2019 and that the objective is to complete a rebuilding plan by the end of 2020/21. During Oceana Canada's 2020 evaluation, DFO confirmed that a completed rebuilding plan for the northern cod stock was a priority for 2020/21 (Fisheries and Aquaculture Management, Newfoundland and Labrador Region, personal communication, June 23, 2020). In late December 2020, DFO published a rebuilding plan for northern cod that includes a Harvest Decision Rule (HDR).[566] The HDR appears to be the same as that presented at the 2018 advisory meeting. While evaluated as completed here, note that rebuilding plan and HDR quality is not evaluated. The HDR and associated rebuilding plan have received external critiques on their adequacy.[567,568]					

[559] DFO (2019). Evaluation of the Biomass Limit Reference Point for Northern Cod (NAFO Divisions 2J3KL). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/058. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_058-eng.html

[560] DFO (2019). Terms of Reference: Stock Assessment of Northern Cod (Divs. 2J3KL). Regional Peer Review Process – Newfoundland and Labrador Region, March 26–29, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/03_26-29-eng.html

[561] DFO (2019). Stock Assessment of Northern Cod (NAFO Divisions2J3KL) in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/050. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_050-eng.html

[562] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[563] DFO (2020). Terms of Reference: Stock Assessment of Northern Cod (Divs. 2J3KL). Regional Peer Review Process – Newfoundland and Labrador Region, April 1–2, 2020, virtual meeting. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/04_01-02b-eng.html

[564] DFO (2021). 2020 Stock Status Update for Northern Cod. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/004. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_004-eng.html

[565] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[566] DFO (2021). Rebuilding plan for Atlantic Cod – NAFO Divisions 2J3KL. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/cod-morue/2020/cod-atl-morue-2020-eng.html

[567] Hutchings, J.A., Rose, G.A. & Shelton, P.A. (2021). The Flawed New Plan to Rebuild Canada's Iconic Northern Cod. Policy Options, March 22, 2021. https://policyoptions.irpp.org/magazines/march-2021/the-flawed-new-plan-to-rebuild-canadas-iconic-northern-cod/

[568] Archibald, D.W. & Rangeley, R. (2021). Comment on 2021 Management Measures for Northern Cod. Oceana Canada. https://oceana.ca/en/publications/reports/comment-2021-management-measures-northern-cod

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
10	National Capital Region	Mackerel – (Atlantic) NAFO 3 and 4; Critical	Departmental working group meeting to consider draft objectives and components of a rebuilding plan.	Departmental working group formed and management strategy evaluation (MSE) process initiated to draft objectives and develop a harvest control rule (HCR).	In progress. Completion expected by end of fiscal 2019-20.	Completed in 2019-20.	Completed in 2019-20.	2019-20 fiscal year.	Completed
			Details: A rebuilding working group made up of scientists, First Nations representatives, fishers, fisheries managers, environmental groups, and provincial governments was formed in December 2017 to develop a rebuilding plan for this stock, and it was anticipated that the plan would be available in March 2020.[569] In March 2019, the stock was assessed and the results from the model were to serve as the basis for a Management Strategy Evaluation (MSE) framework that has been developed.[570] Draft MSE results were peer reviewed during the March 2019 stock assessment CSAS process.[571,572] The review resulted in suggestions to add trade-offs to management objectives, to improve operating models, and to develop quantitative metrics for strategy evaluation. The report indicated that these steps would provide an improved basis to select management procedures (MPs) to attain specific objectives for the stock (including rebuilding) under key uncertainties. In the work plan results for 2018/19, the department indicated the deliverable was met; commitment or action as defined in the description of deliverables (2018/19) was complete without a tangible deliverable.[573] The working group was to continue to meet throughout the rest of 2019 in order to provide guidance to the Minister of Fisheries and Oceans on the development of a rebuilding plan, with a document expected in 2020.[574] There were no CSAS processes held in fiscal 2019/20. The results of the 2019/20 work plan evaluation indicate this deliverable is completed; a tangible deliverable is complete and available as a result.[575] The 2020/21 fiscal year work plan indicated this rebuilding plan was completed in the 2019/20 fiscal year. The 2020 quota decision was communicated in late May 2020, and it indicated a rebuilding plan is expected in 2020,[576] however it was still not posted on the website by Oceana Canada's annual evaluation information inclusion deadline (of July 1st), so remained evaluated as "delayed" here in 2020. During the 2020 evaluation, DFO confirmed that the rebuilding plan was complete and would be posted on the website as soon as translation was completed (Fisheries and Aquaculture Management, National Capital Region, personal communication, June 23, 2020). Final revisions were made to the rebuilding plan after the working group last met in March 2020. DFO indicated progress toward rebuilding the stock would be incremental, and the plan would be reviewed during each stock assessment year (2021, 2023, 2025) and revised as needed (Fisheries and Aquaculture Management, National Capital Region, personal communication, June 23, 2020). A rebuilding plan for Atlantic mackerel – NAFO Subareas 3 and 4 is now available on the DFO website containing information up to 2020 and with a date last modified on the webpage of July 10, 2020.[577] However, it actually did not appear on the website until November 6, 2020. A stock assessment occurred at a CSAS process held in February 2021,[578] but the reports from this process are not yet available to indicate if it mentioned support for rebuilding plan updates.					

[569] Smith, A. (2019). Strategies for Rebuilding the Atlantic Mackerel Stock. InfoOceans. https://inter-l01-uat.dfo-mpo.gc.ca/infoceans/en/infocean/strategies-rebuilding-atlantic-mackerel-stock

[570] DFO (2020). Terms of Reference: Assessment of Atlantic Mackerel in Subareas 3-4. Regional Peer Review – Quebec Region, March 5–7, 2019, Mont-Joli, QC. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/03_05-07b-eng.html

[571] DFO (2019). Assessment of the Atlantic Mackerel Stock for the Northwest Atlantic (Subareas 3 and 4) in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/035. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_035-eng.html

[572] DFO (2019). Proceedings of the Regional Peer Review Meeting of the Assessment of Atlantic Mackerel in Subareas 3–4; March 5–7, 2019. DFO Can. Sci. Advis. Sec. Proceed. Ser. 2019/026. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2019/2019_026-eng.html

[573] DFO (2019). Work Plans For fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[574] DFO (2019). Fisheries Management Decisions. Atlantic Mackerel – NAFO Subareas 3 and 4. https://www.dfo-mpo.gc.ca/fisheries-peches/decisions/fm-2019-gp/atl-16-eng.html

[575] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[576] DFO (2020). Atlantic Mackerel – NAFO Subareas 3 and 4. http://www.dfo-mpo.gc.ca/fisheries-peches/decisions/fm-2020-gp/atl-17-eng.html

[577] DFO (2020). Rebuilding Plan for Atlantic Mackerel – NAFO Subareas 3 and 4. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/mackerel-atl-maquereau/mac-atl-maq-2020-eng.html

[578] DFO (2021). Terms of Reference: Assessment of the northern contingent of Atlantic Mackerel (*Scomber scombrus*). Regional Advisory Meeting – Quebec Region, February 25–26, 2021. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/02_25-26-eng.html

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
11	Pacific	Pacific herring – Haida Gwaii (Pacific QCI); Healthy	A meeting with stakeholders will be held to begin discussion on the rebuilding plan. The summary report from the workshop will aid in the development of a draft outline of the rebuilding plan.	New deadline: 2020-21.[579] Expected date of completion revised from 2018-19 to 2020-21. Draft rebuilding plan developed preliminary simulations to evaluate draft objectives to begin. Hold meetings with Haida to discuss results of simulations and refine objectives.	Complete operating model and begin simulation testing of management procedures against rebuilding objectives.	Rebuilding plan completion by end of December 2020 as committed to under the Gwaii Haanas Land-Sea- People Management Plan.	Expected date of completion revised from 2020-21 to 2021-22 to meet requirements under the Gwaii Haanas Land-Sea-People plan and continue work to meet any additional requirements under the Fish Stocks provisions.	By end of the 2018-19 fiscal year. New deadline in 2018/19 work plan: 2020-21.[580] New deadline in 2021/22 work plan: By end of 2021-22.	**Delayed**
			Details: This rebuilding plan was initially expected to be completed by the end of fiscal 2018/19. In the work plan results for 2018/19, the department indicated the deliverable was met; commitment or action as defined in the description of deliverables (2018/19) was complete without a tangible deliverable.[581] However the plan itself was not completed and the deadline was revised to the end of fiscal 2020/21. In the work plan results for 2019/20, the department indicated the deliverable was met; commitment or action as defined in the description of deliverables (2019/20) was complete without a tangible deliverable.[582] The 2019/20 IFMP indicates that DFO has committed to developing and implementing a rebuilding plan for Haida Gwaii Pacific herring by December 2020 and that work is underway through a technical working group comprised of members of the Council of Haida Nation, DFO, and Parks Canada.[583] It indicates that engagement with rights-holders and stakeholders was to be ongoing in 2020/21 and the IFMP provides a synopsis of progress to date with the Management Strategy Evaluation (MSE) and alignment of Pacific herring management with the DFO precautionary approach. In August 2019, a CSAS Science Response Process (SRP) was held to evaluate management procedures (MPs) for Pacific herring (*Clupea pallasii*) in the Haida Gwaii management area of British Columbia, developed under the MSE. The resultant Science Response report summarizes progress to date and next steps.[584] It indicates that LRPs were developed and accepted by scientists at a meeting in 2017 and that closed-loop feedback simulation testing of candidate MPs, including HCRs, was recommended as a next step to evaluate the consequences of LRP choice for each area. However, the selection of preferred MPs requires a full set of measurable objectives for conservation and the fishery (e.g., related to catch, catch variability, and socio-cultural goals) that were yet to be developed. Therefore, at the 2019 CSAS SRP only core fisheries management objectives and potential stock-specific objectives previously proposed by DFO at the Integrated Herring Harvest Planning Committee in May 2017 were included in this first cycle of MSE. (SRPs are smaller, usually DFO-only, peer review processes.) The report noted that DFO would continue to collaborate with coastal First Nations to develop area-specific objectives specific to Food, Social and Ceremonial fisheries and spawn-on-kelp fisheries and that these and additional objectives may be captured within the rebuilding plan for Haida Gwaii herring. It is suspected that discussions pertaining to additional objectives that were ongoing in 2019/20 continued in 2020/21. In September 2019, another CSAS SRP was held to update the status of the stocks and provide harvest advice for 2019/20. The report from this process indicated harvest advice was informed by multiple methods, including newly tested MPs that passed the core conservation objective.[585]					

[579] The 2018/19 work plan indicates the expected date of completion as end of fiscal 2018/19, but departmental officials indicate the description in the deliverables is accurate and 2020/21 is the expected date of completion (N. Schjott, personal communication, June 7, 2018). The 2019/20 work plan reflects this new anticipated completion date.

[580] The 2018/19 work plan indicates the expected date of completion as end of fiscal 2018/19, but departmental officials indicate the description in the deliverables is accurate and 2020/21 is the expected date of completion (N. Schjott, personal communication, June 7, 2018). The 2019/20 work plan reflects this new anticipated completion date.

[581] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[582] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[583] DFO (2019). Pacific Region Integrated Fisheries Management Plan: November 26, 2019–November 6, 2020, Pacific Herring. https://waves-vagues.dfo-mpo.gc.ca/Library/40851448.pdf

[584] DFO (2020). Evaluation of Management Procedures for Pacific Herring (*Clupea pallasii*) in Haida Gwaii, Prince Rupert District, and the Central Coast Management Areas of British Columbia. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/003. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_003-eng.html

[585] DFO (2020). Stock Status Update with Application of Management Procedures for Pacific Herring (*Clupea pallasii*) in British Columbia: Status in 2019 and Forecast for 2020. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/004. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_004-eng.html

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			Unfortunately, results of the simulation-evaluations found that none of the proposed MPs, including the historical and no-fishing MPs, performed satisfactorily against the conservation objective of maintaining the Haida Gwaii herring spawning biomass above the LRP with high probability (at least 75%). DFO supported the closure of the commercial herring fishery for the Haida Gwaii major stock region until April 2021, and the harvest recommendation for the Haida Gwaii stock in 2020 was 0 t. During Oceana Canada's 2020 evaluation, DFO confirmed that regular meetings were occurring with the Haida Gwaii Rebuilding Plan Working Group and that writing of the report and simulation work, including an update of the operating model and further analysis of objectives and management procedures, was underway. During the 2020 evaluation, DFO indicated the rebuilding plan is still on track, to be completed by the end of fiscal 2020/2021 (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). In September 2020 there was a CSAS Science Response process held to update stock status of Pacific herring in B.C. with application of the MSE management procedures. The resultant report indicates improved stock status in 2020, with estimated spawning biomass in 2020 at 14,846 t or 65.0% of SB_0, and above the LRP of $0.3SB_0$ with a 97.5% probability.[586] However, results of the simulation-evaluations found that none of the proposed MPs, including the historical and no-fishing MPs, performed satisfactorily against the conservation objective of maintaining spawning biomass above the LRP with high probability (at least 75%), and the projected spawning biomass in 2021 is forecast to be below $0.3SB_0$ with 14.0% probability in the absence of fishing. The report reiterates that DFO is committed to developing a rebuilding plan for this stock component by the end of fiscal 2020/21. It indicates work is underway through a technical working group comprised of members of the Council of Haida Nation, DFO, and Parks Canada. It notes that although the DFO guidance for rebuilding plans (published in 2013) notes the primary objective of rebuilding is to above the LRP, stock rebuilding does not end having met this goal, and one of the goals of the rebuilding plan will be to identify candidate threshold biomass levels greater than the LRP that are consistent with a rebuilt state. The report notes DFO supports commercial herring fishery closures for the HG stock component until April 2021 and as such, the harvest recommendation for the HG stock in 2021 is 0 t. There were no CSAS processes held pertaining to Pacific herring in winter 2021. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The work plan for 2021/22 includes extending the deadline for the rebuilding plan, to be completed by the end of 2021/22. There is a CSAS Science Response Process on the schedule for September 2021 to provide a stock status update with application of management procedures for Pacific herring in British Columbia: status in 2021 and forecast in 2022. The terms of reference are not yet posted for further details. However, in response to questions about USR development during Oceana Canada's 2021 evaluation, DFO noted this will provide a technical review of a new operating model with application to Strait of Georgia and Haida Gwaii stock areas (Science, National Capital Region and Pacific region, personal communication, July 16, 2021). The 2020/21 IFMP indicates a fully specified set of objectives that includes LRPs, USRs, and Target Reference Points is being developed to meet goals for renewal of the Pacific herring management system and ensure consistency with the DFO precautionary approach framework.[587] The IFMP also confirms DFO has committed to developing a rebuilding plan for Haida Gwaii Pacific herring by December 2020 through the Gina 'Waadluxan KilGuhlGa Land-Sea-People plan and that this work is slightly delayed, but that a draft is anticipated to be ready for consultation in early 2021. The IFMP indicates the Gina 'Waadluxan KilGuhlGa Land-Sea-People plan has been under development since 2014 and the final plan was signed and approved in November 2018. It notes the Gwaii Haanas is managed cooperatively by the Haida Nation and the Government of Canada through the Archipelago Management Board. Additionally, development of a rebuilding plan for Haida Gwaii herring has been undertaken by a DFO-Haida-Parks Canada technical working group. The 2021/22 fiscal year work plan indicates the expected date of completion has been revised from 2020/21 to 2021/22 to meet requirements under the Gwaii Haanas Land-Sea-People plan and continue work to meet any additional requirements under the Fish Stocks provisions. During Oceana Canada's 2021 evaluation, DFO indicated a draft of the collaboratively developed rebuilding plan is currently under internal review (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). When the rebuilding regulations are finalized, the Haida Gwaii rebuilding plan will be reviewed to ensure that it meets the published requirements (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021).						
12	Newfound-land and Labrador	Atlantic cod – 3Ps; Critical	Begin process to conduct a science framework assessment for the stock.	Benchmark assessment process in advance of rebuilding plan development. HCR to inform 2020 management decision. Rebuilding plan to be completed by 2020-21.	Framework assessment to be completed in fall 2019. Outcome will inform development of rebuilding plan. Remains on track for 2020-21 deliverable.	Science framework assessment was completed and new model selected. Stock assessment that occurred in November 2019 indicate stock is in critical zone.	Expected date of completion revised from 2020-21 to 2021-22 due to COVID-19 pandemic. Development of Rebuilding Plan for 3Ps cod is underway.	2020-21 fiscal year. New deadline in 2021/22 work plan: By end of 2021-22.	**Delayed**

[586] DFO. 2021. Stock Status Update with Application of Management Procedures for Pacifc Herring (*Clupea pallasii*) in British Columbia: Status in 2020 and Forecast for 2021. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/001. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_001-eng.html

[587] DFO (2020). Pacific Region Integrated Fisheries Management Plan: November 20, 2020–November 6, 2021, Pacific Herring. https://waves-vagues.dfo-mpo.gc.ca/Library/40937343.pdf

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			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. In the work plan results for 2018/19 and 2019/20, the department indicated the deliverable was met; commitment or action as defined in the description of deliverables was complete without a tangible deliverable.[588,589] A framework assessment for the stock was completed in October 2019 in a CSAS process,[590] but reports are not yet available from this process. The stock was assessed using the new model framework at a CSAS process in November 2019. The resultant Science Advisory Report indicates the stock had declined to 24% of the LRP.[591] At the 2020 3Ps groundfish advisory committee in January 2020, the department indicated plans to initiate a process to develop a rebuilding plan for this stock in the coming year, with involvement from the advisory committee or subset of the committee to develop it. During Oceana Canada's 2020 evaluation, DFO confirmed that the development of a rebuilding plan for 3Ps cod is a priority, and it will initiate the process to develop a rebuilding plan in 2020/21 (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador Region, personal communication, June 23, 2020). The stock was assessed again at a CSAS process in November 2020. The terms of reference for the meeting do not mention the rebuilding plan or that advice would be sought for its development.[592] The expected reports are not yet available. At the 2021 3Ps groundfish advisory committee in January 2021, DFO confirmed rebuilding plan development for this stock remains a priority, especially given the stock is currently in the batch 1 list of stocks slated to be subject to the rebuilding plan regulations, once they are finalized. DFO noted that timelines were shifted due to COVID-19, and no working group meetings were held. DFO indicated plans were for the department to meet internally later in January to prepare for a working group meeting in February. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 work plan extends the deadline for this rebuilding plan to the end of 2021/22. During Oceana Canada's 2021 evaluation, DFO indicated the department has established a working group to begin the development of a proposed rebuilding plan for 3Ps cod, in which members of the 3Ps Groundfish Advisory Committee have been invited to participate (Fisheries and Aquaculture Management, Newfoundland and Labrador region, personal communication, July 16, 2021). The working group is co-chaired by DFO Resource Management and Science. In March 2021, the working group held its first meeting, which consisted of participants from DFO Resource Management, Science, and Policy & Economics; the Province of Newfoundland and Labrador; industry stakeholders; and Oceans North (Fisheries and Aquaculture Management, Newfoundland and Labrador region, personal communication, July 16, 2021). There is no set schedule established for working group meetings; however, the intention is to hold multiple meetings throughout 2021/22 to develop the rebuilding plan (Fisheries and Aquaculture Management, Newfoundland and Labrador region, personal communication, July 16, 2021).					
13	Quebec	Icelandic scallop – SFA 16ef, 18a; Uncertain	Submit request to DFO Science for advice on the state of the stock to support development of the plan.	A scientific survey will be carried out in the management units. A choice of indicators to determine reference points will be made based on the analysis of available biological data and the precautionary approach developed for scallop of an adjacent management unit.	In progress. Awaiting Science report.	Delayed. Could be completed by the end of 2021-22. Awaiting development of a model and indicators by Science.	Expected date of completion revised from 2020-21 to 2022-23. Work is being conducted in parallel with the review of the Precautionary Approach.	2020-21 fiscal year. <u>New deadline in 2021/22 work plan:</u> By end of 2022-23	**Delayed**
			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. In the work plan results for 2018/19, the department indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[593] The 2019/20 work plan results indicate this deliverable was met; the						

[588] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[589] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[590] DFO (2019). Terms of Reference: 3Ps Cod Assessment Framework. Regional Peer Review – Newfoundland and Labrador Region, October 8–10, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/10_08-10-eng.html

[591] DFO (2020). Stock Assessment of NAFO Subdivision 3Ps Cod. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/2018. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_018-eng.html

[592] DFO (2020). Terms of Reference: Assessment of Northwest Atlantic Fisheries Organization (NAFO) Subdivision 3Ps Atlantic Cod. Regional Advisory Meeting – Newfoundland and Labrador Region, November 2-6, 2020, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/11_02-06-eng.html

