

## The Quality of Recent Rebuilding Plans in Canada

*Rebecca Schijns and Robert Rangeley*

*November 2024*

### Introduction

As part of its initial policy under the Sustainable Fisheries Framework, the Department of Fisheries and Oceans (DFO) committed to implementing rebuilding plans for critically depleted stocks starting in 2009 (DFO, 2009). Given that only 35.1% of Canada's fisheries are in a healthy state, with little improvement over eight years of Oceana Canada's annual Fishery Audit, the rebuilding process is long overdue for many important fish populations. The recently amended Fisheries Act in 2019 and the first batch of 30 stocks prescribed under the Fish Stocks provisions (FSP) came into effect in April 2022, triggering rebuilding plans to be developed within 24 months for 12 critical stocks (Government of Canada, 2022).

On April 4th, 2024, the Minister of Fisheries and Oceans approved 9 new rebuilding plans aimed at managing critically depleted fish stocks to recovery, marking a significant milestone in the Canada's commitment to sustainable fisheries management:

1. **Atlantic cod in NAFO subdivision 3Ps**
2. **Atlantic mackerel**
3. **Atlantic herring in NAFO division 4T (spring spawner component)**
4. **American plaice in NAFO division 4T**
5. **White hake in NAFO division 4T**
6. **Winter flounder in NAFO division 4T**
7. **Atlantic cod in NAFO division 4T and subdivision 4Vn**
8. **Okanagan Chinook salmon**
9. **Pacific herring in Haida Gwaii.**

However, there was no public announcement regarding approval of rebuilding plans, so the list of approved stocks had to be inferred based on which critical stocks were granted extensions (Table 1). A 12-month extension was granted to the **West Coast Vancouver Island (WCVI) Chinook** rebuilding plan and 3-month extensions were granted to **Atlantic cod in NAFO divisions 3Pn4RS** and **Northern shrimp in SFA 6** rebuilding plans (DFO, 2024a; 2024b; 2024c). According to subsection 70(7) of the Fishery General Regulations, approved plans must be published on DFO's website and regulatory guidelines state the plan should be published within 120 days from the date of approval by the Minister. For the 9 plans presumed to be approved on April 4<sup>th</sup>, this deadline passed on August 2<sup>nd</sup> with no publicly available announcement or documentation. While the plans are not yet published on the Department's website, management decisions in 2024 appear to have been consistent with the measures outlined in the draft plans (See Table 2 in Schijns and Rangeley, 2024).

These plans underscore a renewed ambition to reverse the detrimental effects of past overfishing and to secure the long-term health of Canada's marine ecosystems through strengthened

management for some of the most depleted fish stocks, which have long suffered from insufficient regulatory measures and overexploitation.

**Table 1.** List of fish stocks listed under the Fish Stocks provisions of the Fisheries Act and classified as below the Limit Reference Point (LRP) as of April 2022 (Batch 1) and status as of 2024, along with the status and source of their associated rebuilding plans.

Stock	Stock health status in 2024	Rebuilding plan date approved	Rationale for invoking Subs. 70(3) of the FGR (Fishery General Regulations)	Rebuilding plan link
American plaice, NAFO 4T	Critical	April 4 <sup>th</sup> , 2024	NA	Not yet publicly available as of August 2 <sup>nd</sup> , 2024.
Atlantic cod, NAFO 3Ps	Critical	April 4 <sup>th</sup> , 2024	NA	Not yet publicly available as of August 2 <sup>nd</sup> , 2024.
Atlantic cod, NAFO 4TVn	Critical	April 4 <sup>th</sup> , 2024	NA	Not yet publicly available as of August 2 <sup>nd</sup> , 2024.
Atlantic herring, NAFO 4T (Spring Spawner)	Critical	April 4 <sup>th</sup> , 2024	NA	Not yet publicly available as of August 2 <sup>nd</sup> , 2024.
Atlantic mackerel	Critical	April 4 <sup>th</sup> , 2024	NA	Not yet publicly available as of August 2 <sup>nd</sup> , 2024.
Chinook salmon, Okanagan	Critical	April 4 <sup>th</sup> , 2024	NA	Not yet publicly available as of August 2 <sup>nd</sup> , 2024.
White hake, NAFO 4T	Critical	April 4 <sup>th</sup> , 2024	NA	Not yet publicly available as of August 2 <sup>nd</sup> , 2024.
Winter flounder, NAFO 4T	Critical	April 4 <sup>th</sup> , 2024	NA	Not yet publicly available as of August 2 <sup>nd</sup> , 2024.
Pacific herring, Haida Gwaii	Critical	April 4 <sup>th</sup> , 2024	NA	Not yet publicly available as of August 2 <sup>nd</sup> , 2024. Draft plan is publicly accessible through the Council of the Haida Nation's website for public consultation, which closed in December 2022.
Northern shrimp, SFA 6	Critical	July 3 <sup>rd</sup> , 2024	3-month extension granted to allow for synchronized decision on rebuilding plan measures and 2024 management (e.g. harvest levels).	Not yet publicly available as of August 2 <sup>nd</sup> , 2024. Expected publication by October 31, 2024.
Atlantic cod, NAFO 3Pn4RS	Critical	July 3 <sup>rd</sup> , 2024	3-month extension granted to allow for synchronized decision on rebuilding plan	Not yet publicly available as of August 2 <sup>nd</sup> , 2024. Expected publication by October 31, 2024.