[593] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

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			commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[594] But the 2020/21 work plan indicated that DFO again considers this deliverable to be delayed, given it was noted as being carried forward from last fiscal year, meaning activities were not carried out as described in the deliverable description. The stock was one of several assessed at a CSAS process in February 2020, but the terms of reference do not mention rebuilding plan support.[595] The resultant report does note a rebuilding plan is being developed for Areas 16E, 16F, and 18A due to the strong historical exploitation of these areas and the depletion of certain beds.[596] The proceedings from this meeting note that participants indicated it would be helpful to be able to establish an exploitation rate that would support self-sustaining populations in the areas covered by a rebuilding plan (16E, 16F and 18A).[597] The proceedings also indicate research priorities include development of a rebuilding plan for areas 16E, 16F, and 18A and a stock assessment model for area 16E and proposed reference points. They note a number of research projects were beginning in 2020 for areas 16E and 16F: scallop condition and shell shape; a new method for determining scallop age, growth, recruitment and environmental conditions from the shells; sexual maturity and maturity ogives; and population genetics. The 2020/21 work plan deliverable description indicates that the rebuilding plan could be completed by the end of 2021/22 and that DFO is awaiting development of a model and indicators by Science. During Oceana Canada's 2020 evaluation, DFO confirmed that drafting work has started and will continue in 2020/21 and that the development of a model and indicators by Science may allow further progress in 2020/21 (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). There were no CSAS processes held in fiscal 2020/21 pertaining to this stock group, and none are currently on the schedule for the remainder of 2021 and 2022. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2021/22 work plan indicates that the expected date of completion has been revised from 2020/21 to 2022/23 and that work is being conducted in parallel with the review of the precautionary approach. During Oceana Canada's 2021 evaluation, DFO indicated the model is still in development and not ready yet for a CSAS review (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). The model will cover scallop fishing area 16E, and the department will need to assess whether it could be expanded to area 16F (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). 18A will not be covered because no scientific survey and little or no fishing data is available (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021).					
14	Quebec	Beluga – Northern (Nunavik); Uncertain†	A meeting is planned with harvesters to discuss the development of a rebuilding plan.	Two meetings are planned with Aboriginal communities to discuss the development of the rebuilding plan.	In progress. A revision to target completion date may be required. This may be determined based on progress made in 2019-20.	Delayed. A new management plan should be developed and approved in 2020-21. The timeline for completion of the recovery plan will be reviewed in light of the progress made in 2020-21	Expected date of completion to be determined. Continue preliminary work to develop the rebuilding plan.	2020-21 fiscal year. New deadline in 2021/22 work plan: To be determined.	**Delayed**
			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. In the work plan results for 2018/19, the department indicated the deliverable was met; the commitment or action as defined in the description of deliverables (2018/19) was complete without a tangible deliverable.[598] The 2019/20 work plan results also indicate this deliverable was met.[599] But the 2020/21 work plan indicates DFO considers this deliverable to be delayed given it was noted as being carried forward from last fiscal, meaning activities were not carried out as described in the deliverable description. It is unclear why this discrepancy exists, but this type of inconsistency among the work plans is not unique to this deliverable. The 2018 results of the					

[594] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[595] DFO (2020). Terms of Reference: Stock Assessment of Scallop in Quebec Inshore Waters. Regional Peer Review – Quebec Region, February 26, 2020, Mont-Joli, QC. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_26-eng.html

[596] DFO (2021). Scallop Stock Assessment in Quebec Coastal Waters in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/054. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_054-eng.html

[597] DFO (2020). Proceedings of the Regional Peer Review Meeting on the Assessments on Scallop Stocks in the Quebec's Inshore Waters, February 26, 2020. DFO Can. Sci. Advis. Sec. Proceed. Ser. 2020/018. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/Pro-Cr/2020/2020_018-eng.html

[598] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[599] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			DFO Sustainability Survey for Fisheries does not indicate a rebuilding plan is under development.[600] This stock is co-managed with the Nunavik Marine Region Wildlife Board (NMRWB). A recent (2020) submission from DFO to NMRWB does not mention a rebuilding plan but does discuss issues with management plans and suggests several areas for improved communications and better collaboration.[601] During Oceana Canada's 2020 evaluation, DFO indicated the management plan and the beluga rebuilding plans are interrelated in a co-management context (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). DFO noted that Fisheries Management and Science put forward the idea of developing a precautionary approach and a rebuilding plan as often as possible at quarterly meetings of the Nunavik Marine Region Wildlife Board, and that more discussions are needed (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). The most recent results (2019) of the DFO Sustainability Survey for Fisheries notes no dates are established for the completion of a rebuilding plan.[602] Media reports indicate the NMRWB submitted a new management plan to DFO that was rejected by the Minister in July 2020 over concerns related to conservation efforts.[603] According to these reports, the board re-submitted a revised management plan in September. According to another media report, DFO approved an interim beluga management plan, or rather harvest limits, for Nunavik on October 30 but failed to communicate this to the NMRWB and was also criticized for how late the decision was made relative to the timing of harvesting activities.[604] A NMRWB representative indicated that the board expected to receive a decision on the complete, five-year management plan by November 28, 2020 and was hopeful for an Inuit-led bottom-up approach to management. The NMRWB and the Eeyou Marine Region Wildlife Board (EMRWB) posted an update outlining these activities in more detail on its website.[605] The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. In the 2021/22 work plan DFO indicates the expected date of completion for the rebuilding plan is now to be determined and in 2021/22 they will continue preliminary work to develop the rebuilding plan. During Oceana Canada's 2021 evaluation, DFO confirmed the stock affected by the rebuilding plan is the Eastern Hudson Bay stock (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021), one of four stocks listed under the record for "Beluga – Northern Quebec (Nunavik)" in the 2019 results of the DFO Sustainability Survey for Fisheries. DFO indicated that following the rejection of the initial decision on November 23, 2020, the Minister accepted the Board's final decision on the beluga management plan for a period of five years (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). This plan is currently in effect. The subsistence hunt of beluga in the Nunavik Marine Region is managed under the Nunavik Inuit Land Claims Agreement (NILCA) (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). In this context, co-management bodies with decision-making authority have been established to deal with wildlife issues. Discussions are currently underway with these bodies regarding the rebuilding plan for the Nunavik beluga (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021).						
15	Pacific	Chinook salmon – WCVI; Uncertain††	Known rebuilding factors and threats will be summarized and later reviewed with stakeholders to begin discussion on development of a rebuilding plan.	Hold workshops to determine issues and potential actions for Clayoquot chinook. Address knowledge gaps in outmigration and hatchery return information (field studies, data collection and reporting).	Continue workshops and outmigration and hatchery return work to address knowledge gaps. Begin compiling draft local/area sub-plans and risk assessments into WCVI-wide plan.	Roundtable meetings in 2020-21 to finalize area-level management plans and completion of rebuilding plan by March 2021.	Expected date of completion revised from 2020-21 to 2021-22 due to COVID-19 pandemic. Finalize area-level management plans and completion overall rebuilding plan by March 2022.	2020-21 fiscal year. New deadline in 2021/22 work plan: By end of 2021-22.	**Delayed**

[600] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[601] DFO (2020). Department of Fisheries and Oceans Canada Submission to the Nunavik Region Wildlife Board in Response to the Notice of Written Hearing of January 21–23, 2020: Modification of the Total Allowable Take and Non Quota Limitations for Eastern Hudson Bay Beluga in the Nunavik Marine Region. https://nmrwb.ca/wp-content/uploads/2020/01/Department-of-Fisheries-and-Oceans.pdf

[602] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[603] Rogers, S. (2020). Nunavik's New Beluga Harvest Plan Waits for DFO's Green Light. Arctic Today, October 20, 2020. https://www.arctictoday.com/nunaviks-new-beluga-harvest-plan-waits-for-dfos-green-light/

[604] Rogers, S. (2020). Nunavik's Fall Beluga Harvest Opens, with Little Notice. Nunatsiaq News, November 9, 2020. https://nunatsiaq.com/stories/article/nunaviks-fall-beluga-harvest-opens-with-little-notice/

[605] Nunavik Marine Region Wildlife Board and Eeyou Marine Region Wildlife Board (2020). NMRWB and the EMRWB 2020–2026 Beluga Management Decision – Update – September/October 2020. https://nmrwb.ca/wp-content/uploads/2020/10/NMRWB-EMRWB-Press-Release-Final-Decision-beluga.pdf

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. In the work plan results for 2018/19, the department indicated the deliverable was met; the commitment or action as defined in the description of deliverables (2018/19) was complete without a tangible deliverable.[606] The results of the 2019/20 work plan evaluation indicate this deliverable is delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[607] During Oceana Canada's 2020 evaluation, DFO indicated that the rebuilding plan for West Coast Vancouver Island (WCVI) chinook was committed to under the *2016 CESD Report 2, Sustaining Canada's Major Fish Stocks — Fisheries and Oceans Canada* and that it will be a rebuilding plan under the Sustainable Fisheries Framework (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020). The rebuilding plan will apply to the WCVI chinook stock management unit made up of the three conservation units (Nootka & Kyuquot, NW Vancouver Island, SW Vancouver Island) on the west coast of Vancouver Island and not the WCVI Aggregate Abundance-Based Management chinook fishery that is included in the DFO Sustainability Survey for Fisheries (Fisheries and Aquaculture Management, and Science, Pacific Region, personal communication, June 23, 2020).[608] The Wild Salmon Policy implementation plan indicates that DFO and a broad range of partners are conducting research and habitat assessments for WCVI chinook and that risk assessment workshops with Indigenous groups and relevant stakeholders are being held, often through local roundtables, to determine risks and potential actions for rebuilding WCVI chinook populations.[609] The implementation plan indicates a collaboratively developed rebuilding plan is anticipated to be completed by 2020/2021 and will be made publicly available through DFO's website. The 2019 to 2020 annual report on the Wild Salmon Policy implementation indicates rebuilding plan development as an activity item for 2020/21.[610] The 2020 to 2021 annual report is not yet available. The 2020/21 IFMP continues to indicate the commitment for the rebuilding plan in response to the CESD audit and the department's intentions to list WCVI chinook in the first batch of stocks that will be subject to rebuilding regulations.[611] The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 work plan revised the expected date of completion from 2020/21 to 2021/22 due to COVID-19 pandemic. It indicates DFO will finalize area-level management plans and completion of the overall rebuilding plan by March 2022. During Oceana Canada's 2021 evaluation, DFO indicated that WCVI has about 60 chinook rivers, significant hatchery production, and a level of production that drives many fisheries from Alaska to the WCVI (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO split the rebuilding into two components: watershed/estuary and local marine. The rebuilding plan will be based on scientific assessment generally following the Recovery Potential Assessment format in the *Species at Risk Act* process (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO is also basing its work on the 3Hs (habitat, hatchery, harvest) model used in the southern U.S. (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). This includes tools developed in Washington State such as proportionate natural influence (PNI) genetic assessment and management, and the All H Analyzer (AHA tool) (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). For the scientific backgrounder (or Recovery Potential Assessment) DFO picked 15–20 watersheds for review to assess the scale at which rebuilding plans would be required (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). Questions asked in the review include: Could signals be picked up from high-level habitat and stock indicators (see Pacific Salmon Foundation – Pacific Salmon Explorer for a high-level summary of indicators and stock status)? What sample rate of local systems would be required to develop a comprehensive rebuilding plan? Fifteen watersheds have been completed and about three remain: San Juan River in the south and two rivers in Kyuquot Sound in the northern end. These additional three will be completed by fall 2021 (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO also noted it conducted risk assessment workshops in Barkley Sound, Clayoquot Sound, Nootka Sound, and Nitinat (15 systems) (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). Risks and gaps were identified, and research was conducted to address some of the gaps through various funding sources and partners (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO notes it is now going back to finalize the risk assessments and identify potential options for mitigation (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). This will be done over late summer/early fall 2021 (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO is working on various benchmarks to inform rebuilding targets. A workshop is planned for assessing marine risks: mainly risks the chinook would face in the first few months at sea (Fisheries and Aquaculture				

[606] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[607] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[608] WCVI Aggregate Abundance-Based Management Chinook is the only WCVI Chinook stock group included in the survey.

[609] DFO (2018). Wild Salmon Policy 2018 to 2022 Implementation Plan. https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/ip-pmo/index-eng.html

[610] DFO (2020). Wild Salmon Policy 2018 to 2022 Implementation Plan: Annual Report 2019 to 2020. https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/wsp-pss/annual-annuel/2019-2020-eng.html

[611] DFO (2020). Pacific Region Final Integrated Fisheries Management Plan: June 1, 2020-May 31, 2021, Salmon, Southern BC. https://waves-vagues.dfo-mpo.gc.ca/Library/40881404.pdf

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			Management, Pacific region, personal communication, July 16, 2021). DFO indicated it hopes to have this all completed by the new year, so it can summarize and develop the rebuilding plan by spring 2022 (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021).						
16	Gulf	Atlantic cod – southern Gulf of St. Lawrence, 4TVn; Critical	Develop a work plan that includes compilation of data on the stock and fisheries on the stock to support the development of a rebuilding plan.	Meetings with industry to discuss rebuilding objectives. Draft rebuilding plans will be prepared.	Consultant will be hired to draft rebuilding plan in 2019-20.	Draft rebuilding plan to be presented at the Gulf Groundfish Advisory Committee meeting in March 2021.	Expected date of completion of the Southern Gulf of St. Lawrence Groundfish Rebuilding Plan revised from 2020-21 to 2021-22. Approval will be sought on the rebuilding plan.	To be determined, pending completion of work plan in 2017-18 fiscal year. New deadline in 2018/19 work plan: By end of 2020-21. New deadline in 2021/22 work plan: By end of 2021-22	**Delayed**
			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. In the work plan results for 2018/19, the department indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[612] The results of the 2019/20 work plan evaluation also indicated this deliverable was delayed.[613] At the Gulf Groundfish Advisory Committee interim year conference call in March 2020, the department had to end the meeting just before the agenda item pertaining to rebuilding plan updates due to technical difficulties. However, the chair did indicate a working group would be formed for advice and guidance on rebuilding options for stocks in the critical zone. The stock was assessed at a CSAS process in February 2019, and although the resultant report does not mention a rebuilding plan.[614] During Oceana Canada's 2020 evaluation, DFO indicated a consultant was hired during fiscal year 2018/19 to undertake a qualitative analysis to inform the development of rebuilding plans for groundfish in the Gulf region (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). A report was tabled in late March 2018, which emphasized identifying gaps in information as well as providing an overview of current scientific knowledge and basic needs to develop rebuilding plans compliant with the precautionary approach. During Oceana Canada's 2020 evaluation, DFO indicated the results of this analysis, in particular the recommendations and suggestions to address the gaps identified, have already proven to be instrumental in guiding rebuilding effort for the Gulf groundfish stocks. DFO indicated a draft rebuilding plan would be presented to the Gulf Groundfish Working Group in fall 2020; the draft plan was then intended to go for review and validation before the Gulf Groundfish Advisory Committee at its March 2021 meeting (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). The first meeting of the Gulf Groundfish Rebuilding Working group was held in September 2020, where DFO outlined the current policy requirements for rebuilding plans. It also sought input on membership from the entire Gulf Groundfish Advisory Committee invited to the meeting (including Oceana Canada as observers) and advice on next steps in creating a rebuilding plan for four depleted groundfish stocks (Atlantic cod in NAFO 4TVn, American plaice in NAFO 4T, white hake in NAFO 4T, and winter flounder in NAFO 4T). In December 2020, DFO sent out a questionnaire to the Gulf Groundfish Advisory Committee seeking feedback on proposed management measures aimed at promoting rebuilding and accepted responses until the end of January 2021. The scheduled meeting of the Gulf Groundfish Rebuilding Working Group for February 2021 was postponed. DFO indicated via email that the decision was made following a close review of the comments received to date and based on internal discussions on items identified during the consultation that will be analyzed in more detail to help guide the development of rebuilding plans and inform the decision-making process with respect to management options. An update of indices was provided at a CSAS process held in February 2021, but the resultant report does not mention a rebuilding plan.[615] At the 2021 Gulf Groundfish Advisory Committee meeting held in March, DFO indicated the next Gulf Groundfish Rebuilding Working Group meeting was still to be determined. Management noted after the questionnaire was sent there was an information session held with Indigenous partners on January 26. They also indicated there were about ten						

[612] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[613] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[614] DFO (2019). Assessment of Atlantic Cod (*Gadus morhua*) in the Southern Gulf of St. Lawrence (NAFO Div. 4T-4Vn [Nov–April]) to 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/021. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_021-eng.html

[615] DFO. 2021. Update of Indices of Abundance to 2020 for Atlantic Cod (NAFO Div. 4T and 4Vn [November to April]) and American Plaice (NAFO Div. 4T) Assessed and Managed by DFO Gulf Region. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/011. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_011-eng.html

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			responses to the questionnaire, and a summary of comments was shared with committee members and included in correspondence for the meeting. Management noted the intent was to have draft rebuilding plan presented at the meeting, but that was ambitious, and timelines were being revised and a date for the rebuilding plan finalization would be delivered in the coming year. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 work plan revised the expected date of completion of the Southern Gulf of St. Lawrence Groundfish Rebuilding Plan from 2020/21 to 2021/22 and noted that approval will be sought on the rebuilding plan. During the 2021 update DFO confirmed that targeted consultations were carried out in 2020 with members of the groundfish rebuilding plan working committee (Industry, First Nations, Provinces, ENGOs) using a questionnaire that was developed for all four stocks in the work plan, with the intent to standardize the consultation process (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). The questionnaire contained proposed objectives and management measures that participants were invited to comment on. They were also given the opportunity to propose changes to the proposed management measures or to share alternative measures that they felt were more appropriate to promote stock rebuilding (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted the questionnaire was forwarded to members of the committee on December 15, 2020. Eleven respondents provided feedback between January and February, which was compiled into a summary that was presented at the Gulf Groundfish Advisory Committee meeting on March 31, 2021 (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO confirmed an information session on the groundfish rebuilding plan was held for Indigenous partners on January 26, 2021, and an update on the Gulf Groundfish rebuilding plan was presented to the Gulf Groundfish Advisory Committee on March 31 (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted that work is continuing in 2021/22 on the rebuilding plans for spring herring and groundfish in the southern Gulf of Saint Lawrence: proposed management measures are currently being reviewed and discussed and good progress has also been made on the development of both draft plans (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).					
17	Gulf	Atlantic herring – 4T spring spawner; Critical	Develop a work plan that includes compilation of data on the stock and fisheries on the stock to support the development of a rebuilding plan.	Meetings with industry to discuss rebuilding objectives. Draft rebuilding plans will be prepared.	Rebuilding plan will be completed in 2020-21.	Draft rebuilding plan will be presented to an industry working group in March 2020. Rebuilding plan to be completed in 20-21.	Expected date of completion of the Atlantic Herring 4T (Spring Spawner) Rebuilding Plan revised from 2020-21 to 2021-22. Approval will be sought on the rebuilding plan.	To be determined, pending completion of work plan in 2017-18 fiscal year. New deadline in 2018/19 work plan: By end of 2020-21. New deadline in 2021/22 work plan: By end of 2021-22	**Delayed**
			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. In the work plan results for 2018/19, the department indicated the deliverable was met; the commitment or action as defined in the description of deliverables (2018/19) was complete without a tangible deliverable.[616] The results of the 2019/20 work plan evaluation also indicated this deliverable was met.[617] A CSAS process was held in March 2018 to assess Atlantic herring (*Clupea harengus*) from the southern Gulf of St. Lawrence (NAFO Div. 4T-4Vn) to 2017 and provide advice for the 2018 and 2019 fisheries.[618,619,620] No further CSAS processes occurred in 2018/19, but resource management meetings with working groups did occur as planned on December 13, 2018 and February 20, 2019 (N. Schjott, personal communication, August 1, 2019). In March 2020 there was a CSAS process held to assess the stock and provide harvest advice for 2020					

[616] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[617] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[618] DFO (2018). Terms of Reference: Assessment of Stock Status of Atlantic Herring (*Clupea harengus*) from the Southern Gulf of St. Lawrence (NAFO Div. 4T-4Vn) to 2017 and Advice for the 2018 and 2019 Fisheries Regional Science Peer Review – Gulf Region, March 14–15, 2018, Moncton, New Brunswick. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2018/03_14-15b-eng.html

[619] DFO (2018). Assessment of the Southern Gulf of St. Lawrence (NAFO Div. 4T) Spring and Fall Spawner Components of Atlantic Herring (*Clupea harengus*) with Advice for the 2018 and 2019 Fisheries. DFO Can. Sci. Advis. Sec. Sci. Adv. Rep. 2018/029. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_029-eng.html

[620] McDermid, J.L., Swain, D.P., Turcotte, F., Robichaud, S.A. & Surette, T. (2018). Assessment of the NAFO Division 4T Southern Gulf of St. Lawrence Atlantic Herring (*Clupea harengus*) in 2016 and 2017. DFO Can. Sci. Advis. Sec. Res. Doc. 2018/052. xiv + 122 p. http://dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2018/2018_052-eng.html

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			and 2021.[621] The resultant report does not mention the rebuilding plan.[622] However it does note that the stock has remained in the critical zone since 2002 and has experienced fishing mortalities above the provisional harvest decision rule since 1999. It notes that in reference to the specific requests from DFO Fisheries Management for spring spawners, there are no catch options that would provide a greater than 75% probability of the spawning stock biomass (SSB) exceeding the LRP within six years. An annual catch option of 500 t offers 0% probability of SSB exceeding the USR. It further indicates the prognosis for this stock is that even in the absence of fisheries removals, the stock will decline further into the critical zone into 2029. The report then advises that, as described in the DFO policy, when a stock is in the critical zone, removals by all human sources must be kept to the lowest possible level and there is no tolerance for preventable declines. During Oceana Canada's 2020 evaluation, DFO indicated a draft rebuilding plan was developed by a consultant and will be presented at the fall meeting of the Gulf Small Pelagics Working Group (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). The draft plan was then intended to go to the Gulf Small Pelagics Advisory Committee for review and endorsement in March 2021. During Oceana Canada's 2020 evaluation, DFO was still planning on completing the rebuilding plan by March 31, 2021 (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). There were no CSAS processes held pertaining to this stock in fiscal 2020/21, but there is an assessment planned for January 2022. The DFO 2020/21 work plan results also evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 work plan revised the expected date of completion of the rebuilding plan from 2020/21 to 2021/22, indicating approval will be sought on the rebuilding plan. During Oceana Canada's 2021 evaluation, DFO indicated the COVID-19 pandemic impacted DFO operations and fisheries in 2020/21, which in addition to creating capacity issues (including staff turnover) delayed progress with developing a rebuilding plan and HCRs for this stock (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted an update on the draft herring 4T (spring spawner) rebuilding plan was provided to the Gulf Small Pelagics Advisory Committee Meeting on February 19, 2021. DFO indicated work and updates for the plan will continue into 2021/22. This will include the new Science model used for the assessment that included changes in natural mortality over time with spawning stock biomass (SSB), projections for short and long-term, and recalculated reference points. Discussions with stakeholders and Science will continue over the next year to explore other options to promote stock growth and implement harvest decision rules based on the new assessment model and recalculated reference points (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).						
18	Gulf	American plaice – southern Gulf of St. Lawrence, 4T; Critical	Develop a work plan that includes compilation of data on the stock and fisheries on the stock to support the development of a rebuilding plan.	Meetings with industry to discuss rebuilding objectives. Draft rebuilding plans will be prepared.	Consultant will be hired to draft rebuilding plan in 2019-20.	Draft rebuilding plan to be presented at the Gulf Groundfish Advisory Committee meeting in March 2021.	Expected date of completion of the Southern Gulf of St. Lawrence Groundfish Rebuilding Plan revised from 2020-21 to 2021-22. Approval will be sought on the rebuilding plan.	To be determined, pending completion of work plan in 2017-18 fiscal year. New deadline in 2018/19 work plan: By end of 2020-21. New deadline in 2021/22 work plan: By end of 2021-22	**Delayed**
			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. In the work plan results for 2018/19, the department indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[623] The results of the 2019/20 work plan evaluation indicated this deliverable was met; the commitment or action as defined in the description of deliverables (2019/20) was complete without a tangible deliverable.[624] At the Gulf Groundfish Advisory Committee interim year conference call in March 2020, the department had to end the meeting just before the agenda item pertaining to rebuilding plan updates due to technical difficulties. However, the chair did indicate a working group would be formed for advice and guidance on rebuilding options for stocks in the critical zone. During Oceana Canada's 2020 evaluation, DFO indicated a consultant						

[621] DFO (2020). Terms of Reference: Assessment of Stock Status of Atlantic Herring (*Clupea harengus*) from the Southern Gulf of St. Lawrence (NAFO Div. 4T-4Vn) to 2019 and Advice for the 2020 and 2021 Fisheries. Regional Science Peer Review – Gulf Region, March 12–13, 2020, Moncton, NB. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/03_12-13-eng.html

[622] DFO (2020). Assessment of the Southern Gulf of St. Lawrence (NAFO Division 4T-4Vn) Spring and Fall Spawner Components of Atlantic Herring (*Clupea harengus*) with Advice for the 2020 and 2021 Fisheries. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/029. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_029-eng.html

[623] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[624] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

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			was hired during fiscal year 2018/19 to undertake a qualitative analysis to inform the development of rebuilding plans for groundfish in the Gulf Region (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). A report was tabled in late March 2018 that emphasized identifying gaps in information as well as providing an overview of current scientific knowledge and basic needs to develop rebuilding plans that are compliant with the precautionary approach. The results of this analysis, in particular the recommendations and suggestions to address the gaps identified, have already proven to be instrumental in guiding rebuilding effort for the Gulf groundfish stocks. DFO indicated a draft rebuilding plan was intended to be presented to the Gulf Groundfish Working Group in fall 2020; the draft plan would then go for review and validation before the Gulf Groundfish Advisory Committee at its March 2021 meeting (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). The stock was included in a pre-COSEWIC (Committee on the Status of Endangered Wildlife in Canada) assessment at a CSAS process in October 2019;[625] reports are not yet available from this process. This stock is part of a population of American plaice (Maritimes designatable unit) that COSEWIC designated as threatened during its last assessment (2009),[626] but the population is not listed under the *Species at Risk Act*. DFO is examining the processes in both the fish stocks provisions in the amended *Fisheries Act* and the *Species at Risk Act* to ensure alignment and integration where needed (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). However, DFO considers that it would be premature to comment on potential implications for American plaice, as the stock is currently subject to a COSEWIC reassessment and is not prescribed to the fish stocks provisions. DFO notes that for a major stock prescribed under the fish stock provisions that needs a rebuilding plan, the plan will have to meet the requirements in the provisions and in the proposed regulation on rebuilding plans. In addition, these plans will need to align with existing policies where applicable. Stocks that are listed in schedule 1 under SARA as threatened or endangered will be exempt from the requirement of a rebuilding plan under the fish stock provisions (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). The first meeting of the Gulf Groundfish Rebuilding Working Group was held in September 2020, where DFO outlined the current policy requirements for rebuilding plans. It also sought input on membership from the entire Gulf Groundfish Advisory Committee invited to the meeting (including Oceana Canada as observers) and advice on next steps in creating a rebuilding plan for four depleted groundfish stocks (Atlantic cod in NAFO 4TVn, American plaice in NAFO 4T, white hake in NAFO 4T, and winter flounder in NAFO 4T). In December 2020, DFO sent out a questionnaire to the Gulf Groundfish Advisory Committee seeking feedback on proposed management measures aimed at promoting rebuilding and accepted responses until the end of January 2021. The scheduled meeting of the Gulf Groundfish Rebuilding Working Group for February 2021 was postponed. DFO indicated via email that the decision was made following a close review of the comments received to date and based on internal discussions on items identified during the consultation that will be analyzed in more detail to help guide the development of rebuilding plans and inform the decision-making process with respect to management options. An update of indices was provided at a CSAS process held in February 2021, but the resultant report does not mention a rebuilding plan.[627] At the 2021 Gulf Groundfish Advisory Committee meeting held in March, DFO indicated the next Gulf Groundfish Rebuilding Working Group meeting was still to be determined. Management noted after the questionnaire was sent there was an information session held with Indigenous partners on January 26. They also indicated there were about ten responses to the questionnaire, and a summary of comments was shared with committee members and included in correspondence for the meeting. Management noted the intent was to have draft rebuilding plan presented at the meeting, but that was ambitious, and timelines were being revised and a date for the rebuilding plan finalization would be delivered in the coming year. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 work plan revised the expected date of completion of the Southern Gulf of St. Lawrence Groundfish Rebuilding Plan from 2020/21 to 2021/22 and noted that approval will be sought on the rebuilding plan. During the 2021 update DFO confirmed that targeted consultations were carried out in 2020 with members of the groundfish rebuilding plan working committee (industry, First Nations, provinces, ENGOs) using a questionnaire that was developed for all four stocks in the work plan, with the intent to standardize the consultation process (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). The questionnaire contained proposed objectives and management measures that participants were invited to comment on. They were also given the opportunity to propose changes to the proposed management measures or to share alternative measures that they felt were more appropriate to promote stock rebuilding (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted the questionnaire was forwarded to members of the committee on December 15, 2020. Eleven respondents provided feedback between January and February, which was compiled into a summary that was presented at the Gulf Groundfish Advisory Committee meeting on March 31, 2021 (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO confirmed an information session on the groundfish rebuilding plan was held for Indigenous partners on January 26, 2021, and an update on the Gulf groundfish rebuilding plan was presented to the Gulf Groundfish Advisory Committee on March 31 (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted that work is continuing in 2021/22 on the rebuilding plans for spring herring and groundfish in the southern Gulf of Saint Lawrence: proposed			

[625] DFO (2019). Terms of Reference: Pre-COSEWIC Assessment for American Plaice. Zonal Peer Review – Newfoundland and Labrador, Maritimes, Gulf, Quebec, and Central and Arctic Regions; October 22–24, 2019, St. John's, NL. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/10_22-24-eng.html

[626] COSEWIC (2009). COSEWIC Assessment and Status Report on the American Plaice *Hippoglossoides platessoides*, Maritime Population, Newfoundland and Labrador Population and Arctic Population, in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 74 pp. https://wildlife-species.canada.ca/species-risk-registry/virtual_sara/files/cosewic/sr_american_plaice_0809_e.pdf

[627] DFO. 2021. Update of Indices of Abundance to 2020 for Atlantic Cod (NAFO Div. 4T and 4Vn (November to April)) and American Plaice (NAFO Div. 4T) Assessed and Managed by DFO Gulf Region. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/011. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_011-eng.html

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			management measures are currently being reviewed and discussed, and good progress has also been made on the development of both draft plans (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).						
19	Gulf	White hake – 4T; Critical	Develop a work plan that includes compilation of data on the stock and fisheries on the stock to support the development of a rebuilding plan.	Meetings with industry to discuss rebuilding objectives. Draft rebuilding plans will be prepared.	Consultant will be hired to draft rebuilding plan in 2019-20.	Draft rebuilding plan to be presented at the Gulf Groundfish Advisory Committee meeting in March 2021.	Expected date of completion of the Southern Gulf of St. Lawrence Groundfish Rebuilding Plan revised from 2020-21 to 2021-22. Approval will be sought on the rebuilding plan.	To be determined, pending completion of work plan in 2017-18 fiscal year. New deadline in 2018/19 work plan: By end of 2020-21. New deadline in 2021/22 work plan: By end of 2021-22	**Delayed**
			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. In the work plan results for 2018/19, the department indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[628] The results of the 2019/20 work plan evaluation indicated this deliverable was met; the commitment or action as defined in the description of deliverables (2019/20) was complete without a tangible deliverable.[629] At the Gulf Groundfish Advisory Committee interim year conference call in March 2020, the department had to end the meeting just before the agenda item pertaining to rebuilding plan updates due to technical difficulties. However, the chair did indicate a working group will be formed for advice and guidance on rebuilding options for stocks in the critical zone. Indicators of abundance for the stock were updated at a CSAS Science Response Process in December 2019. The resultant report does not mention a rebuilding plan.[630] During Oceana Canada's 2020 evaluation, DFO indicated a consultant was hired during fiscal year 2018/19 to undertake a qualitative analysis to inform the development of rebuilding plans for groundfish in the Gulf Region (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). A report was tabled in late March 2018, which emphasized identifying gaps in information as well as providing an overview of current scientific knowledge and basic needs to develop rebuilding plans that are compliant with the precautionary approach. The results of this analysis, in particular the recommendations and suggestions to address the gaps identified, had already proven to be instrumental in guiding rebuilding effort for the Gulf groundfish stocks. DFO indicated a draft rebuilding plan was intended be presented to the Gulf Groundfish Working Group in fall 2020; the draft plan was then intended to go for review and validation before the Gulf Groundfish Advisory Committee at its March 2021 meeting (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). The first meeting of the Gulf Groundfish Rebuilding Working group was held in September 2020, where DFO outlined the current policy requirements for rebuilding plans. It also sought input on membership from the entire Gulf Groundfish Advisory Committee invited to the meeting (including Oceana Canada as observers) and advice on next steps in creating a rebuilding plan for four depleted groundfish stocks (Atlantic cod in NAFO 4TVn, American plaice in NAFO 4T, white hake in NAFO 4T, and winter flounder in NAFO 4T). In December 2020, DFO sent out a questionnaire to the Gulf Groundfish Advisory Committee seeking feedback on proposed management measures aimed at promoting rebuilding and accepted responses until the end of January 2021. The scheduled meeting of the Gulf Groundfish Rebuilding Working Group for February 2021 was postponed. DFO indicated via email that the decision was made following a close review of the comments received to date and based on internal discussions on items identified during the consultation, which will be analyzed in more detail to help guide the development of rebuilding plans and inform the decision-making process with respect to management options. A CSAS process held in February 2021 to provide advice on the impacts of increases in fishing effort in the Gulf of St. Lawrence as proposed with the expansion of the redfish fishery on white hake. The resultant reports are not yet available, but the terms of reference for the meeting indicate it would support rebuilding plan development.[631] At the 2021 Gulf						

[628] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[629] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[630] DFO (2020). Updated Indices of Abundance to 2019 for Winter Flounder from NAFO Div. 4T, Witch Flounder from NAFO Divs. 4RST and White Hake from NAFO Div. 4T. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/008. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_008-eng.html

[631] DFO (2021). Terms of Reference: Impacts of increases in Fishing Effort on White Hake (*Urophycis tenuis*), Southern Gulf of St. Lawrence Population. Regional Advisory Meeting – Gulf Region, February 17, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/02_17-eng.html

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			Groundfish Advisory Committee meeting held in March, DFO indicated the next Gulf Groundfish Rebuilding Working Group meeting was still to be determined. Management noted after the questionnaire was sent, an information session was held with Indigenous partners on January 26. Management indicated there were about ten respondents to the questionnaire and a summary of comments was shared with committee members and included in correspondence for the meeting. Management noted the intent was to have draft rebuilding plan presented at the meeting, but that was ambitious, and timelines were being revised and a date for the rebuilding plan finalization would be delivered in coming year. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 work plan revised the expected date of completion of the Southern Gulf of St. Lawrence Groundfish Rebuilding Plan from 2020/21 to 2021/22 and noted that approval will be sought on the rebuilding plan. During the 2021 update DFO confirmed that targeted consultations were carried out in 2020 with members of the groundfish rebuilding plan working committee (industry, First Nations, provinces, ENGOs) using a questionnaire that was developed for all four stocks in the work plan, with the intent to standardize the consultation process (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). The questionnaire contained proposed objectives and management measures that participants were invited to comment on. They were also given the opportunity to propose changes to the proposed management measures or to share alternative measures that they felt were more appropriate to promote stock rebuilding (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted the questionnaire was forwarded to members of the committee on December 15, 2020. Eleven respondents provided feedback between January and February, which was compiled into a summary that was presented at the Gulf Groundfish Advisory Committee meeting on March 31, 2021 (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO confirmed an information session on the groundfish rebuilding plan was held for Indigenous partners on January 26, 2021, and an update on the Gulf Groundfish rebuilding plan was presented to the Gulf Groundfish Advisory Committee on March 31 (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted that work is continuing in 2021/22 on the rebuilding plans for spring herring and groundfish in the southern Gulf of Saint Lawrence: proposed management measures are currently being reviewed and discussed, and good progress has also been made on the development of both draft plans (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).						
20	Gulf	Winter flounder – 4T; Critical	Develop a work plan that includes compilation of data on the stock and fisheries on the stock to support the development of a rebuilding plan.	New deadline: By end of 2020-21. 2018-19: Meetings with industry to discuss rebuilding objectives. Draft rebuilding plans will be prepared.	Consultant will be hired to draft rebuilding plan in 2019-20.	Draft rebuilding plan to be presented at the Gulf Groundfish Advisory Committee meeting in March 2021.	Expected date of completion of the Southern Gulf of St. Lawrence Groundfish Rebuilding Plan revised from 2020-21 to 2021-22. Approval will be sought on the rebuilding plan.	To be determined, pending completion of work plan in 2017-18 fiscal year. New deadline in 2018/19 work plan: By end of 2020-21. New deadline in 2021/22 work plan: By end of 2021-22	**Delayed**
			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. In the work plan results for 2018/19, the department indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[632] The results of the 2019/20 work plan evaluation indicated this deliverable was met; the commitment or action as defined in the description of deliverables (2019/20) was complete without a tangible deliverable.[633] At the Gulf Groundfish Advisory Committee interim year conference call in March 2020, the department had to end the meeting just before the agenda item pertaining to rebuilding plan updates due to technical difficulties. However, the chair did indicate a working group will be formed for advice and guidance on rebuilding options for stocks in the critical zone. Indicators of abundance for the stock were updated at a CSAS Science Response Process in December 2019. The resultant report does not mention a rebuilding plan.[634] During Oceana Canada's 2020 evaluation, DFO indicated a consultant was hired during fiscal year 2018/19 to undertake a qualitative analysis to inform the development of rebuilding plans for groundfish in the Gulf Region (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). A report was tabled in late March 2018, which emphasized identifying gaps in information as well as providing an overview of current scientific						

[632] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[633] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[634] DFO. 2020. Updated Indices of Abundance to 2019 for Winter Flounder from NAFO Div. 4T, Witch Flounder from NAFO Divs. 4RST and White Hake from NAFO Div. 4T. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/008. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_008-eng.html

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			knowledge and basic needs to develop rebuilding plans that are compliant with the precautionary approach. The results of this analysis, in particular the recommendations and suggestions to address the gaps identified, had already proven to be instrumental in guiding rebuilding effort for the Gulf groundfish stocks. DFO indicated a draft rebuilding plan was intended to be presented to the Gulf Groundfish Working Group in fall 2020; the draft plan was then to go for review and validation before the Gulf Groundfish Advisory Committee at its March 2021 meeting (Fisheries and Aquaculture Management, and Science, Gulf Region, personal communication, June 23, 2020). The first meeting of the Gulf Groundfish Rebuilding Working Group was held in September 2020, where DFO outlined the current policy requirements for rebuilding plans. DFO also sought input on membership from the entire Gulf Groundfish Advisory Committee invited to the meeting (including Oceana Canada as observers) and advice on next steps in creating a rebuilding plan for four depleted groundfish stocks (Atlantic cod in NAFO 4TVn, American plaice in NAFO 4T, white hake in NAFO 4T, and winter flounder in NAFO 4T). In December 2020, DFO sent out a questionnaire to the Gulf Groundfish Advisory Committee seeking feedback on proposed management measures aimed at promoting rebuilding, and accepted responses until the end of January 2021. The scheduled meeting of the Gulf Groundfish Rebuilding Working Group for February 2021 was postponed. DFO indicated via email that the decision was made following a close review of the comments received to date and based on internal discussions on items identified during the consultation, which will be analyzed in more detail to help guide the development of rebuilding plans and inform the decision-making process with respect to management options. At the 2021 Gulf Groundfish Advisory Committee meeting held in March, DFO indicated the next Gulf Groundfish Rebuilding Working Group meeting was still to be determined. Management noted after the questionnaire was sent there was an information session held with Indigenous partners on January 26. Management indicated there were about ten responses to the questionnaire, and a summary of comments was shared with committee members and included in correspondence for the meeting. Management noted the intent was to have a draft rebuilding plan presented at the meeting, but that was ambitious, and timelines were being revised and a date for rebuilding plan finalization would be delivered in the coming year. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 work plan revised the expected date of completion of the Southern Gulf of St. Lawrence Groundfish Rebuilding Plan from 2020/21 to 2021/22 and noted that approval will be sought on the rebuilding plan. During the 2021 update DFO confirmed that targeted consultations were carried out in 2020 with members of the groundfish rebuilding plan working committee (industry, First Nations, provinces, ENGOs) using a questionnaire that was developed for all four stocks in the work plan, with the intent to standardize the consultation process (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). The questionnaire contained proposed objectives and management measures that participants were invited to comment on. They were also given the opportunity to propose changes to the proposed management measures or to share alternative measures that they felt were more appropriate to promote stock rebuilding (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted the questionnaire was forwarded to members of the committee on December 15, 2020. Eleven respondents provided feedback between January and February, which was compiled into a summary that was presented at the Gulf Groundfish Advisory Committee meeting on March 31, 2021 (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO confirmed an information session on the groundfish rebuilding plan was held for Indigenous partners on January 26, 2021, and an update on the Gulf Groundfish rebuilding plan was presented to the Gulf Groundfish Advisory Committee on March 31 (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted that work is continuing in 2021/22 on the rebuilding plans for spring herring and groundfish in the southern Gulf of Saint Lawrence: proposed management measures are currently being reviewed and discussed, and good progress has also been made on the development of both draft plans (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).					
21	New-foundland and Labrador	Witch flounder – 2J+3KL; Critical			Identified as a potential stock for development of rebuilding plan but no specific deliverables identified. Working group established and discussions initiated with stakeholders.	The 2J3KL Witch Flounder Working Group, co-chaired by DFO-Resource Management and DFO-Science was established in 2019 to develop a rebuilding plan. The working group has proposed a USR and will continue work in 2020-21 to develop a draft rebuilding plan. The rebuilding plan, once developed, will be presented to the 2+3KLMNO Groundfish		By end of 2020-21 (newly added to work plan in 2019/20).	**Delayed**

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
						Advisory Committee for consideration.			
			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. This stock was newly added to section 2 in DFO's 2019/20 fiscal year work plan. However, the stock was included in the "additional work section" of the 2018/19 fiscal year work plan results, with an indication that the deliverable (initiate discussion in 2018/19 with industry on rebuilding plan development) had been met: the commitment or action as defined in the description of deliverables (2018/19) is complete without a tangible deliverable. The results of the 2019/20 work plan evaluation also indicated this deliverable was met.[635] This stock is not included in the departmental Sustainability Survey for Fisheries, so no further updates are available from the survey. The stock was recently assessed at a CSAS process in May 2018, and although the resultant report does not mention rebuilding.[636] At the November 2019 23KLMNO Groundfish Advisory Committee meeting, an update was presented on the work of the 2J3KL Witch Flounder Working Group. DFO management indicated the group first met in February 2018 and had subsequent meetings in September, October and November of 2018. The group has agreed on proposed objectives and a USR. It was agreed there would be no harvesting while the stock is in the critical zone — the current stock status — but cautious zone harvesting options were still under discussion and exceptional circumstances development for the developing harvest strategy was also underway. Another working group meeting was intended to be held early in 2020 to finalize the harvest strategy. DFO Management indicated a draft rebuilding plan would be finalized in 2020 and, once ready, shared with the advisory committee for consideration. At the November 2019 advisory meeting, DFO noted there was general agreement from all stakeholders in the working group and the department was pleased. During Oceana Canada's 2020 evaluation, DFO confirmed the 2J3KL Witch Flounder Working Group developed proposed management objectives and a USR point (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador Region, personal communication, June 23, 2020). DFO indicated the working group would reconvene in 2020/21 to further develop the rebuilding plan for this stock, including harvest decision rules, which will go to the 2+3KLMNO Advisory Committee for consideration and endorsement. At the November 2020 meeting of the 23KLMNO Groundfish Advisory Committee, DFO presented draft rebuilding plan content to the committee, including objectives, harvest strategy, harvest decision rule progress to date (agreed by working group members from the critical zone up to a stock status of 25% of the USR), and exceptional circumstance to outline when the plan would be reviewed prior to the intended five-year review timeframe. The next steps outlined were for the department to circulate the draft plan first to the working group members and then to the entire advisory committee for comment. Then DFO Management would seek department approvals and, if successful, the plan would be added to the IFMP as an appendix. Management was hopeful for a completed and finalized draft plan by the end of fiscal 2020/21, implying it may not be approved by that time. At the April 2021 23KLMNO Groundfish Advisory Committee meeting dedicated to northern cod, DFO Management indicated the rebuilding plan for witch flounder should be finalized and posted online soon. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. This deliverable was not included in the 2021/22 work plan, implying it is close to completion, but no rebuilding plan has been published yet. During Oceana Canada's 2021 update, DFO indicated the rebuilding plan is in final approvals and is anticipated to be translated and posted online by September 30, 2021 (Fisheries and Aquaculture Management, Newfoundland and Labrador region, personal communication, July 16, 2021).					
22	New-foundland and Labrador and Quebec	Atlantic cod – 4RS3Pn; Critical			The existing plan (developed jointly by NL and Quebec Regions) was initially implemented for a period of 5 years and scheduled for review in 2018/19. Stock assessment taking place in the winter of 2019. Regions to collaborate on work plan for review / update beginning in 2019.	DFO will initiate a working group process in 2020-21 to develop a rebuilding plan for 4RS3Pn cod.	DFO will initiate a working group process in 2021-22 to develop a rebuilding plan for 4RS3Pn cod.	By end of 2020-21 (newly added to work plan in 2019/20). <u>New deadline in 2021/22 work plan</u>: By end of 2022-23.	**Delayed**
			Details: This rebuilding plan was expected to be completed by the end of fiscal 2020/21. This stock was newly added to section 2 of DFO's 2019/20 fiscal year work plan. However, the stock is included in the "additional work section" of the 2018/19 fiscal year work plan results with an indication that the deliverable (rebuilding plan ended on May 31, 2018, review terms of reference						

[635] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[636] DFO (2019). Stock Assessment of Witch Flounder (*Glyptocephalus cynoglossus*) in NAFO Divisions 2J3KL. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/053. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2018/2018_053-eng.html

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			in the fall of 2018) had been met: the commitment or action as defined in the description of deliverables (2018/19) was complete without a tangible deliverable. The results of the 2019/20 work plan evaluation also indicated this deliverable was met.[637] The stock was assessed at a CSAS process held in February 2019. Rebuilding is not mentioned in the resultant Science Advisory Report.[638] In January 2020 a CSAS Science Response Process was held to update stock status indicators. Again, rebuilding is not mentioned in the resultant report.[639] During Oceana Canada's 2020 evaluation, DFO confirmed the development of a rebuilding plan for 4RS3Pn cod is a priority (Fisheries and Aquaculture Management, and Science, Newfoundland and Labrador Region, personal communication, June 23, 2020). The department intended to initiate a working group process in 2020/21 to develop a rebuilding plan for 4RS3Pn cod. A scientific peer review of the stock was also planned for 2020/21 (Fisheries and Aquaculture Management, and Science, Quebec and Newfoundland and Labrador regions, personal communication, June 23, 2020). In January 2020/21 a CSAS Science Response Process was held to update stock status indicators for the stock. The resultant report indicates that there was a full assessment of this stock scheduled for February 2021 that was cancelled to allow for the review of the assessment framework, including the review of available data and the establishment of a new stock assessment model.[640] The report provided an update of the main indicators of the stock to determine if major changes in stock status have occurred. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 work plan revised the expected date of completion from the end of 2021/22 to the end of 2022/23, noting DFO will initiate a working group process in 2021/22 to develop a rebuilding plan for 4RS3Pn cod. In April 2021 the first CSAS process pertaining to the framework assessment occurred, reviewing the data inputs. Reports from this meeting are not yet available. The second part of the framework, to review the model, will occur at a CSAS meeting in September 2021. The terms of reference covering both meetings do not mention supporting rebuilding plan development.[641] However, they do indicate the second meeting will provide direction for an approach to estimating reference points for this stock, discuss whether the assessment methodology has the potential to support quantitative evaluation of harvest control rules, and provide direction on projection methods for future catch options, all of which should help in plan development. There is another CSAS Science Response Process on the schedule in winter 2022 to provide an update on the main indicators for the stock. At the March 2021 meeting of the Gulf Groundfish Advisory Committee, DFO indicated COVID-19 impacted the intended progress to develop an updated rebuilding plan for this stock (this stock was previously included in a rebuilding plan that expired in May 2018). Management noted that in light of upcoming regulatory requirements there will be greater focus on advancing this work in 2021/22. DFO noted intentions to engage stakeholders in coming months to start the process to develop a rebuilding plan, which would be informed by the new assessment model under development. At the meeting DFO indicated Management would reach out in coming months on the timing of meetings to start developing the rebuilding plan. During Oceana Canada's 2021 evaluation, DFO indicated the department will establish a working group to begin the development of a proposed rebuilding plan for 4RS3Pn cod that includes management objectives, HCRs, and other rebuilding plan elements (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). This working group will consist of DFO Resource Management, DFO Science, and fishery stakeholders (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). Further details on this working group process, including the timing of its first meeting, will be made available at a later date (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021).					
23	Quebec	Northern shrimp – Gulf of St. Lawrence; Cautious[642]	—	—	Target date to be determined. The stock is not currently in the critical zone; however, it is anticipated to enter that zone soon. Work will begin immediately.	Timeline to be determined. Work will be initiated in parallel with the review of the precautionary approach.	Timeline to be determined. Work will be initiated in parallel with the review of the Precautionary Approach.	N/A (newly added to work plan in 2019/20) New deadline in 2021/22 work plan: To be determined.	Not evaluated – deadline not yet passed

[637] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[638] DFO (2019). Assessment of the Northern Gulf of St. Lawrence (3Pn, 4RS) Atlantic Cod Stock in 2018. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2019/032. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2019/2019_032-eng.html

[639] DFO (2020). Update of Stock Status Indicators for Northern Gulf of St. Lawrence (3Pn, 4RS) Atlantic Cod in 2019. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/007. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2020/2020_007-eng.html

[640] DFO (2021). Update of Stock Status Indicators for Northern Gulf of St. Lawrence (3Pn, 4RS) Atlantic Cod in 2020. DFO Can. Sci. Advis. Sec. Sci. Resp. 2021/006. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2021/2021_006-eng.html

[641] DFO (2021). Terms of Reference. Northern Gulf of St-Lawrence Cod (3Pn, 4RS) Assessment Framework. Regional Advisory Meeting – Quebec Region, Part 1: April 21–23, 2021; Part 2: September 13–15, 2021, virtual meeting. https://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2021/04_21-23-eng.html

[642] The Oceana Canada (2020) Fishery Audit status for this aggregate stock group is "cautious." However, it should be noted that three of the four components are in the healthy zone: the Estuary, Anticosti, and Esquiman stock components were in the healthy zone, while the Sept-Iles stock component was still in the cautious zone in the most recent assessment (providing stock health status estimates for 2019). To be precautionary, Oceana Canada assigned the aggregated record to the cautious zone. The most recent Sustainability Survey for Fisheries (2018 results) also indicates the cautious zone for its record, which combines the four stock components but uses the previous assessment to inform status.

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			Details: This stock was newly added to section 2 in DFO's 2019/20 fiscal year work plan. The 2018 results of the DFO Sustainability Survey for Fisheries do not indicate a rebuilding plan is under development.[643] The stock was assessed at a CSAS meeting held in January 2020. The resultant report does not discuss rebuilding. It indicates that in 2019, the main stock status indicator increased slightly in the Sept-Iles, Anticosti, and Esquiman areas but increased markedly in Estuary. The indicator for the four stocks had fallen sharply in previous years. In 2019, the Estuary, Anticosti, and Esquiman stocks were in the healthy zone while the Sept-Iles stock was still in the cautious zone.[644] However, the report also questioned whether the main indicator still accurately reflects the stock status. The precautionary approach framework for this stock is based on an equal mixture of fishery-dependent indices (commercial fishery catch rates) and fishery-independent indices (research survey catch rates), both expressed in number of shrimp, and they are diverging. The main indicator uses commercial fishery catch rates that are suspected to be exhibiting hyperstability, a phenomenon that occurs when catch rates decline more slowly than the population abundance. Scientists expressed concerns about ecosystem and environmental conditions that could hinder shrimp production, about low male abundance observed in recent years, and about the downward trend in female size, indicating low productivity of these stocks. During Oceana Canada's 2020 evaluation, it was unclear if a rebuilding plan would continue to be pursued. The results of the 2019/20 work plan evaluation also indicated this deliverable was "N/A": the commitment or action as defined in the description of deliverables (2019/20) was not pursued for reasons including no longer being required.[645] But the stock was retained in the 2020/21 fiscal year work plan with the indication that rebuilding plan development work will be initiated in parallel with the review of the precautionary approach for the stock group. During the 2020 evaluation DFO indicated the state of the stock has slightly improved/stabilized in certain areas, and the priority is currently focused on the revision of the precautionary approach (including harvest control rules) that it has committed to review within the next two to three years (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). DFO noted the development of the rebuilding plan will therefore be done in parallel with the revision of the precautionary approach and harvest control rules (Fisheries and Aquaculture Management, and Science, Quebec Region, personal communication, June 23, 2020). For these reasons, this deliverable was evaluated as suspended in the three-year combined review of work plans in Archibald et al. (2021)[646] but remains unevaluated in this annual evaluation given the deadline has not passed and remains to be determined. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The deliverable is retained in the 2021/22 work plan, with a deadline still to be determined. Indicators for this stock group were updated at a CSAS Science Response Process held in January 2021. The resultant report does not mention rebuilding. It concludes that despite some of the unfavourable conditions for shrimp in the Gulf of St. Lawrence not improving, there was a slowdown in the decline or a slight improvement in the main stock status indicator for northern shrimp stocks. The main stock status indicator shows that three of the stocks are in the healthy zone (the Estuary, Anticosti, and Esquiman stocks). The fourth stock (Sept-Iles) is in the cautious zone, but improvements over the past two years have brought it very close to the healthy zone. The stock group is scheduled to have a complete assessment in January 2022. The most recent results (2019) of the DFO Sustainability Survey for Fisheries indicate "NA" for rebuilding plan development.[647] During Oceana Canada's 2021 evaluation, DFO indicated that given the fast decline of the stock from 2015 to 2018, is was anticipated that a rebuilding plan would be necessary and DFO started planning work to ensure a timely rebuilding plan, but then the decline stopped and stock status improved in SFA 10 and 12 (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). The 2021 indicator update shows that three areas are in the healthy zone and one (SFA 10) is in the cautious zone at 99.99% of the USR. Therefore, a rebuilding plan is not deemed necessary, and DFO's focus is on ensuring full compliance to the PA framework in place. This framework appears to be effective in keeping the stock in the healthy zone or getting it back to the healthy zone as fast as possible if it falls into the cautious zone (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). In the meantime, DFO has undertaken a complete review of the PA framework (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). The PA framework is the heart of the rebuilding action, and no further work is anticipated on a rebuilding plan before the review of the PA framework is completed (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021).					
24	Pacific	Interior Fraser coho Uncertain††	—	—	—	Begin to develop rebuilding plan in 2020-21.	Continue development of rebuilding plan in 2021-22.	TBD (newly added to work plan in 2020/21).	Not evaluated – deadline not yet passed

[643] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[644] DFO (2020). Assessment of Northern Shrimp Stocks in the Estuary and Gulf of St. Lawrence in 2019. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2020/010. http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_010-eng.html

[645] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[646] Archibald, D. W., McIver, R. & Rangeley, R. (2021). The Implementation Gap in Canadian Fishery Policy: Fisheries Rebuilding and Sustainability at Risk. Marine Policy, 129: 104490.

[647] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
								New deadline in 2021/22 work plan: To be determined	
			Details: This stock was newly added to section 2 of DFO's 2020/21 fiscal year work plan. This stock is not included in the most recent (2019) results of the DFO Sustainability Survey for Fisheries, so further information is not available from the survey.[648] The 2019/20 IFMP does not mention intentions to develop a rebuilding plan for this stock, although this stock is discussed at length within it.[649] The 2020/21 IFMP does not mention rebuilding plan development for this stock either, although it does note rebuilding plan development for the WCVI chinook.[650] The IFMP does mention research is ongoing towards the development of quantitative tools to inform rebuilding plans for depleted (red-status) Conservation Units (the sub-units within management units), given climate/oceanographic change and variability and constraints from mixed-Conservation Unit fisheries. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. During Oceana Canada's 2021 evaluation, DFO Indicated there has been significant work done in the past on Interior Fraser River (IFR) coho, including the development of a conservation plan in 2006 and an updated abundance-based management approach that is included in the IFMP (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO noted this plan is expected to be an invaluable asset in the development of a rebuilding plan (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO indicated considerable risk assessment and stock assessment work has been done and is ongoing. The department has committed to focusing on analysis of the remaining gaps and creating a comprehensive work plan for the development of a rebuilding plan for IFR coho (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO noted this work is ongoing through the spring and summer of 2021 and includes subject matter experts from throughout the Pacific Region (including but not limited to Stock Assessment, Fisheries Management, SARA, FFHPP, and SEP staff) (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021).						
25	Pacific	Okanagan chinook Uncertain††	—	—	—	Begin to develop rebuilding plan in 2020-21.	Continue development of rebuilding plan in 2021-22.	TBD (newly added to work plan in 2020/21). New deadline in 2021/22 work plan: To be determined	Not evaluated – deadline not yet passed
			Details: This stock was newly added to section 2 of DFO's 2020/21 fiscal year work plan. This stock is not included in the most recent (2019) results of the DFO Sustainability Survey for Fisheries, so further information is not available from the survey.[651] The 2019/20 IFMP does not mention intentions to develop a rebuilding plan for this stock, although this stock is discussed at length within it.[652] The 2020/21 IFMP does not mention rebuilding plan development for this stock either, although it does note rebuilding plan development for the WCVI chinook.[653] The IFMP does mention research is ongoing towards the development of quantitative tools to inform rebuilding plans for depleted (red-status) Conservation Units (the sub-units within management units), given climate/oceanographic change and variability and constraints from mixed-Conservation Unit fisheries. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. During Oceana Canada's 2021 evaluation, DFO indicated significant work on a rebuilding plan has been completed by the Okanagan Nation Alliance (ONA) to date, with support from the Okanagan Basin Technical Working Group (which engages with ONA, DFO, and the Province of British Columbia) (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). In 2020/21, work on Okanagan chinook recovery has focused on development of management scenarios: the next component in the SARA listing process following the recovery potential assessment (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). Management scenarios examine options for mitigating threats to the population and seek to understand what management measures would be introduced under scenarios where the Okanagan chinook are listed under SARA or not listed under SARA (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). Management options identified in management scenarios will inform the development of a rebuilding plan. However, if a stock is listed under SARA, a rebuilding plan is not required, and rebuilding would occur under a SARA recovery strategy (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). DFO noted						

[648] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[649] DFO (2019). Pacific Region Final Integrated Fisheries Management Plan: June 1, 2019–May 31, 2020, Salmon, Southern BC. https://waves-vagues.dfo-mpo.gc.ca/Library/40799104.pdf

[650] DFO (2020). Pacific Region Final Integrated Fisheries Management Plan: June 1, 2020–May 31, 2021, Salmon, Southern BC. https://waves-vagues.dfo-mpo.gc.ca/Library/40881404.pdf

[651] DFO (2021). Sustainability Survey for Fisheries: 2019 Results. https://open.canada.ca/data/dataset/49f25051-3946-426e-a589-b7063f75bbd5/resource/c182ff3d-dff5-47b7-8b71-3456f49ad415/download/2019_survey_data_en.csv

[652] DFO (2019). Pacific Region Final Integrated Fisheries Management Plan: June 1, 2019–May 31, 2020, Salmon, Southern BC. https://waves-vagues.dfo-mpo.gc.ca/Library/40799104.pdf

[653] DFO (2020). Pacific Region Final Integrated Fisheries Management Plan: June 1, 2020–May 31, 2021, Salmon, Southern BC. https://waves-vagues.dfo-mpo.gc.ca/Library/40881404.pdf

#	Region	Stock and health status zone	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Deadline for completion	Status
			that unlike WCVI chinook, Okanagan chinook were assessed by COSEWIC prior to being prescribed as a rebuilding stock, and DFO has therfore been engaged primarily in work to support the SARA listing process (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). However, as noted above, there are many common elements and objectives behind these two processes, and outcomes of the SARA process will be used to inform rebuilding plan development where appropriate (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021). Regarding the development of the rebuilding plan, a work planning exercise for Okanagan chinook (along with Interior Fraser River coho) is underway with the broader Departmental salmon teams (Including but not limited to Stock Assessment, Fisheries Management, SARA, FFHPP, and SEP staff) (Fisheries and Aquaculture Management, Pacific region, personal communication, July 16, 2021).					

Table 6. Work plan section 3; Integrated Fisheries Management Plans (IFMPs): In section 3 of its annual work plan, Fisheries and Oceans Canada (DFO) prioritizes the stocks or stock groups to be included in new IFMPs, have their IFMPs updated, and/or have their IFMPs made available on the departmental website. Within section 3, the sub-sections have varied in structure across the five fiscal year work plans.[654] The table below summarizes all fiscal year section 3 deliverables[655] by stock or stock group, with most recent health status[656] and status towards completion as assessed by Oceana Canada. Checkmark symbols with fiscal year indicate the type of IFMP deliverable, while annual deliverable descriptions provided by DFO are also included in associated columns. Stocks with completed IFMPs that are available online are noted as completed, stocks that have had deadlines shifted or delays in progress indicated by DFO are noted as delayed, and stocks for which the deadline has not yet passed are noted as ongoing. (Please note that the table does not include an assessment of plan quality.) Details on status determinations are provided for stocks included in the 2017/18, 2018/19, 2019/20, and 2020/21 work plans. Stocks appearing first, before the bold line separating rows (rows 1–25), were previously assessed as completed in the 2018, 2019, or 2020 evaluation. Stocks after the bold line but before the bold dashed line (rows 26–46) were evaluated this year and included in the evaluation summary table above (Table 1). Stocks appearing after the dashed bold line (row 47-54) appear only in the 2021/22 work plan and were not evaluated for status completion.

#	Region	Stock or stock group and health status zone	New IFMP	IFMP update	IFMP online	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
1	Arctic	Atlantic walrus – Baffin Bay (High Arctic); Uncertain† Atlantic walrus – Northern Foxe basin; Uncertain†		✓2017/18	✓2017/18	Final version of the IFMP for Atlantic walrus (*Odobensus rosmarus rosmarus*) in the Nunavut Settlement Area to be sent to Nunavut Wildlife Management Board for final approval in the 2017-18 fiscal year. Signing of the final IFMP expected in the 2017-18 fiscal year. IFMP will be made accessible online after approval, in the 2017 to 2018 fiscal year.					Previously completed (2018)
			Details: The Atlantic walrus in the Nunavut Settlement Area IFMP was approved by the Nunavut Wildlife Management Board on December 22, 2017 and by DFO on February 1, 2018. The IFMP is available on the DFO website, with a last-modified date on the webpage of April 3, 2018 and containing information up to and including 2017.[657]							

[654] The first fiscal year work plan (2017/18) included three sub-sections within section 3: sub-section 3A outlining new IFMPs to be completed in the fiscal year, sub-section 3B outlining IFMPs that would be updated in the fiscal year, and sub-section 3C outlining IFMPs that would be made accessible via the DFO website in the fiscal year. These same sub-sections remained until the 2020/21 fiscal year work plan when they were replaced was a single section, but often with more than one deliverable for each stock or stock group outlining these various steps (completion, updating or posting). This approach is repeated in the 2021/22 fiscal year work plan section 3. All deliverables from all fiscal year work plans are included here.

[655] As stated in DFO work plans.

[656] Health status was assigned primarily using Oceana Canada's Fishery Audit dataset (Oceana Canada 2021), with † denoting assignments for marine mammals, diadromous fish, and freshwater fish using the 2019 Sustainability Survey for Fisheries results and †† denoting uncertain status assigned when stocks were not included in either dataset. As some records represent multiple stocks that appear as more than one record in the datasets used to assign status, all unique statuses for stocks within stock groups are included when applicable.

[657] DFO (2018). Integrated Fisheries Management Plan: Atlantic Walrus in the Nunavut Settlement Area. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/walrus-atl-morse/walrus-nunavut-morse-eng.html

#	Region	Stock or stock group and health status zone	New IFMP	IFMP update	IFMP online	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
2	Maritimes	Sea scallop – inshore SFA 28 (Bay of Fundy); Healthy Sea scallop – inshore SFA 29W; Healthy	✓2017/18			New IFMP: One "Inshore scallop IFMP" covering both stocks is in the final stages and will be finalized and posted on the DFO website in the 2017-18 fiscal year.					Previously completed (2018)
			Details: The Inshore Scallop – Maritimes Region – 2015 IFMP is available on the DFO website, with a last-modified date on the webpage of February 9, 2017,[658] indicating the work completed in the previous fiscal year (2016/17). The plan contains information up to and including 2014.								
3	Newfoundland and Labrador	Atlantic herring – 2J3KLPs; Uncertain	✓2017/18		✓2017/18	New IFMP: IFMP will be finalized in fiscal the 2017-18 fiscal year. IFMP will be made accessible online, after completion of update, by March 31, 2018.					Previously completed (2018)
			Details: The Herring – Newfoundland and Labrador Region 2+3 (Herring Fishing Areas 1–11) IFMP (effective 2017) was first available on the DFO website during Oceana Canada's 2018 evaluatoin, with a last-modified date on the webpage of March 28, 2018 and containing information up to and including 2017.[659] Subsequently a new IFMP, Herring- Newfoundland and Labrador Region 2+3 (Herring Fishing Areas 1–11) was published online, containing information up to and including 2018, with a last-modified date on the webpage of October 25, 2019.[660] Both IFMPs are still available online and both indicate they are evergreen.								
4	Newfoundland and Labrador	Capelin – SA2+3KLPs; Uncertain Capelin – 4RST; Uncertain			✓2017/18	IFMP will be made accessible, after completion of update, by March 31, 2018.					Previously completed (2018)
			Details: The Capelin Northwest Atlantic Fisheries Organization Divisions 4RST (Capelin Fishing Areas 12–16) IFMP (effective 2017) is available on the DFO website, with a last-modified date on the webpage of March 26, 2018 and containing information up to and including 2017.[661] The Capelin Newfoundland & Labrador Region 2+3 (Capelin Fishing Areas 1–11) IFMP (effective 2017) is available on the DFO website, with a last-modified date on the webpage of March 18, 2019.[662] The previous link provided in Oceana Canada's 2018 evaluation details table is now broken, but it had a last-modified date of March 26, 2018. The new link contains information up to and including 2018, indicating it was updated and re-posted in 2019.								

[658] DFO (2017). Integrated Fisheries Management Plan: Inshore Scallop – Maritimes Region, 2015. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/scallop-petoncle/scallop-petoncle2015-toc-eng.html

[659] DFO (2018). Integrated Fisheries Management Plan: Herring – Newfoundland and Labrador Region 2+3 (Herring Fishing Areas 1–11), Effective 2017. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/herring-hareng/herring-areas-1-11-zones-2-3-hareng-eng.html

[660] DFO (2019). Integrated Fisheries Management Plan: Herring – Newfoundland and Labrador Region 2+3 (Herring Fishing Areas 1–11). https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/herring-hareng/2019/areas-1-11-zones-eng.html

[661] DFO (2018). Integrated Fisheries Management Plan: Capelin Northwest Atlantic Fisheries Organization Divisions 4RST (Capelin Fishing Areas 12–16), Effective 2017. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/capelin-capelan/index-eng.html

[662] DFO (2019). Integrated Fisheries Management Plan: Capelin Newfoundland & Labrador Region 2+3 (Capelin Fishing Areas 1–11). http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/capelin-area1-11-zone-capelan/capelin-capelan-2018-eng.html

#	Region	Stock or stock group and health status zone	New IFMP	IFMP update	IFMP online	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
5	Newfoundland and Labrador	Atlantic herring – 4R; Uncertain	✓2017/18		✓2017/18	New IFMP: IFMP will be finalized in the 2017-18 fiscal year. IFMP will be made accessible online, after completion of update, by March 31, 2018.					Previously completed (2018)
			Details: The Herring – Newfoundland and Labrador Region 4R3Pn IFMP (effective 2017) is available on the DFO website, with a last-modified date on the webpage of March 27, 2018 and containing information up to and including 2017.[663]								
6	Quebec	Lobster – 19, 20, 21; Healthy	✓2017/18 ✓2018/19		✓2018/19	New IFMP: IFMP will be finalized and posted on the DFO website in the 2017-18 fiscal year. IFMP will be made accessible online by March 31, 2018.	Lobster – 19, 20 and 21 IFMP will be completed and posted by end of 2018-19. Lobster 19, 20 and 21 was previously noted for completion in 2017-18. Completed and posted by end of 2018-19.				Previously completed (2018)
			Details: The new IFMP was not completed in the 2017/18 fiscal year. As indicated in the 2018/19 work plan, it was delayed, and it was anticipated it would be completed and posted by the end of the 2018/19 fiscal year. The Lobster Fishery – Areas 19, 20 and 21 IFMP is now completed and available on the DFO website, with a last-modified date on the webpage of June 6, 2018 and containing information up to and including 2018.[664] In the work plan results for 2018/19, the department also indicated the deliverable was completed; a tangible deliverable is complete and available as a result.[665]								
7	Maritimes	American eel (elvers) – Maritimes Region; Uncertain†		✓2017/18		An update of the elvers IFMP is anticipated to be completed by March 31, 2018.					Previously completed (2019)
			Details: The IFMP was updated in fiscal 2017/18, and it was anticipated that it would be posted in 2018/19, which unfortunately was not captured in the 2018/19 work plan (N. Schjott, personal communication, June 29, 2018). The Elver IFMP (Evergreen) Maritimes Region is now available on the DFO website, with a last-modified date on the webpage of August 7, 2018 and containing								

[663] DFO (2018). Integrated Fisheries Management Plan: Herring – Newfoundland and Labrador Region 4R3Pn, Effective 2017. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/herring-hareng/herring-4r3pn-hareng-eng.html

[664] DFO (2018). Integrated Fisheries Management Plan. Lobster Fishery – Areas 19, 20 and 21. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/lobster-homard/index-eng.html

[665] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock or stock group and health status zone	New IFMP	IFMP update	IFMP online	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			information up to and including 2016.[666] The "additional work" section of the work plan results for 2018/19 also indicates the deliverable was completed; a tangible deliverable is complete and available as a result.[667]								
8	Maritimes	Dogfish – Atlantic Canada 4VWNX-5; Cautious Atlantic cod – 4X5Y; Critical Atlantic cod – 5Zjm; Critical Atlantic halibut – 3NOPs4VWX +5; Healthy Haddock – 4X5Y; Cautious Haddock – 5Zjm; Uncertain Pollock – 4X5 (western component); Uncertain Redfish – unit 3; Healthy Silver hake – 4VWX; Healthy Yellowtail flounder – 5Z; Uncertain	✓2017/18	✓2018/19	✓2017/18	New IFMP: One "Groundfish IFMP" for these 10 stocks is under development. Anticipated completion by March 31, 2018. Groundfish IFMP will be made accessible online, after completion by March 31, 2018.	Update to LRPs (for Atlantic Canada [dogfish]), if Science determines that a change needs to be made (LRPs will be reviewed by Science in 2018-19).[668] Update to limit reference points [Atlantic cod – 4X5Y], if Science determines that a change needs to be made (limit reference points will be reviewed by Science in 18-19).				Previously completed (2019)
			Details: The multi-stock groundfish IFMP for the Maritimes Region was completed and approved by the end of fiscal 2017/18 but was not posted online (P. Doherty, personal communication, May 3, 2018). It was anticipated that the IFMP would be posted in fall 2018/19. The 4VWX5 Groundfish – Maritimes Region IFMP is now available on the DFO website, with a last-modified date on the								

[666] DFO (2018). Elver Integrated Fisheries Management Plan (Evergreen) — Maritimes Region. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/elver-anguille/index-eng.html

[667] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[668] The 2018/19 deliverables description for dogfish in Atlantic Canada and Atlantic cod in NAFO 4X5Y are a description of updates to the section of IFMP pertaining to these stocks that may be required if it is determined the limit reference points need to be changed (N. Schjott, personal communication, June 29, 2018).

#	Region	Stock or stock group and health status zone	New IFMP	IFMP update	IFMP online	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			webpage of December 21, 2018 and containing information up to and including 2017.[669] The "additional work" section of the work plan results for 2018/19 also indicates the department considers this deliverable was completed; a tangible deliverable is complete and available as a result.[670] The "additional work" section of the 2018/19 results also include rows that indicate a result of "N/A" for two stock-specific deliverables pertaining to reference points for Atlantic cod in NAFO 4X5Y and Atlantic spiny dogfish. These deliverables with descriptions pertaining to reference points were actually in the IFMP sub-work plans with this stock group in the 2017/18 and 2018/19 fiscal year work plans for cod and dogfish, respectively. These were likely the wrong location for these deliverables, as they also appeared in the LRP sub-work plans and have been completed.						
9	Maritimes	Sea scallop – offshore SFA 26, German, Browns; Uncertain Sea scallop – offshore SFA 27 Georges; Healthy		✓2017/18	✓2017/18	An update of the offshore scallop IFMP is anticipated to be completed by March 31, 2018. The offshore scallop IFMP is under development. Anticipated to be made accessible online by March 31, 2018.					Previously completed (2019)
			Details: The offshore scallop IFMP was not posted online in fiscal 2017/18. There were some delays in preparing the IFMP in a way that met the accessibility standards required to post online, but these revisions were underway, and it was anticipated to be posted online in summer 2018 (C. Bernier, personal communication, August 8, 2018). The Offshore Scallop – Maritimes Region IFMP is available on the DFO website, with a last-modified date on the webpage of July 31, 2018 and containing information up to and including 2017.[671] In the "additional work" section of the work plan results for 2018/19, the department also indicates the deliverable was completed; a tangible deliverable is complete and available as a result.[672]						
10	National Capital Region	Bluefin tuna – western Atlantic; Uncertain		✓2017/18		Western Atlantic Bluefin Tuna IFMP will be updated in the 2017-18 fiscal year.					Previously completed (2019)
			Details: The IFMP was updated in fiscal 2017/18, and it was anticipated that it would be posted in 2018/19, which unfortunately was not captured in the 2018/19 work plan (N. Schjott, personal communication, June 29, 2018). The Canadian Atlantic Bluefin Tuna (*thunnus thynnus*) – NAFO Fishing Areas 3KLNOP, 4RSTVWX and 5YZ – 2017 IFMP is now available on the DFO website, with						

[669] DFO (2018). Integrated Fisheries Management Plan: 4VWX5 Groundfish – Maritimes Region. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/groundfish-poisson-fond-4vwx5-eng.html

[670] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[671] DFO (2018). Integrated Fisheries Management Plan: Offshore Scallop – Maritimes Region. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/scallop-petoncle/2018/index-eng.html

[672] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock or stock group and health status zone	New IFMP	IFMP update	IFMP online	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			a last-modified date on the webpage of January 10, 2019 and containing information up to and including 2017.[673] In the "additional work" section of the work plan results for 2018/19, the department also indicates the deliverable was completed; a tangible deliverable is complete and available as a result.[674]								
11	Newfoundland and Labrador	Lobster – LFA 3, 4, 6–9, 12, 13AB, 14C; Uncertain Lobster – LFA 5, 10, 11, 14A–B; Uncertain		✓2017/18	✓2018/19	NL Lobster IFMP will be updated with a target of fall 2017.	Posted online by end of 2018-19.				Previously completed (2019)
			Details: The IFMP update was completed in 2017/18 (N. Schjott, personal communication, July 27, 2018), but it was not posted online that year. As the 2018/19 work plan indicates, the intention was to post it online in 2018/19. The American Lobster – Lobster Fishing Area 3–14C IFMP is now available on the DFO website, with a last-modified date on the webpage of January 7, 2019 and containing information up to and including 2017.[675] The work plan results for 2018/19 also indicate the deliverable was completed; a tangible deliverable is complete and available as a result.[676]								
12	National Capital Region	Northern shrimp SFAs 0–7; Critical, Cautious, Healthy		✓2017/18	✓2018/19	Northern shrimp IFMP will be updated in the 2017-18 fiscal year.	Northern shrimp: Posted online by end of 2018-19.				Previously completed (2019)
			Details: The IFMP was updated in 2017/18, but it was not approved by the end of the fiscal year. It was to be approved and posted online in 2018/19 (L. Edgar, personal communication, June 18, 2018), as per the 2018/19 work plan. The IFMP for northern shrimp and striped shrimp in shrimp fishing areas 0, 1, 4–7, the Eastern and Western Assessment Zones and North Atlantic Fisheries Organization (NAFO) Division 3M is now available on the DFO website, with a last-modified date on the webpage of November 1, 2018 and containing information up to and including 2018.[677] The work plan results for 2018/19 also indicate the deliverable was completed; a tangible deliverable is complete and available as a result.[678]								
13	Pacific	Eulachon; Uncertain†		✓2017/18		Update to IFMP by end of the 2017-18 fiscal year.					Previously completed (2019)
			Details: The IFMP was updated in the 2017/18 fiscal year (N. Schjott, personal communication, June 29, 2018) but not posted online that year. During Oceana Canada's evaluation in 2019, the Fraser River Eulachon 2019 IFMP summary was available on the DFO website, with a last-modified date on the webpage of January 23, 2019 and the indication that the plan covers January 1, 2019 to December 31, 2019. Importantly, there was also a link to a PDF file of the complete IFMP provided at the bottom of the summary webpage. The 2021 IFMP summary is now available and link to the full 2021 IFMP is still provided, covering the period of February 1, 2021 to December 31, 2021.[679]								

[673] DFO (2019). Integrated Fisheries Management Plan: Canadian Atlantic Bluefin Tuna (*thunnus thynnus*) – NAFO Fishing Areas 3KLNOP, 4RSTVWX and 5YZ, 2017. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/bluefin-tuna-thon-rouge/bluefin-tuna-thonrouge2017-eng.html

[674] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[675] DFO (2019). Integrated Fisheries Management Plan: American Lobster – Lobster Fishing Area 3–14C. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/lobster-homard/area-zone-3-14c-eng.html

[676] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[677] DFO (2018). Integrated Fisheries Management Plan: Northern Shrimp and Striped Shrimp – Shrimp Fishing Areas 0, 1, 4–7, the Eastern and Western Assessment Zones and North Atlantic Fisheries Organization (NAFO) Division 3M, Effective 2018. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/shrimp-crevette/shrimp-crevette-2018-002-eng.html

[678] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[679] DFO (2021). Fraser River Eulachon 2021 Integrated Fisheries Management Plan Summary. http://www.pac.dfo-mpo.gc.ca/fm-gp/mplans/eulachon-eulakane-ifmp-pgip-sm-eng.html

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14	Quebec	Northern shrimp – Gulf of St. Lawrence SFA 8, 9, 10, 12; Cautious			✓2017/18	IFMP will be made accessible online by March 31, 2018.					Previously completed (2019)
		Details: There were delays in the approvals process in 2017/18, but the IFMP was approved in 2018/19, and it was expected it would be posted online in fall of 2018 (C. Bernier, personal communication, August 8, 2018). The IFMP for northern shrimp – areas 8, 9, 10 and 12 (Estuary and Gulf of St. Lawrence) is available on the DFO website, and although the last-modified date on the webpage is May 8, 2014, it contains information up to and including 2017.[680] In the "additional work" section of the work plan results for 2018/19, the department also indicates the deliverable was completed; a tangible deliverable is complete and available as a result.[681]								
15	Quebec	Lobster – LFA 22; Healthy			✓2017/18	IFMP will be made accessible online by March 31, 2018.					Previously completed (2019)
		Details: The IFMP update was completed in 2017/18 but was still awaiting approvals as the end of the fiscal year (N. Schjott, personal communication, July 27, 2018). The Lobster Fishing Area 22 (Quebec Region – Magdalen Islands Area) IFMP is now completed and available on the DFO website, with a last-modified date on the webpage of August 24, 2018 and containing information up to and including 2018.[682] In the "additional work" section of the work plan results for 2018/19, the department also indicates the deliverable was completed; a tangible deliverable is complete and available as a result.[683]								
16	Arctic	Narwhal – High Arctic and northern Hudson Bay; Uncertain†			✓2018/19		Completed and posted by end of 2018-19.				Previously completed (2019)
		Details: The 2018/19 work plan simply indicates the intention to post the IFMP online, although the deliverable description includes "completed and posted," implying an up-to-date IFMP would be completed prior to being posted. The Integrated Fisheries Management Plan for narwhal in the Nunavut Settlement Area (*Monodon monoceros*) Effective April 1, 2013 is available on the DFO website, with a last-modified date on the website of March 26, 2019.[684] DFO did meet their commitment to post an IFMP online, but the IFMP only contains information up to and including 2013, indicating it is old. The work plan results for 2018/19 also indicate the deliverable was completed; a tangible deliverable is complete and available as a result. The update did not happen because the five-year review of the IFMP was postponed until new DFO Science advice is published (N. Schjott, personal communication, June 25, 2019). This stock is co-managed. In October 2018, DFO met with co-management partners (Nunavut Wildlife Management Board, Nunavut Tunngavik Inc., and the regional wildlife organizations) to discuss ongoing narwhal management in the Nunavut Settlement Area. There was consensus among the co-management partners to postpone the five-year review of the IFMP until the new DFO Science advice is published on the connectivity between the Admiralty Inlet and Eclipse Sound stocks, as well as the Eclipse Sound stock population estimate, which was expected in 2019/20. This Science advice is required by the Nunavut Wildlife Management Board's decision-making process for modifying the total allowable harvests for the Admiralty Inlet and Eclipse Sound narwhal stocks. During Oceana Canada's 2019 evaluation, it was indicated the IFMP would be reviewed once all co-management partners have the information required to complete updates (N. Schjott, personal communication, June 25, 2019). A CSAS process was held in February 2019 to assess new scientific information, including recent tagging data for the Eclipse Sound and Admiralty Inlet narwhal; determine if the current summering aggregations are accurate; and assess their status in order to revise the sustainable harvest recommendation.[685] A second CSAS process was held in February 2020 to provide an updated abundance estimate for the Northern Hudson Bay narwhal population. The terms of reference for this process indicated the resultant science advice would be used to update the existing IFMP and								

[680] DFO (2017). Integrated Fisheries Management Plan: Northern Shrimp – Areas 8, 9, 10 and 12 (Estuary and Gulf of St. Lawrence). http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/shrimp-crevette/shrimp-crevette-2018-eng.html

[681] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[682] DFO (2018). Integrated Fisheries Management Plan: Lobster Fishing Area 22 (Quebec Region – Magdalen Islands Area). http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/lobster-homard/area-zone-22-eng.html

[683] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[684] DFO (2019). Integrated Fisheries Management Plan for Narwhal in the Nunavut Settlement Area (*Monodon monoceros*), Effective April 1, 2013. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/narwhal-narval/index-eng.html

[685] DFO (2019). Terms of Reference: National Marine Mammal Peer Review Committee (NMMPRC), February 2019 Biannual Meeting. National Peer Review – National Capital Region, February 11–15, 2019, Vancouver, BC. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2019/02_11-15-eng.html

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			be submitted to the Nunavut Wildlife Management Board for decisions.[686] Reports are now available on the CSAS website for both these meetings,[687] but at this time it is still the 2013 IFMP that is publicly available on the DFO website.								
17	Newfoundland and Labrador	American plaice – 2+3K and 3NLO; Critical Redfish – 2+3K; Uncertain Grenadier – 2+3KL; Uncertain Winter flounder – 2+3KL; Uncertain Witch flounder – 2+3KL; Critical Greenland halibut (turbot) – 2+3K; Uncertain Greenland halibut (turbot) – 3LMNO; Uncertain Atlantic cod – 2GH; Uncertain Lumpfish – 2GHL & 3KL; Uncertain	✓2018/19		✓2018/19		Groundfish 2+3KLMNO IFMP will be completed and posted by end of 2018-19. Completed and posted by end of 2018-19.				Previously completed (2019)

[686] DFO (2020). Terms of Reference: National Marine Mammal Peer Review Committee (NMMPRC), February 2020 Biannual Meeting. National Peer Review – National Capital Region, February 17–22, 2020, Ottawa, Ontario. http://www.dfo-mpo.gc.ca/csas-sccs/Schedule-Horraire/2020/02_17-22-eng.html

[687] DFO (2020). Abundance Estimate of the Northern Hudson Bay Narwhal Population from the 2018 Aerial Survey. DFO Can. Sci. Advis. Rep. 2020/055. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_055-eng.html;
DFO (2020). Information Related to the Delineation of the Eclipse Sound and Admiralty Inlet Narwhal Stocks. DFO Can. Sci. Advis. Rep. 2020/48. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_048-eng.html;
DFO (2020). Estimated Abundance and Total Allowable Landed Catch for the Eclipse Sound Narwhal Stock. DFO Can. Sci. Advis. Rep. 2020/051. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2020/2020_051-eng.html;
DFO (2021). Harvest Allocation Modelling for Baffin Bay Narwhal (Monodon monoceros) Stocks. DFO Can. Sci. Advis. Rep. 2021/001. https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2021/2021_001-eng.html

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		Haddock – 3LNO; Uncertain Skates – 3LNO; Uncertain Yellowtail – 3NLO; Healthy Atlantic cod – 2J3KL (northern); Critical									
			Details: The IFMP for Groundfish Newfoundland and Labrador Region NAFO Subarea 2 + Divisions 3KLMNO was completed and is available on the DFO website, with a last-modified date on the webpage of April 26, 2019 and containing information up to and including 2019.[688] The work plan results for 2018/19 also indicate the deliverable was completed; a tangible deliverable is complete and available as a result.[689]								
18	Newfoundland and Labrador	Snow crab – Newfoundland and Labrador Region; Cautious, Healthy, Uncertain		✓2018/19	✓2018/19		Updated and posted by end of 2018-19. Updated and posted by end of 2018-19.				Previously completed (2019)
			Details: The IFMP for Snow Crab – Newfoundland and Labrador Region was completed and is available on the DFO website, with a last-modified date on the webpage of May 15, 2019 and containing information up to and including 2019.[690] The work plan results for 2018/19 also indicate the deliverable was completed; a tangible deliverable is complete and available as a result.[691]								
19	Newfoundland and Labrador	Sea cucumber – 3Ps; Uncertain	✓2018/19		✓2018/19		3Ps Sea Cucumber IFMP will be completed and posted by end of 2018-19. Completed and posted by end of 2018-19.				Previously completed (2019)

[688] DFO (2019). Integrated Fisheries Management Plan: Groundfish Newfoundland and Labrador Region, NAFO Subarea 2 + Divisions 3KLMNO. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/2019/groundfish-poisson-fond-2_3klmno-eng.htm

[689] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[690] DFO (2019). Integrated Fisheries Management Plan: Snow Crab – Newfoundland and Labrador Region. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/snow-crab-neige/2019/index-eng.htm

[691] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock or stock group and health status zone	New IFMP	IFMP update	IFMP online	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
			Details: The IFMP for Sea Cucumber Newfoundland and Labrador Region 3Ps was completed and is available on the DFO website, with a last-modified date on the webpage of June 25, 2019 and containing information up to and including 2019.[692] The work plan results for 2018/19 indicate the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[693] This is likely due to it being posted online in fiscal 2019/20.								
20	Newfoundland and Labrador	Sea scallop – Newfoundland and Labrador Region; Uncertain		✓2018/19	✓2018/19		Updated and posted by end of 2018-19. Updated and posted by end of 2018-19.				Previously completed (2019)
			Details: The IFMP for Scallop – Newfoundland and Labrador Region was completed and is available on the DFO website, with a last-modified date on the webpage of April 2, 2019 and containing information up to and including 2019.[694] The work plan results for 2018/19 also indicate the deliverable was completed; a tangible deliverable is complete and available as a result.[695]								
21	Quebec	Snow crab – coastal/inshore Quebec Region (12A, 12B, 12C, 13, 14, 15, 16, 16A, 17); Uncertain	P2018/19		✓2018/19		Snow Crab Coastal areas 13 to 17, 12ABC and 16A IFMP will be completed and posted by end of 2018-19. Snow Crab Inshore (13 to 17, 12 ABC, and 16A) completed and posted by end of 2018-19.				Previously completed (2019)
			Details: The IFMP for Snow Crab – Estuary and Northern Gulf of St. Lawrence Inshore Areas (12A, 12B, 12C, 13, 14, 15, 16, 16A and 17) was completed and is available on the DFO website, with a last-modified date on the webpage of June 21, 2019 and containing information up to and including 2019.[696] The work plan results for 2018/19 indicate the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[697] This is likely due to it being posted online in fiscal 2019/20.								

[692] DFO (2019). Integrated Fisheries Management Plan: Sea Cucumber – Newfoundland and Labrador Region 3Ps. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/sea_cucumber-holothuries/2019/index-eng.html

[693] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[694] DFO (2019). Integrated Fisheries Management Plan: Scallop – Newfoundland and Labrador Region. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/scallop-petoncle/2019/index-eng.html

[695] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[696] DFO (2019). Integrated Fisheries Management Plan: Snow Crab – Estuary and Northern Gulf of St. Lawrence Inshore Areas (12A, 12B, 12C, 13, 14, 15, 16, 16A and 17). https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/snow-crab-neige/2019/snow-crab-neiges-eng.html

[697] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

#	Region	Stock or stock group and health status zone	New IFMP	IFMP update	IFMP online	2017/18 deliverables	2018/19 deliverables	2019/20 deliverables	2020/21 deliverables	2021/22 deliverables	Status
22	Maritimes	Lobster – inshore LFAs 27–33; Healthy Lobster – inshore LFAs 34; Healthy Lobster – inshore LFAs 35–38; Healthy		✓2018/19	✓2017/18 ✓2019/20	Inshore lobster IFMP will be made accessible online, after completion, by March 31, 2018.	Update on progress in developing the precautionary approach Framework; update to reference points. Some minor updates and corrections. [LFA 27–33][698]	LFA 27–38 IFMP will be updated and posted in 2019-20. Will include new LFA 27–33 reference points (developed in 2018/19).			Previously completed (2020)
			Details: The updated inshore lobster IFMP was not posted online in fiscal 2017/18 or 2018/19. During its 2019 evaluation, Oceana Canada noted the Integrated Fishery Management Plan Lobster Fishing Areas 27 – 38 Scotia-Fundy Sector – Maritimes Region – 2011 was available on the DFO website, with a last-modified date on the website of August 7, 2018; DFO put the 2011 IFMP online for public access while the updates were taking place (N. Schjott, personal communication, June 25, 2019). However, that IFMP and link is no longer available on the website. The work plan results for 2018/19 indicate the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[699] This is reiterated in the 2019/20 work plan, where new annual deliverables indicate that new reference points were developed for LFAs 27–33 in 2018/19 and that work continued to update and post the IFMP online in 2019/20. The new Lobster Fishing Areas 27 – 38 Integrated Fisheries Management Plan is now on the DFO website, with a date last modified of March 31, 2020 and including information up to and including 2020.[700] The 2019/20 work plan results also indicate this deliverable was completed; a tangible deliverable is complete and available as a result.[701]					
23	Newfoundland and Labrador	Sea urchin – Newfoundland and Labrador Region; Uncertain	✓2018/19		✓2018/19		Completed and posted by end of 2018-19. Completed and posted by end of 2018-19.				Previously completed (2020)
			Details: The new IFMP for Sea Urchin – Newfoundland and Labrador Region was not posted online in fiscal 2018/19. The work plan results for 2018/19 indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[702] Even though this stock was not included in the 2019/20 work plan, during Oceana Canada's evaluation in 2019 it was anticipated the IFMP would be posted online in 2019/20, given departmental officials indicated the IFMP was complete and awaiting approvals (N. Schjott, personal communication, June 25, 2019). The IFMP for Sea Urchin (*Stronglyocentrotus droebachiensis*) – Newfoundland and Labrador Region is now available on the DFO website, with a last-modified date of April 14, 2020, and it includes information up to and including 2018.[703]					

[698] The 2018/19 deliverables description for LFAs 27–33 is a description of updates to the section of the IFMP pertaining to this stock that may be required if it is determined the reference points need to be changed (N. Schjott, personal communication, June 29, 2018).

[699] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[700] DFO (2020). Integrated Fisheries Management Plan: Lobster Fishing Areas 27–38. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/maritimes/2019/inshore-lobster-eng.html

[701] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[702] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[703] DFO (2020). Integrated Fisheries Management Plan: Sea urchin (*Stronglyocentrotus droebachiensis*) – Newfoundland and Labrador Region. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/sea-urchin-oursin/2019/index-eng.html

24	Quebec	Atlantic herring – 4S; Uncertain		✓2018/19	✓2018/19		Updated and posted by end of 2018-19. Updated and posted by end of 2018-19.				Previously completed (2020)
			Details: The updated Atlantic herring – 4S was not posted online in fiscal 2018/19. The work plan results for 2018/19 indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[704] Even though this stock was not included in the 2019/20 work plan, during Oceana Canada's evaluation in 2019 it was anticipated the IFMP would be posted online in 2019/20, given departmental officials indicated the IFMP was complete and awaiting approvals (N. Schjott, personal communication, June 25, 2019). The 2018 results of the DFO Sustainability Survey for Fisheries indicated that the current IFMP was up to date, that an update was not underway, and that the current version is available online, although the respondent does not provide a link and indicates it was planned to be posted online in 2019.[705] During Oceana Canada's 2020 evaluation, DFO confirmed that the IFMP was in the final approval stages and that it would be completed and posted within the next few weeks (Fisheries and Aquaculture Management, Quebec Region, personal communication, June 23, 2020). The Atlantic Herring Division 4S (Herring Fishing Area 15) IFMP is now available on the DFO website with a last-modified date of July 17, 2020[706] and contains information up to and including 2018.[707]						
25	Maritimes	Lobster – offshore; Healthy		✓2019/20	✓2020/21			Will update IFMP in 2019-20. Update to IFMP, including addition of new reference points and HCRs (developed in 2017 and 2018).	Will post updated IFMP online in 2020-21.		Previously completed (2020)
			Details: The IFMP for Offshore Lobster and Jonah Crab – Maritimes Region is now available on the DFO website, with a last-modified date of March 3, 2020, and it includes information up to and including 2020.[708] This replaces the previously posted 2016 IFMP. The new IFMP includes newly defined reference points and what is described as a harvest control rule (HCR) for lobster, although the latter is more a description of a constant quota approach and agreed-upon management *considerations* should the stock status change from healthy, and less the *prescriptive rules* HCRs development often implies for setting quotas. The 2020/21 fiscal year work plan indicates the updated IFMP will be posted online in this fiscal year. However, this happened in late fiscal 2019/20, as noted above. The 2019/20 work plan results indicate this deliverable was completed; a tangible deliverable is complete and available as a result.[709] DFO confirms that the recently posted IFMP is the newest and the one referred to in the 2020/21 fiscal year work plan (Fisheries and Aquaculture Management, Maritimes Region, personal communication, June 23, 2020). The 2020/21 activity was ahead of schedule and completed in the 2019/20 fiscal; a new update was therefore not scheduled to take place in 2020/21 (Fisheries and Aquaculture Management, Maritimes Region, personal communication, June 23, 2020). The 2020/21 DFO work plan results indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result.						

[704] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[705] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[706] Although this IFMP was posted online after Oceana Canada's annual July 1st information inclusion deadline, it was still evaluated as completed here as the IFMP was found online during final edits to the report in late July 2020. DFO (2020). Atlantic Herring Division 4S (Herring Fishing Area 15. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/herring-hareng/2019/area-15-zone-eng.html

[707] DFO (2020). Atlantic Herring Division 4S (Herring Fishing Area 15) Integrated Fisheries Management Plan. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/herring-hareng/2019/area-15-zone-eng.html

[708] DFO (2020). Integrated Fisheries Management Plan: Offshore Lobster and Jonah Crab – Maritimes Region. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/lobster-crab-homard/2019/index-eng.html

[709] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

26	Arctic	Dolly Varden – North Slope Dolly Varden; Big Fish, Firth, Babbage, Vittrekwa; Cautious†		✓2017/18	✓2018/19 ✓2019/20	The IFMP for Dolly Varden will be updated by March 31, 2018.	Posted online by end of 2018-19.	Will post IFMP in 2019-20. Deliverable previously noted for completion in 2018-19.			Completed
			Details: The IFMP was updated in 2017/18 but was not approved, as there were delays in the final review. In 2018/19 it was anticipated that the IFMP would be approved and posted (N. Schjott, personal communication, June 29, 2018). The work plan results for 2018/19 indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[710] It was also noted in the 2019/20 work plan that this deliverable was not completed. These stocks are co-managed and require approvals from partners (e.g., Nunavut Wildlife Management Board, Gwich'in Renewable Resources Board) in addition to approvals within DFO (N. Schjott, personal communication, June 25, 2019). As such, the IFMP approval is dependent on the capacity, availability, and decisions of co-management partners. During Oceana Canada's 2019 evaluation, it was anticipated the IFMP would be approved and posted online in 2019/20. During the 2020 evaluation the IFMP was not yet available on the DFO website. The 2019/20 work plan results indicated this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[711] The 2018 results of the DFO Sustainability Survey for Fisheries indicate that the IFMP for Northern Dolly Varden was updated recently and is currently at the IFMP Steering Committee for final review and approval and that it will be in effect from 2019–2023.[712] During Oceana Canada's 2020 evaluation, DFO indicated that the IFMP was completed and signed off by all partners and that it would be posted in fiscal year 2020/21 (Fisheries and Aquaculture Management, Arctic Region, personal communication, June 23, 2020). The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate that the IFMP for Northern Dolly Varden is complete and that it was updated and approved by the steering committee in December 2019.[713] The Dolly Varden of the Gwitch'in Settlement Area and Inuvialuit Settlement Region – Northwest Territories and Yukon North Slope IFMP is now available on the DFO website with a last-modified date of April 19, 2021 and contains information up to and including 2016.[714]						
27	Gulf	Atlantic salmon – Gulf of St. Lawrence; Critical†		✓2017/18 ✓2019/20 ✓2020/21 ✓2021/22	✓2018/19 ✓2019/20 ✓2020/21 ✓2021/22	An update to be completed in the 2017-18 fiscal year.	Posted online by end of 2018-19.	Will update IFMP in 2019-20. Deliverable previously noted for completion in 2018-19. IFMP will be updated and posted in 2019-20. Deliverable previously noted for completion in 2018-19.	Will complete IFMP update in 2020-21. Will post updated IFMP online in 2020-21.	Will complete IFMP update in 2021-22. Will post updated IFMP online in 2021-22.	Delayed
			Details: The IFMP update was completed in 2017/18 but was still awaiting approvals at the end of the fiscal year (N. Schjott, personal communication, July 27, 2018). The IFMP was to be posted online in 2018/19. The work plan results for 2018/19 indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[715] This was also noted in the 2019/20 work plan, and in 2019 it was anticipated the IFMP would be posted online in fiscal year 2019/20. The 2018 results of the DFO Sustainability Survey for Fisheries indicated the IFMP is under development and could be completed in spring of 2020, but that was noted as to be confirmed.[716] The 2019/20 work plan results indicated this						

[710] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[711] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[712] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[713] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[714] DFO (2019). The Dolly Varden of the Gwitch'in Settlement Area and Inuvialuit Settlement Region – Northwest Territories and Yukon North Slope Integrated Fisheries Management Plan. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/dolly-varden/2019/index-eng.html

[715] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[716] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

			deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[717] The 2020/21 fiscal year work plan indicated the IFMP update will be completed and the plan posted online in fiscal year 2020/21. During Oceana Canada's 2020 evaluation, DFO confirmed the IFMP update was well underway and would be completed by March 2021 (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020). The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the IFMP available for this stock is out of date, reflecting information from 2008–12.[718] The IFMP is not yet available on the DFO website. The DFO 2020/21 work plan results also evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 work plan indicates IFMP updating, and posting will occur this fiscal year. During Oceana Canada's 2021 evaluation, DFO indicated that given limited capacity, efforts on this file have been focused on the development of the precautionary approach in the Atlantic salmon recreational fishery, as well as other aspects of managing this recreational fishery (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO's plan is to complete updates to this IFMP in 2021/22 and have it posted online (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).								
28	Gulf	Atlantic halibut – (4RST); Uncertain Atlantic cod – northern Gulf of St. Lawrence (3Pn, 4RS); Critical Atlantic cod – southern Gulf of St. Lawrence, 4TVn; Critical American plaice – southern Gulf of St. Lawrence, 4T; Critical White hake – 4T; Critical Winter flounder – 4RST; Critical Witch flounder – 4RST; Cautious Yellowtail flounder – 4T; Critical		✓2019/20 ✓2020/21 ✓2021/22	✓2017/18 ✓2018/19	Gulf of St. Lawrence groundfish IFMP will be made accessible online by March 31, 2018.	Posted online by end of 2018-19. Gulf of St. Lawrence Groundfish IFMP previously noted for completion in 2017-18.	Will update IFMP in 2019-20. Deliverable previously noted for completion in 2018-19.	Will complete IFMP update in 2020-21.	Carry forward from 2020-21. Will complete IFMP update in 2021-22.	**Delayed**

[717] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[718] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

		Greenland halibut (turbot) – 4RST;[719] Cautious Acadian and deepwater redfish – Unit 1;[720] Cautious, Healthy										
			Details: The IFMP was updated in 2017/18 but was not approved for posting by the end of the fiscal year. It was anticipated that final approvals would be obtained and the IFMP posted by the end of fiscal 2018/19 (C. Lavoie, personal communication, July 6, 2018). A Gulf groundfish IFMP containing information up to and including 2017 can still be found on the internet with a last-modified date of January 24, 2017;[721] it cannot be navigated to from the DFO IFMP website.[722] This IFMP being online may be a mistake, given this IFMP was considered to be still under development according to the 2019/20 and 2020/21 fiscal year work plans. The work plan results for 2018/19 indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[723] During Oceana Canada's 2019 evaluation, it was anticipated the IFMP would be officially posted online in 2019/20. The 2018 results of the DFO Sustainability Survey for Fisheries has a number of responses pertaining to IFMP questions for stocks anticipated to be included in this multispecies IFMP. Some indicate there is no IFMP and none are under development (e.g., Atlantic halibut 4RST), while others indicate the current IFMP is out of date and is being updated, with a completion date of March 2020 (e.g., Atlantic cod 4TVn).[724] The 2019/20 work plan results indicate this deliverable was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[725] During Oceana Canada's 2020 evaluation, DFO indicated the IFMP update was nearly done; there have been some capacity and operational issues along the way that created delays (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020); DFO was still planning on completing the IFMP update and posting it online in 2020/21 (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020). The 2020/21 fiscal year work plan indicated the IFMP update would be completed in the 2020/21 fiscal year. The most recent (2019) results of the DFO Sustainability Survey for Fisheries again have a number of responses pertaining to IFMP questions for stocks anticipated to be included in this multispecies IFMP. Some indicate there is an up-to-date IFMP (e.g., Greenland halibut 4RST), while others indicate there is no IFMP (e.g., Atlantic halibut 4RST).[726] The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan indicates the IFMP completion has been carried forward from 2020/21 and will be completed in fiscal year 2021/22. The IFMP is not yet available on the DFO website. During Oceana Canada's 2021 evaluation, DFO indicated the COVID-19 pandemic impacted DFO operations and fisheries in 2020/21, which in addition to creating capacity issues (including staff turnover) delayed the finalization of updates to this IFMP (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted coordination with various sectors (Science, Statistics, Conservation and Protection), including in other regions, is underway to update the 2017 version of this IFMP. The document will be shared with the Gulf Groundfish Advisory Committee before going to senior management for approval (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).							
29	Gulf	Atlantic herring – 4T fall spawner (fixed		✓2019/20 ✓2020/21	✓2017/18 ✓2018/19	The IFMP herring in the southern Gulf of St. Lawrence herring fishing areas 16A to	Posted online by end of 2018-19. Southern Gulf of St. Lawrence-Herring Fishing Areas 16A to	Will update IFMP in 2019-20.	Will complete IFMP update in 2020-21.	Will complete IFMP update in 2021-22.	**Delayed**

[719] This stock is listed in work plan 3 of the 2017/18 and 2018/19 fiscal year work plans twice, once with the Gulf Region under the multi-stock groundfish IFMP and once for the Quebec Region as a single-stock IFMP. Quebec Region leads the science on this stock, while management falls under both regions. Last year Oceana Canada only included one record for this stock, under the Gulf Region groundfish IFMP. But it has since been clarified that this stock is likely to be included in two IFMPs: the Gulf Region Groundfish IFMP and a single-stock IFMP developed by the Quebec Region. The latter IFMP will be specific to harvesters based in Quebec and will likely contain more detailed information on the stock than the multispecies groundfish IFMP for the Gulf Region.

[720] This stock is incorrectly listed in the 2017/18 work plan 3 as unit 2, but the Gulf Region has traditionally been responsible for the management of unit 1. Departmental officials indicated it was meant to read unit 1 (M. Clemens, personal communication, June 7, 2018).

[721] DFO (2017). Integrated Fisheries Management Plan: Groundfish – Gulf of St. Lawrence (NAFO) Subdivisions 3Pn, 4Vn and Divisions 4RST, January 2017. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/groundfish-poisson-fond-div3pn-eng.html

[722] DFO (2020). Integrated Fisheries Management Plans. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/index-eng.html

[723] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[724] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[725] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[726] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

		gear)/(mobile gear); Cautious Atlantic herring – 4T spring spawner; Critical		✓2021/22	✓2020/21 ✓2021/22	16G will be made available online in fall 2017.	16G (Herring 4T) were previously noted for completion in 2017-18.		Will post updated IFMP online in 2020-21.	Will post updated IFMP online in 2021-22.	
			Details: As noted in the 2018/19 work plan, posting did not occur in 2017/18 as anticipated but was to occur in 2018/19. The IFMP was still not posted online as of Oceana Canada's 2019 evaluation, and the work plan results for 2018/19 indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[727] The stock group was included in the 2019/20 work plan indicating an update would be completed. The 2018 results of the DFO Sustainability Survey for Fisheries also indicated the current IFMP is out of date and is being updated, with a completion date of March 2020.[728] The 2019/20 work plan results indicate this deliverable was met; the commitment or action as defined in the description of deliverables (2019/20) is complete without a tangible deliverable.[729] The 2020/21 fiscal year work plan indicates the IFMP will be updated and posted online during the 2020/21 fiscal year. During Oceana Canada's 2020 evaluation, DFO indicated the IFMP update was nearly done; there had been some capacity and operational issues along the way that created delays (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020). DFO was still planning on completing the IFMP update and posting it online in 2020/21 (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020). The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan indicates the IFMP completion and posting has been carried forward from 2020/21 and will be completed in fiscal year 2021/22. The IFMP is not yet available on the DFO website. During Oceana Canada's 2021 evaluation, DFO indicated the COVID-19 pandemic impacted DFO operations and fisheries in 2020/21, which in addition to creating capacity issues (including staff turnover) delayed the finalization of updates to this IFMP (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted that updates are currently being made to this IFMP and that the document will then be sent for information to the Gulf Small Pelagics Advisory Committee before going to senior management for approval (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).							
30	Gulf	Rock crab – LFAs 23–26 (LFA 23, 24, 25, 26A and 26B);[730] Uncertain	✓2017/18	✓2019/20 ✓2021/22	✓2018/19 ✓2021/22	New IFMP: "Rock crab in the southern Gulf, LFA 24, 25, 26A and 26B IFMP" will be finalized in the 2017-18 fiscal year.	Posted online by end of 2018-19.	Will complete and post online in 2019-20.		Will complete IFMP in 2021-22. Will post IFMP online in 2021-22.	**Delayed**
			Details: The previously existing IFMP was updated in 2017/18, but final comments were pending from industry at the end of the fiscal year, delaying approvals. It was anticipated that the IFMP would be approved and posted in 2018/19 (N. Schjott, personal communication, June 29, 2018). The work plan results for 2018/19 indicate the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[731] The 2019/20 work plan also indicated the delay and noted that the IFMP will be updated again and posted online in 2019/20. The 2018 results of the DFO Sustainability Survey for Fisheries indicate the current IFMP is out of date and is being updated, with a completion date of March 2020.[732] The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[733] During Oceana Canada's 2020 evaluation, DFO indicated the IFMP had been completed but needed to be approved before being published online, which was postponed due to the COVID-19 pandemic and other pressing issues (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020); the IFMP would be posted online in 2020/21 (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020). The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the IFMP has been completed and will be							

[727] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[728] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[729] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[730] The 2019/20 work plan includes further detail on stock areas included here in brackets, but it is assumed it was meant to read CFA and not LFA and include CFA 23 as per the LRP deliverable stock definition in the 2019/20 work plan.

[731] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[732] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[733] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

			posted online in fiscal year 2020/21.[734] The IFMP is not yet available on the DFO website. Because it was not included in the 2020/21 work plan, the 2020/21 DFO work plan results do not include this deliverable. The 2021/22 fiscal year work plan indicates the IFMP completion and posting has been carried forward from 2020/21 and will be completed in fiscal year 2021/22. During Oceana Canada's 2021 evaluation, DFO indicated the COVID-19 pandemic impacted DFO operations and fisheries in 2020/21, which in addition to creating capacity issues (including staff turnover) delayed the finalization of updates to this IFMP (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted that a few updates are being made to this IFMP and that the document will then be sent for information to external stakeholders before going to senior management for approval (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).							
31	Gulf	Scallop – southern Gulf of St. Lawrence (SFA 21a, b, c, 22, 23, 24); Uncertain	✓2017/18 ✓2021/22	✓2019/20	✓2018/19 ✓2019/20 ✓2021/22	New IFMP: "Giant scallops in the southern Gulf of St. Lawrence, SFA 21 to 24 IFMP" will be finalized in the 2017-18 fiscal year.	Posted online by end of 2018-19.	Will complete and post online in 2019-20. Deliverable previously noted for completion in 2018-19. IFMP will be updated and posted in 2019-20. Deliverable previously noted for completion in 2018-19.		Will complete IFMP in 2021-22. Will post IFMP online in 2021-22.	**Delayed**
			Details: The IFMP was updated in fiscal 2017/18 but was still awaiting approvals at fiscal year-end. It was anticipated that the IFMP would be approved and posted in fiscal 2018/19 (N. Schjott, personal communication, June 29, 2018). The work plan results for 2018/19 indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[735] The delay was also noted in the 2019/20 work plan, where it was indicated that the IFMP will be completed and posted online in 2019/20. The 2018 results of the DFO Sustainability Survey for Fisheries indicate the current IFMP is out of date and is being updated, with a completion date of March 2020.[736] The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[737] During Oceana Canada's 2020 evaluation, DFO indicated the scallop IFMP had been drafted and was scheduled to be sent to industry in March 2020, but this was postponed due to the COVID-19 pandemic as industry was concerned with its impact on the 2020 fishing season (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020); this IFMP would be completed in 2020/21 (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020). Because it was not included in the 2020/21 work plan, the 2020/21 DFO work plan results do not include this deliverable. The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the IFMP has been completed and will be posted online in fiscal year 2020/21.[738] The 2021/22 fiscal year work plan indicates the IFMP completion and posting has been carried forward from 2020/21 and will be completed and posted online in fiscal year 2021/22. The IFMP is not yet available on the DFO website. During Oceana Canada's 2021 evaluation, DFO indicated the COVID-19 pandemic impacted DFO operations and fisheries in 2020/21, which in addition to creating capacity issues (including staff turnover) delayed the finalization of updates to this IFMP (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted that a few updates are being made to this IFMP and that the document will then be sent for information to external stakeholders before going to senior management for approval (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).							
32	Quebec	Greenland halibut –		✓2018/19	✓2017/18 ✓2018/19	IFMP will be made accessible online by March 31, 2018.	Updated and posted by end of 2018-19. Updated and posted by end of 2018-19.	Will complete and post IFMP in 2019-20. Deliverable previously noted for completion in 2018-19.			**Completed**

[734] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[735] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[736] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[737] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[738] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

		4RST;[739] Cautious			✓2019/20						
			Details: This stock is likely to be included in two IFMPs: The Gulf Region Groundfish IFMP and a single-stock IFMP developed by the Quebec Region. The latter IFMP will be specific to harvesters based in Quebec and will likely contain more detailed information on the stock than the multispecies/multi-stock groundfish IFMP for the Gulf Region. The IFMP was not posted online in fiscal 2017/18. The work plan results for 2018/19 indicate the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[740] This delay was reiterated in the 2019/20 work plan, where it was indicated work continued to complete and post the IFMP online. During Oceana Canada's 2019 evaluation, it was indicated that the IFMP was drafted and awaiting approvals (N. Schjott, personal communication, June 25, 2019). The 2018 results of the DFO Sustainability Survey for Fisheries indicate the current IFMP is up to date but also that it is being updated and should be posted on the DFO website in the coming weeks.[741] The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[742] During Oceana Canada's 2020 evaluation, DFO indicated the IFMP was undergoing final reviews and would be completed and posted within the next few months (Fisheries and Aquaculture Management, Quebec Region, personal communication, June 23, 2020). The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the IFMP has been completed and will be posted online in the coming weeks.[743] The Greenland Halibut IFMP in NAFO Divisions 4RST is now available on the DFO website with a last-modified date of May 6, 2021.[744] This evergreen IFMP contains information up to and including 2019.						
33	Gulf	Lobster – southern Gulf LFAs 23, 24, 25, 26A, 26B; Healthy		✓2018/19 ✓2020/21 ✓2021/22			Gulf of St. Lawrence Lobster, Southern Gulf - LFA 23, 24, 25, 26A and 26B IFMP will be updated by end of 2018-19.		Will begin IFMP update in 2020-21.	Will continue IFMP update in 2021-22.	**Delayed**
			Details: The updated IFMP for Gulf of St. Lawrence Lobster, Southern Gulf – LFA 23, 24, 25, 26A and 26B was not posted online in fiscal 2018/19. The IFMP currently available on the DFO website has an old last-modified date on the website (January 20, 2015) and only contains information up to and including 2014, indicating it is still the old IFMP.[745] The work plan results for 2018/19 indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[746] Even though this stock was not included in the 2019/20 work plan, in Oceana Canada's 2019 evaluation it was anticipated the updated IFMP would be posted online in 2019/20 (N. Schjott, personal communication, June 25, 2019). The 2018 results of the DFO Sustainability Survey for Fisheries indicate the current IFMP is out of date and is being updated, with a completion date of March 2020.[747] The 2020/21 fiscal year work plan indicated work would begin to update the IFMP that fiscal year. During Oceana Canada's 2020 evaluation, DFO indicated capacity issues prevented much progress on the IFMP, as noted in previous versions of the Sustainable Fisheries Framework work plan and the survey itself (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020); The intent was to update the IFMP to add new information since it was last published and have a draft update by the end of March 2021 (Fisheries and Aquaculture Management, Gulf Region, personal communication, June 23, 2020). The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of						

[739] This stock is listed in work plan 3 of the 2017/18 and 2018/19 fiscal year work plans twice: once with the Gulf Region under the multi-stock groundfish IFMP and once for the Quebec Region as a single-stock IFMP. Quebec Region leads the science on this stock, while management falls under both regions. In 2019 Oceana Canada only included one record for this stock, under the Gulf Region groundfish IFMP. But it has since been clarified that this stock is likely to be included in two IFMPs: the Gulf Region Groundfish IFMP and a single-stock IFMP developed by the Quebec Region. The latter IFMP will be specific to harvesters based in Quebec and will likely contain more detailed information on the stock than the multispecies groundfish IFMP for the Gulf Region.

[740] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[741] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[742] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[743] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[744] DFO (2019). The Greenland Halibut Integrated Fisheries Management Plan in NAFO Division 4RST. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/groundfish-poisson-fond/2020/halibut-fletan-eng.htm

[745] DFO (2014). Integrated Fisheries Management Plan: Lobster in the Southern Gulf of St. Lawrence – Lobster Fishing Areas 23, 24, 25, 26A, 26B. http://www.glf.dfo-mpo.gc.ca/Gulf/FAM/IMFP/2014-Lobster-Gulf-Region

[746] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[747] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

			activity (2020/21). The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the intent to have a draft of the updated IFMP complete by the end of March 2021.[748] The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan indicates work on the IFMP will be carried forward from 2020/21 and will continue in fiscal year 2021/22. The updated IFMP is not yet available on the DFO website, and the outdated IFMP is still available with the last-modified date noted above. During Oceana Canada's 2021 evaluation, DFO indicated the COVID-19 pandemic impacted DFO operations and fisheries in 2020/21, which in addition to creating capacity issues (including staff turnover) delayed the finalization of updates to this IFMP (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021). DFO noted updates to the IFMP are currently ongoing (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).								
34	Maritimes	Offshore clam; Healthy		✓2018/19 ✓2019/20 ✓2020/21			Update to be completed by end of 2018-19.	Will update IFMP in 2019-20. Deliverable previously noted for completion in 2018-19.	Will obtain approvals on updated IFMP, if not done by end of FY 19-20. Will post updated IFMP online in 2020-21.		Completed
			Details: During Oceana Canada's 2019 evaluation, the IFMP for Offshore Clams – Maritimes and Newfoundland Regions – June 2014 was available on the DFO website.[749] But it had an old last-modified date on the website (November 15, 2017) and only contained information up to and including 2014, indicating it was still the old IFMP. The work plan results for 2018/19 indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[750] This delay was also noted in the 2019/20 work plan. During the 2019 evaluation it was communicated that the IFMP was stalled due to decisions regarding a new entrant in the fishery; it was indicated work on the IFMP has started again for 2019/20 (N. Schjott, personal communication, June 25, 2019). As indicated in the 2019/20 work plan, it was anticipated the IFMP update would be completed in 2019/20. The 2018 results of the DFO Sustainability Survey for Fisheries indicated the current IFMP was up to date, citing the 2014 version, but also indicated the IFMP is being updated, with a completion date of March 2020.[751] The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[752] The 2020/21 fiscal year work plan indicated the IFMP would be approved and posted online this fiscal year. The newly updated IFMP is now available online with a last-modified date of December 8, 2020 and includes information up to 2019.[753] The 2020/21 DFO work plan results indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result.								
35	Newfoundland and Labrador	Atlantic salmon – recreational in Newfoundland and Labrador Region; Uncertain†	✓2018/19		✓2018/19		Recreational Salmon IFMP will be completed and posted by end of 2018-19. Completed and posted by end of 2018-19.				Completed
			Details: The new IFMP for Atlantic Salmon – Recreational in Newfoundland and Labrador Region was not posted online in fiscal 2018/19. The work plan results for 2018/19 indicated the deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2018/19).[754] Even though this stock was not included in the 2019/20 work plan, during Oceana Canada's evaluation in 2019 it was anticipated the IFMP would be posted online in 2019/20, as departmental officials indicated the IFMP was complete and awaiting approvals (N. Schjott, personal communication, June 25, 2019). The 2018 results of the DFO Sustainability Survey for Fisheries indicated the current IFMP is out of date and an update has been								

[748] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[749] No longer available: DFO (2015). Integrated Fisheries Management Plan: Offshore Clams – Maritimes and Newfoundland Regions, June 2014. http://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/clams-palourdes/clams-palourdes-2014-eng.html

[750] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

[751] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[752] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[753] DFO (2020). Offshore clam – Maritimes and Newfoundland and Labrador Regions. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/clams-palourdes/2020/offshore-hauturieres-eng.html

[754] DFO (2019). Work Plans for Fiscal 2018–19. Fisheries and Oceans Canada's Work Plans Results for Fiscal 2018–19 in Response to Recommendations 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2018-2019/work-plan-travail-2018-19-eng.html

			developed and will be completed and posted in the 2019/20 fiscal year.[755] During Oceana Canada's evaluation in 2020, DFO confirmed the IFMP was finalized and was currently in approval stages (Fisheries and Aquaculture Management, Newfoundland and Labrador Region, personal communication, June 23, 2020). The most recent (2019) Sustainability Survey for Fisheries indicates the IFMP is complete and will be posted online in 2020.[756] The newly updated IFMP is now available online with a last-modified date of November 3, 2020 and includes information up to 2018.[757]								
36	Newfoundland and Labrador	Whelk – Newfoundland and Labrador Region; Uncertain	✓2019/20		✓2019/20			Will develop IFMP in 2019-20. IFMP will be developed and posted in 2019-20.			Delayed
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries (SFF) indicated that there is no IFMP, that a new version is being developed, and that it was anticipated to be completed before the end of the fiscal year.[758] The respondent is likely referring to fiscal 2019/20, given that although that SSF reported 2018 results, the survey was sent out and responses compiled throughout 2019 for the previous fishing season. The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[759] During Oceana Canada's 2020 evaluation, DFO indicated the IFMP was finalized and was currently in approval stages (Fisheries and Aquaculture Management, Newfoundland and Labrador Region, personal communication, June 23, 2020). The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the IFMP is being developed and is expected in Q2; this is likely referring to Q2 2020, given the 2019 SSF is filled in and completed during the year following the calendar year it reports on.[760] At the time of Ocean Canada's evaluation, the IFMP is not yet available on the DFO website. During the 2021 evaluation DFO indicated the Whelk IFMP has been finalized and translated to French and is anticipated to be posted online by July 31, 2021 (Fisheries and Aquaculture Management, Newfoundland and Labrador region, personal communication, July 16, 2021).								
37	Newfoundland and Labrador	Toad and rock crab – Newfoundland and Labrador Region; Uncertain	✓2019/20		✓2019/20			Will develop IFMP in 2019-20. IFMP will be developed and posted in 2019-20.			Delayed
			Details: The stock is not included in the results of the DFO Sustainability Survey for Fisheries, so further information is not available from that survey.[761,762] The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[763] During Oceana Canada's 2020 evaluation, DFO indicated the IFMP was finalized and currently in approval stages (Fisheries and Aquaculture Management, Newfoundland and Labrador Region, personal communication, June 23, 2020). At the time of this evaluation the IFMP is not yet available on the DFO website. During Oceana Canada's 2021 evaluation, DFO indicated the rock crab IFMP and toad crab IFMP are anticipated to be translated and posted online by September 30, 2021 (Fisheries and Aquaculture Management, Newfoundland and Labrador region, personal communication, July 16, 2021).								
38	Maritimes	Gaspereau and blueback herring – Maritimes Region; Uncertain†	✓2019/20 ✓2020/21 ✓2021/22					Will complete IFMP in 2019-20.	Carry forward from 2019-20. Will complete IFMP in 2020-21.	Carry forward from 2020-21. Will complete IFMP in 2021-22.	Delayed

[755] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[756] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[757] DFO (2020). Atlantic Salmon – Newfoundland and Labrador Region Integrated Fisheries Management Plan. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/salmon-saumon/2020/index-eng.html

[758] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[759] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[760] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[761] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[762] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[763] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

			Details: The 2018 results of the DFO Sustainability Survey for Fisheries indicate that there is no IFMP, that a new version is being developed, and that it was anticipated to be completed in spring 2020.[764] The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[765] The 2020/21 fiscal year work plan indicated IFMP development would be completed that fiscal year and was carried forward from the previous fiscal, meaning activities were not carried out as described in the deliverable description. The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the IFMP is under development and will be completed in 2021.[766] The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan indicates work on the IFMP will be carried forward from 2020/21 and will be completed in fiscal year 2021/22. Currently the IFMP for gaspereau and blueback herring in the Maritimes Region is not yet available on the DFO website. During Oceana Canada's 2021 evaluation, DFO indicated completing the IFMP is a key objective for the fishery manager by March 31, 2022 (Fisheries and Aquaculture Management, Maritimes region, personal communication, July 16, 2021). Objectives include engagement with stakeholders and Indigenous groups after updating the draft IFMP with the most up-to-date socio-economic, compliance, scientific, and harvest information (Fisheries and Aquaculture Management, Maritimes region, personal communication, July 16, 2021).							
39	Arctic	Bowhead whale – Eastern Canada – West Greenland; Uncertain†	✓2019/20 ✓2020/21 ✓2021/22					Will complete IFMP in 2019-20.	Carry forward from 2019-20. Will complete IFMP in 2020-21.	Carry forward from 2020-21 due to COVID-19 impacting stakeholder engagement opportunities. Will complete IFMP in 2021-22.	Delayed
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries (SFF) indicates that there is no IFMP, that a new version is being developed, and that it was anticipated to be completed in June 2020.[767] The 2018 SSF respondent indicated that a completed draft IFMP was submitted with a Request for Decision to the Nunavut Wildlife Management Board (NWMB) and the Nunavik Marine Region Wildlife Board (NMRWB). The timeline to receipt of a final decision from the NWMB and NMRWB is subject to completion of the decision-making process set out in their respective Land Claims Agreements. The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[768] The 2020/21 fiscal year work plan indicates IFMP completion will happen this fiscal year and was carried forward from last fiscal, meaning activities were not carried out as described in the deliverable description. The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate that the original timeline was delayed owing to COVID-19 travel restrictions and that public consultations are necessary before submitting a Request for Decision to the NWMB and NMRWB; a decision from the NMWB and NMRWB will be completed according to the decision-making process set out in their respective Land Claims Agreements.[769] The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan indicates work on the IFMP will be carried forward from 2020/21 and will be completed in fiscal year 2021/22. The IFMP for bowhead whales in Eastern Canada – West Greenland is not yet available on the DFO website.							
40	Maritimes	Atlantic herring – 4WX, 4Vn and 5Z; Cautious, Critical		✓2019/20	✓2020/21			Will update IFMP in 2019-20.	Will post updated IFMP online in 2020-21.		Completed
			Details: During Oceana Canada's 2018–2020 evaluations, the management plan provided at the IFMP link on the DFO website for this stock group was actually a rebuilding plan published in 2013 for the largest spawning component (Southwest Nova Scotia/Bay of Fundy herring).[770] The 2018 results of the DFO Sustainability Survey for Fisheries (SSF) indicate that there is an out-of-date IFMP (2003–2006; not available online) and that a new version was being developed with anticipated completion in March 2020.[771] The 2019/20 work plan results indicate this deliverable was							

[764] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[765] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[766] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[767] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[768] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[769] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[770] DFO (2013). Canadian Atlantic Herring (*Clupea harengus*) – SWNS Rebuilding Plan, Atlantic Canada, 2013. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/herring-hareng/herring-hareng-2013-eng.html

[771] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

			delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[772] The 2020/21 fiscal year work plan indicates an updated IFMP would be posted online that fiscal year. During Oceana Canada's evaluation in 2020, DFO indicated the IFMP is completed and will be posted as indicated in the 2020/21 work plan deliverables (Fisheries and Aquaculture Management, Maritimes Region, personal communication, June 23, 2020). It may be updated, as needed, with output from the [ongoing] Management Strategy Evaluation (Fisheries and Aquaculture Management, Maritimes Region, personal communication, June 23, 2020). The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the evergreen IFMP for Atlantic Herring 4WX, 4Vn and 5Z is complete.[773] The evergreen Atlantic Herring in the Maritimes Region IFMP is available online with a last-modified date of January 11, 2021 and includes information up to 2018.[774] The 2013 rebuilding plan, noted above, is still available online at the time of Oceana Canada's current evaluation and is a separate document from the new IFMP. The 2020/21 DFO work plan results indicate DFO considers this deliverable completed; a tangible deliverable is complete and available as a result.							
41	National Capital Region	Seals – Atlantic; Healthy†		✓2019/20 ✓2021/22	✓2019/20			Will update IFMP in 2019-20. Will update and post IFMP in 2019-20.		Will complete IFMP update in 2021-22.	**Delayed**
			Details: The 2011–2015 Integrated Fisheries Management Plan for Atlantic Seals is available online, but with an old last-modified date (March 2011),[775] indicating it is not the updated IFMP. The 2018 results of the DFO Sustainability Survey for Fisheries indicate that the current IFMP is out of date for harp and grey seals, that a new version is being developed, and that it was anticipated to be completed in March 2020.[776] The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[777] During Oceana Canada's 2020 evaluation, DFO indicated updating of this IFMP was delayed due to resource availability (Fisheries and Aquaculture Management, National Capital Region, personal communication, June 23, 2020). The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the IFMP for grey and harp seals in the Atlantic are available but out of date, with the updated versions expected March 2021. [778] The 2021/22 fiscal year work plan indicates the IFMP for Atlantic seals will be completed in fiscal year 2021/22. The IFMP for Atlantic seals is not available online at the time of this evaluation. During Oceana Canada's 2021 evaluation, DFO indicated delays occurred on updating and posting the Atlantic seals IFMP due to COVID-19 (Fisheries and Aquaculture Management, National Capital Region, personal communication, July 16, 2021). DFO noted the resource availabilities were resolved and the IFMP is currently under review (Fisheries and Aquaculture Management, National Capital Region, personal communication, July 16, 2021). Updates and consultations are underway (Fisheries and Aquaculture Management, National Capital Region, personal communication, July 16, 2021).							
42	National Capital Region	Mackerel – (Atlantic) NAFO 3 and 4; Critical		✓2019/20 ✓2020/21	✓2021/22			Will update IFMP in 2019-20. Deliverable previously noted for completion in 2018-19.[779]	Carry forward from 2019-20. Will post IFMP update online in 2020-21.	Carry forward from 2020-21. Will post IFMP update online in 2021-22.	**Delayed**

[772] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[773] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[774] DFO (2021). Atlantic Herring in the Maritimes Region Integrated Fisheries Management Plan. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/herring-hareng/2020/index-eng.html

[775] DFO (2011). 2011–2015 Integrated Fisheries Management Plan for Atlantic Seals. https://www.dfo-mpo.gc.ca/fisheries-peches/seals-phoques/reports-rapports/mgtplan-planges20112015/mgtplan-planges20112015-eng.html

[776] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[777] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[778] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[779] Although the 2019/20 work plan has a footnote indicating this deliverable was previously noted for completion in 2018/19, this is not the case. Atlantic mackerel is listed in both 2017/18 and 2018/19 fiscal year work plans but under work plan 2: fish stock rebuilding plans. The expected date of completion for this rebuilding plan has always been the end of fiscal year 2019/20.

			Details: The Atlantic Mackerel – Effective 2007 IFMP is available online, but with an old last-modified date (October 2011),[780] indicating it is not the updated IFMP. The 2018 results of the DFO Sustainability Survey for Fisheries indicate that the current IFMP is out of date, that a new version is being developed, and that it was anticipated to be completed in fiscal 2019/20.[781] DFO has also committed to developing a rebuilding plan for this stock. A rebuilding working group made up of scientists, First Nations representatives, fishers, fisheries managers, environmental groups, and provincial governments was formed in December 2017 to develop the rebuilding plan, and it was anticipated that the plan would be available in March 2020.[782] During Oceana Canada's 2020 evaluation, that work was evaluated as delayed, but the rebuilding plan has now been completed and was published in November 2020 (see Table 5). The 2019/20 work plan results indicate the IFMP deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[783] The 2020/21 fiscal year work plan indicated IFMP updating and posting would happen that fiscal year and was carried forward from the previous fiscal, meaning activities were not carried out as described in the deliverable description. During Oceana Canada's 2020 evaluation, DFO indicated the IFMP is in development and would be completed in summer/fall (2020) (Fisheries and Aquaculture Management, National Capital Region, personal communication, June 23, 2020). The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate that the IFMP with an effective date of 2007 remains relevant for the management of Atlantic mackerel but that an update to the IFMP is ongoing and should be available in fiscal 2020/21.[784] The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan indicates completion of the updated IFMP for Atlantic mackerel was carried forward from 2020/21 and will be completed in fiscal year 2021/22, meaning activities were not carried out as described in the deliverable description for 2020/21. The updated IFMP for Atlantic mackerel is not available online at the time of Oceana Canada's 2021 evaluation, and the outdated IFMP noted above is still available online. During the 2021 evaluation DFO indicated there has been progress on completion of the IFMP (Fisheries and Aquaculture Management, National Capital Region, personal communication, July 16, 2021). A draft was prepared and circulated to the Rebuilding Plan Working Group in February 2021 (Fisheries and Aquaculture Management, National Capital Region, personal communication, July 16, 2021). However, given the new stock assessment in February/March 2021, the IFMP was put on hold to provide time to analyze and include the new science advice and new management measures for the fishery (Fisheries and Aquaculture Management, National Capital Region, personal communication, July 16, 2021). The updated IFMP is expected to be published online by the end of 2021 (Fisheries and Aquaculture Management, National Capital Region, personal communication, July 16, 2021).							
43	Arctic	Arctic char – Cambridge Bay; Healthy†	✓2021/22	✓2019/20 ✓2020/21	✓2019/20 ✓2020/21			Will update existing (2014) IFMP in 2019-20. Will update and post IFMP in 2019-20.	Carry forward from 2019-20. Will complete IFMP update in 2020-21. Carry forward from 2019-20. Will post completed IFMP online in 2020-21.	Carry forward from 2020-21 due to COVID-19 impacting stakeholder engagement opportunities. Will complete IFMP in 2021-22.	**Delayed**
			Details: The IFMP for Cambridge Bay Arctic Char Commercial Fishery (Summary Version) – Effective 2014 is available online but with an old last-modified date (March 2015), indicating it is not the updated IFMP.[785] The 2018 results of the DFO Sustainability Survey for Fisheries indicate that the current IFMP is up to date but that a new version is being developed under the five-year review of the IFMP, scheduled to occur in 2019/20.[786] The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[787] The 2020/21 fiscal year work plan indicated IFMP updating and posting would happen that fiscal year and was carried forward from the previous fiscal, meaning activities were not carried out as described in the deliverable description. The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate that the IFMP for Cambridge Bay Arctic char with an effective date of 2014 is up to date, but that a five-year review of the IFMP was initiated in 2019, to be finalized in 2020 with the IFMP co-management working							

[780] DFO (2007). Integrated Fisheries Management Plan: Atlantic Mackerel, Effective 2007. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/mackerel-atl-maquereau/mac-atl-maq-2007-eng.html

[781] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[782] Smith, A. (2019). Strategies for Rebuilding the Atlantic Mackerel Stock. InfoOceans, June 27, 2019. https://inter-l01-uat.dfo-mpo.gc.ca/infoceans/en/infocean/strategies-rebuilding-atlantic-mackerel-stock

[783] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[784] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[785] DFO (2015). Integrated Fisheries Management Plan: Cambridge Bay Arctic Char Commercial Fishery (Summary Version), Effective 2014. https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/arctic-char-omble-chev/arctic-char-omble-chev-eng.html

[786] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[787] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

			group.[788] The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan indicates that delays with stakeholder engagement due to COVID-19 caused the completion of the IFMP to be carried forward from 2020/21 and that the update will be completed in fiscal year 2021/22. The updated IFMP for Cambridge Bay Arctic char is not available online at the time of this evaluation, however the outdated IFMP noted above is still available online.								
44	Quebec	Whelk – zones 1–15, except 10; Uncertain	✓2020/21 ✓2021/22		✓2019/20 ✓2020/21 ✓2021/22			Will complete and post IFMP in 2019-20.	Carry forward from 2019-20. Will complete IFMP in 2020-21. Carry forward from 2019-20. Will post completed IFMP online in 2020-21.	Carry forward from 2020-21. Will complete IFMP in 2021-22. Carry forward from 2020-21. Will post IFMP online in 2021-22.	**Delayed**
			Details: The stock is not included in the 2018 or 2019 results of the DFO Sustainability Survey for Fisheries, so further information is not available from the survey.[789] The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[790] The 2020/21 fiscal year work plan indicated IFMP completion and posting would happen in fiscal 2020/21 and was carried forward from the previous fiscal, meaning activities were not carried out as described in the deliverable description. The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan indicates IFMP posting will happen in fiscal 2020/21 and was carried forward from last fiscal. The IFMP for whelk in zones 1–15 (except 10) is not available online on the DFO website. During Oceana Canada's 2021 evaluation, DFO indicated a draft version of the IFMP for whelk in zones 1 to 15 has been completed (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). DFO is communicating with the industry to review and approve objectives and issues related to this fishery (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). The delay has been caused in part by the COVID-19 situation, during which the internal editing team had to cope with other priorities (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021).								
45	Quebec	Lobster – zone 17; Uncertain	✓2020/21 ✓2021/22		✓2019/20 ✓2021/22			Will complete and post IFMP in 2019-20.	Carry forward from 2019-20. Will complete IFMP in 2020-21. Carry forward from 2019-20. Will post completed IFMP online in 2020-21.	Carry forward from 2020-21. Will complete IFMP in 2021-22. Carry forward from 2020-21. Will post IFMP online in 2021-22.	**Delayed**
			Details: The 2018 results of the DFO Sustainability Survey for Fisheries indicate that there is currently no IFMP but that a new IFMP is being developed with publication scheduled for late March 2020.[791] The 2019/20 work plan results indicate this deliverable was delayed; the deliverable was not completed by the deadline date as indicated in the description of deliverables (2019/20).[792] The 2020/21 fiscal year work plan indicated IFMP completion and posting would happen that fiscal year and was carried forward from the previous fiscal, meaning activities were not carried out as								

[788] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[789] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html; DFO (2021). Sustainability surveys data and summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[790] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

[791] DFO (2019). Sustainability Surveys Data and Summaries (see 2018 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[792] DFO (2020). Fisheries and Oceans Canada's Work Plans Results for 2019–20 in Response to the Recommendation 2.28, 2.63 and 2.65 in the Commissioner of the Environment and Sustainable Development's (CESD) October 2016 Report 2 – Sustaining Canada's Major Fish Stocks – Fisheries and Oceans Canada. https://www.dfo-mpo.gc.ca/fisheries-peches/work-plan-travail/2019-2020/wp-results-pt-eng.html

			described in the deliverable description. The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate the IFMP will be completed and posted by the end of March 2021.[793] The DFO 2020/21 work plan results evaluated this deliverable as delayed; deliverable not completed by deadline date as indicated in the description of activity (2020/21). The 2021/22 fiscal year work plan indicates completion and posting of the IFMP for lobster in zone 17 was carried forward from 2020/21 and will be completed in 2021/22. The IFMP for lobster in zone 17 is not available on the DFO website at the time of this evaluation. During Oceana Canada's 2021 evaluation, DFO indicated the IFMP for lobster in zone 17 is being drafted (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). Objectives and issues of this fishery have been approved by the industry (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021). The delay has been caused in part by the COVID-19 situation, during which the internal editing team had to cope with other priorities (Fisheries and Aquaculture Management, Quebec region, personal communication, July 16, 2021).							
46	Gulf	Snow crab – CFA 12, 12E, 12F and 19; Healthy		✓2020/21 ✓2021/22					Will begin IFMP update in 2020-21.	Will continue IFMP update in 2021-22.	**Ongoing**
			At the time of Oceana Canada's 2021 evaluation, the IFMP for snow crab fishing areas 12, 12E, 12F, and 19 is available online but with an old last-modified date (September 2014), indicating it is not the updated IFMP.[794] The most recent (2019) results of the DFO Sustainability Survey for Fisheries indicate an update to the IFMP for snow crab (CFA 12, 12E, 12F and 19) will be initiated in 2020/21,[795] in agreement with outlined activities to begin the IFMP update in the 2020/21 work plan. The 2020/21 DFO work plan results indicate DFO considers this deliverable met; the commitment or action as defined in the description of activity (2020/21) is complete without a tangible deliverable. The 2021/22 fiscal year work plan indicates work on the IFMP update will continue in the 2021/22 fiscal year. During Oceana Canada's 2021 evaluation, DFO indicated that the COVID-19 pandemic impacted DFO operations and fisheries in 2020/21, which in addition to creating capacity issues (including staff turnover) delayed the finalization of updates to this IFMP but that updates to the IFMP are currently ongoing (Fisheries and Aquaculture Management, Gulf region, personal communication, July 16, 2021).							
47	Newfoundland and Labrador	3Ps Groundfish; Uncertain, Critical		✓2021/22						Will begin IFMP update in 2021-22.	**Not yet evaluated – new addition in 2021/22 work plan**
48	Maritimes	Lobster – LFA 34, LFAs 35-38; Healthy		✓2021/22						Will complete IFMP update in 2021-22.	**Not yet evaluated – new addition in 2021/22 work plan**[796]
49	Maritimes	Shrimp – Scotian Shelf; Healthy		✓2021/22						Will begin IFMP update in 2021-22.	**Not yet evaluated – new addition in 2021/22 work plan**
50	Quebec	Beluga (Nunavik); Uncertain†	✓2021/22							Will begin development of IFMP in 2021-22.	**Not yet evaluated – new addition in 2021/22 work plan**
51	Quebec	Scallop – Area 20; Cautious	✓2021/22							Will begin development of IFMP in 2021-22.	**Not yet evaluated – new addition in 2021/22 work plan**

[793] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[794] DFO (2015). Integrated Fisheries Management Plan/Plan de gestion integree des peches. Crabes des neiges dans le sud du golfe du Saint-Laurent zones de peche du crabe 12, 12E, 12F, 19, Effective 2014. http://www.glf.dfo-mpo.gc.ca/Golfe/GPA/PGIP/2014-crabe-des-neiges-region-golfe

[795] DFO (2021). Sustainability Surveys Data and Summaries (see 2019 results .csv dataset). https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/survey-sondage/data-donnees-en.html

[796] This stock group was previously included in the IFMP section of the 2017/18, 2018/19, and 2019/20 fiscal year work plans with other inshore lobster stock groups for IFMP updating and posting online (see row 22 of Table 6). In 2020 that deliverable was evaluated as completed, given the Lobster Fishing Areas 27 – 38 Integrated Fisheries Management Plan is now on the DFO website, with a date last modified of March 31, 2020 and including information up to and including 2020. The 2019/20 work plan results also indicated this deliverable was completed; a tangible deliverable is complete and available as a result. Here it is assumed lobster in LFA 34 and LFAs 35–38 will be included in a new IFMP or the newly developed IFMP will be updated again. Oceana Canada therefore includes this deliverable as new and will evaluate progress next year. During Oceana Canada's 2021 evaluation, DFO indicated that an update of the IFMP is targeted for completion in 2021/22 and that this update will incorporate the HCRs for LFAs 34 through 38 approved and implemented in 2020/21 (Fisheries and Aquaculture Management, Maritimes region, personal communication, July 16, 2021).

52	Arctic	Narwhal; Uncertain†		✓2021/22							Will continue IFMP update in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan[797]
53	Arctic	Lake Trout – Great Slave Lake; Uncertain†	✓2021/22								Will begin development of IFMP in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan
54	Arctic	Lake Whitefish – Great Slave Lake; Uncertain†	✓2021/22								Will begin development of IFMP in 2021-22.	Not yet evaluated – new addition in 2021/22 work plan

[797] This stock group was previously included in the IFMP section of the 2018/19 work plan with the indication of the intention to post the IFMP online, although the deliverable description included "completed and posted," implying an up-to-date IFMP would be completed prior to being posted (see row 16 of Table 6). The Integrated Fisheries Management Plan for Narwhal in the Nunavut Settlement Area (Monodon monoceros) Effective April 1, 2013 is available on the DFO website, with a last-modified date on the website of March 26, 2019. Thus, DFO did meet its commitment to post an IFMP online, as indicated was the intention in the work plan section it where it was included. The work plan results for 2018/19 also indicate the deliverable was completed; a tangible deliverable is complete and available as a result. For these reasons the deliverable was evaluated as completed in Oceana Canada's 2019 evaluation. But the posted IFMP only contains information up to and including 2013, indicating it is old. The update did not happen because the five-year review of the IFMP was postponed until new DFO Science advice is published. Here the 2021/22 work plan deliverable is included as a new deliverable, given it will be result in a new and updated IFMP, and progress towards an updated IFMP being posted online will be evaluated next year.

Table 7. Work plan section 4; Implementation of the Fishery Monitoring Policy: In section 4 of its annual work plan, Fisheries and Oceans Canada (DFO) prioritizes the stocks or stock groups for implementation of the Fishery Monitoring Policy. Section 4 was first included in the 2021/22 fiscal year work plan, and therefore deliverables were not assessed for completion this year. The table below summarizes section 4 deliverables[798] by stock or stock group, with most recent health status[799] and noting that status towards completion was not assessed by Oceana Canada this year. Checkmark symbols with fiscal year indicate the presence of a Fishery Monitoring Policy implementation deliverable, while annual deliverable descriptions of activities provided by DFO are also included in associated columns. In the future, stocks with complete implementation of the Fishery Monitoring Policy (as indicated by the presence of specific and measurable fishery monitoring objectives and implementation tool result summaries included in IFMPs that are available online) will be noted as completed, stocks that have had deadlines shifted or delays in progress indicated by DFO will be noted as delayed, and stocks for which the deadline has not yet passed will be noted as ongoing.

#	Region	Stock or stock group	Implementation of the Fishery Monitoring Policy	Description of Activity in 2021/22	Status
1	Newfoundland and Labrador	Atlantic cod – 2J3KL (Northern cod); Critical	✓2021/22	Complete Quality Assessment Tool and Risk Screening Tools for Stewardship cod fishery. Reach out to stakeholders and schedule meetings to review assessment findings. Plan to initiate discussions on monitoring objectives and requirements in 2022	Not yet evaluated – new addition in 2021/22 work plan
2	Newfoundland and Labrador	Atlantic cod – 3Ps; Critical	✓2021/22	Initiate Quality Assessment Tool for 3Ps cod commercial fishery.	Not yet evaluated – new addition in 2021/22 work plan
3	Maritimes	Eastern Scotian Shelf shrimp; Healthy	✓2021/22	Implementation of the Policy in the Eastern Scotian Shelf Shrimp (ESSS) trap and mobile gear fisheries to build on developmental applications of the Quality Assessment Tool completed in 2020-21. Efforts will include application of the risk screening tool, gap analysis, and monitoring program recommendations where required.	Not yet evaluated – new addition in 2021/22 work plan
4	Maritimes	Atlantic halibut; Healthy, Uncertain	✓2021/22	Applications of the Quality Assessment Tool to increase organizational expertise and familiarity with the Tool, focusing on aspects of the groundfish fisheries.	Not yet evaluated – new addition in 2021/22 work plan
5	Maritimes	Lobster, inshore; Healthy, Uncertain	✓2021/22	Applications of the Quality Assessment Tool to increase organizational expertise and familiarity with the Tool, focusing on the bycatch within the inshore lobster fisheries.	Not yet evaluated – new addition in 2021/22 work plan
6	National Capital Region	Atlantic mackerel; Critical	✓2021/22	Complete the Risk Screening Tool. Ongoing work to enhance catch monitoring programs and improve catch reporting. Develop a work plan to implement the Quality Assessment Tool.	Not yet evaluated – new addition in 2021/22 work plan
7	National Capital Region	Atlantic bluefin tuna; Uncertain	✓2021/22	Initiate and complete the Risk Screening Tool.	Not yet evaluated – new addition in 2021/22 work plan
8	Arctic	Greenland halibut – NAFO 0A/0B; Healthy	✓2021/22	Begin applying the Fishery Monitoring Policy to this fishery.	Not yet evaluated – new addition in 2021/22 work plan
9	Arctic	Atlantic walrus – Foxe Basin; Uncertain	✓2021/22	Begin applying the Fishery Monitoring Policy to this fishery.	Not yet evaluated – new addition in 2021/22 work plan

[798] As stated in DFO work plans.

[799] Health status was assigned primarily using Oceana Canada's Fishery Audit dataset (Oceana Canada 2021), with † denoting assignments for marine mammals, diadromous fish, and freshwater fish using the 2019 Sustainability Survey for Fisheries results and †† denoting uncertain status assigned when stocks were not included in either dataset. As some records represent multiple stocks that appear as more than one record in the datasets used to assign status, all unique statuses for stocks within stock groups are included when applicable.

#	Region	Stock or stock group	Implementation of the Fishery Monitoring Policy	Description of Activity in 2021/22	Status
10	Maritimes	Various	✓2021/22	Identification of a list of stocks for future applications of the Policy.	Not yet evaluated – new addition in 2021/22 work plan[800]
11	Gulf	N/A	✓2021/22	Prioritize fisheries for assessment in collaboration with Indigenous groups and stakeholders.	Not yet evaluated – new addition in 2021/22 work plan[801]
12	Gulf	N/A	✓2021/22	Develop a work plan with actions and timelines to apply the Fishery Monitoring Policy to the selected fisheries.	Not yet evaluated – new addition in 2021/22 work plan[802]
13	Quebec	N/A	✓2021/22	Establish a list of priority stocks in collaboration with Indigenous groups and stakeholders.	Not yet evaluated – new addition in 2021/22 work plan[803]
14	Quebec	N/A	✓2021/22	Develop a multi-year work plan to implement the Fishery Monitoring Policy.	Not yet evaluated – new addition in 2021/22 work plan[804]
15	Pacific	N/A	✓2021/22	Collaborate with Indigenous groups and stakeholders to identify priority fish stocks for Fishery Monitoring Policy Implementation, building on previous risk assessment work under the *Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries* (2012). Set-up training on the Risk Screening Tool (RST) and Quality Assessment Tool (QAT) with regional DFO staff. Engage opportunistically with Indigenous groups and stakeholders on the RST and QAT. For the fisheries that have completed regional risk assessments under the *Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries* (2012), confirm or develop monitoring objectives for those fisheries.	Not yet evaluated – new addition in 2021/22 work plan[805]

[800] Not listed in summary Table 1 as a deliverable given there is no stock or stock group indicated for Fishery Monitoring Policy implementation associated with the activities outlined. Evaluation of the policy implementation next year will be done at the assessment unit (fish stock) specified by DFO in the work plan, and only deliverables associated with a fish stock or stock group will be assessed, with progress towards complete policy implementation evaluated.

[801] Not listed in summary Table 1 as a deliverable given there is no stock or stock group indicated for Fishery Monitoring Policy implementation associated with the activities outlined. Evaluation of the policy implementation next year will be done at the assessment unit (fish stock) specified by DFO in the work plan, and only deliverables associated with a fish stock or stock group will be assessed, with progress towards complete policy implementation evaluated.

[802] Not listed in summary Table 1 as a deliverable given there is no stock or stock group indicated for Fishery Monitoring Policy implementation associated with the activities outlined. Evaluation of the policy implementation next year will be done at the assessment unit (fish stock) specified by DFO in the work plan, and only deliverables associated with a fish stock or stock group will be assessed, with progress towards complete policy implementation evaluated.

[803] Not listed in summary Table 1 as a deliverable given there is no stock or stock group indicated for Fishery Monitoring Policy implementation associated with the activities outlined. Evaluation of the policy implementation next year will be done at the assessment unit (fish stock) specified by DFO in the work plan, and only deliverables associated with a fish stock or stock group will be assessed, with progress towards complete policy implementation evaluated.

[804] Not listed in summary Table 1 as a deliverable given there is no stock or stock group indicated for Fishery Monitoring Policy implementation associated with the activities outlined. Evaluation of the policy implementation next year will be done at the assessment unit (fish stock) specified by DFO in the work plan, and only deliverables associated with a fish stock or stock group will be assessed, with progress towards complete policy implementation evaluated.

[805] Not listed in summary Table 1 as a deliverable given there is no stock or stock group indicated for Fishery Monitoring Policy implementation associated with the activities outlined. Evaluation of the policy implementation next year will be done at the assessment unit (fish stock) specified by DFO in the work plan, and only deliverables associated with a fish stock or stock group will be assessed, with progress towards complete policy implementation evaluated.