			measures and 2024 management (e.g. harvest levels).	
Chinook salmon, West Coast of Vancouver Island	Critical	Under development. Targeted approval date revised to April 4 <sup>th</sup> , 2025.	12-month extension granted to allow for science advice on a LRP and consultation with First Nations and stakeholders.	Not yet publicly available as of August 2 <sup>nd</sup> , 2024. Expected publication by August 2 <sup>nd</sup> , 2025.
Northern Cod - 2J3KL	Cautious*	Rebuilding plan no longer required as of the latest stock assessment in March, 2024 categorized the stock as above the LRP. Draft rebuilding plan was put on hold despite projections that cod are declining back to the critical zone in the coming years and the lack of an updated IFMP.		
Bocaccio rockfish	Healthy	Rebuilding plan no longer required. Completed transition from previous rebuilding plan into management through the Groundfish IFMP as of February 21, 2024.		
Coho salmon, Interior Fraser	Cautious	Rebuilding plan no longer required.		
Yelloweye rockfish, Inside waters	Cautious	Remaining under a rebuilding plan until a rebuilding target has been established. DFO published a Recovery Potential Assessment in 2023, drawing from the most recent 2020 stock assessment rebuilding plan analysis.		

\*Identified as cautious due to the latest stock assessment in 2024. However, stock is categorized as critical in the Fishery Audit due to the lack of an updated publication by July, 1st, 2024 stating the change in status.

## Quality of Draft Plans

The quality of draft rebuilding plans marks a substantial improvement over past, highly criticized efforts (Archibald and Rangeley 2018; 2019; Hutchings et al., 2021; Levesque et al., 2021; Schijns and Rangeley 2022; 2023), setting a solid precedent for future plans. According to the draft plans, there is complete compliance with new regulatory requirements to include the stock status and trends, causes for stock decline, recovery targets, timelines, management measures to achieve objectives, method to track progress, and a schedule for periodic review - all of which are critical elements for effective implementation and monitoring progress (Table 2).

### 1. Recovery Objectives and Targets

A clear and ambitious recovery target ensures that efforts are not just focused on immediate stabilization of stock status, but on long-term sustainability. By doing so, rebuilding plans can guide management decisions that not only bring stocks back from a depleted state but also ensures the target abundances support long-term population health and viability, and the resultant contributions to the ecological communities that rely on them. The rebuilding target for the stock must, at a minimum, be set at a level above the LRP such that there is a very low to low likelihood of the stock being below the LRP (<5-25% probability) (DFO, 2022a). Reaching this target signals a transition point where the stock moves into a standard fisheries management process, governed by an Integrated Fisheries Management Plan (IFMP), which aims to further grow and maintain the stock within the healthy zone.

A number of rebuilding plans have set ambitious recovery targets that go beyond the standard “75% probability of being at or above the LRP,” aiming for more robust stock recovery (Table 3). For example, the Haida Gwaii Pacific herring rebuilding plan identifies a comprehensive suite of ecological, cultural, social, economic, governance, and management objectives (CHN, 2022). The plan includes both short- and long-term recovery targets for the Major Stock Assessment Region. These targets are based on biomass levels relative to a productive period, specifically the average biomass from 1975-1985. The targets are set at the Upper Stock Reference Point (75% of a productive period) and extend well into the healthy zone (100% of a productive period). The LRP is set as a cut-off level (30% of unfished biomass), below which no commercial fishing occurs. There is also an incremental target (50% of unfished biomass) that triggers increased harvest rates for Haida spawn-on-kelp fisheries. To account for uncertainties and environmental risks, the plan includes a 2-3 year wait time between phases before increasing harvest rates, ensuring that the stock is genuinely on a path to recovery.

While most groundfish stocks in the Gulf of St. Lawrence (such as American plaice, white hake, and winter flounder in NAFO division 4T) have draft rebuilding targets set at the status quo—where the stock has a 75% probability of being at or above the LRP—the draft plan for Atlantic cod in the Gulf region (NAFO divisions 4TVn) includes additional criteria. Based on recent science advice, the target for Gulf cod is set to not only to reach the recovery target but to maintain it for four consecutive years (DFO, 2024d). Additionally, population projections must show that the stock is likely to continue its positive trajectory under harvest conditions for four years after the rebuilt state is achieved. Similarly, the Atlantic herring in NAFO division 4T (spring spawner component) rebuilding plan has a target set at the status quo and requires the stock to be at or above the LRP for two consecutive years to be considered rebuilt. Furthermore, projections must indicate that the stock will likely continue to improve under a directed fishery for at least two years after achieving the rebuilt state. This ensures that recovery is not just temporary but sustained, allowing for a more stable and productive fishery in the long term.

## 2. Recovery Timelines

Setting a timeline to achieve rebuilding targets is a critical element of an effective fisheries management plan. A well-defined timeline ensures that efforts are focused, progress can be tracked, and adjustments can be made if necessary. The timeline for rebuilding a stock is set between  $T_{min}$ , which is the time it would take for a stock to rebuild in the absence of all fishing ( $F=0$ ) under current productivity conditions, and a maximum of two to three times  $T_{min}$  (DFO, 2022a). When  $T_{min}$  cannot be calculated, estimates of generation time are used to guide rebuilding efforts. According to the Precautionary Approach (PA) Policy, a “reasonable timeframe” for a stock to recover above its LRP should generally be between 1.5 to 2 times the generation time (DFO, 2009). This framework provides a balance between allowing the stock sufficient time to recover while also keeping the timeline within a period that is relevant to both ecological and economic concerns.

For instance, the Atlantic mackerel rebuilding plan is designed to meet its target within 6 to 7 years (starting in 2022) without any fishing activity (DFO, 2023a). If fishing by the United States continues at 2023 levels, the timeline extends slightly to 7 to 9 years. Thus, the  $T_{min}$  for this stock

is estimated to be around 9 years, with a target recovery date of 2031, assuming no Canadian fishing and stable environmental conditions. The decision by the Minister of Fisheries and Oceans to maintain a commercial moratorium since 2022 supports this recovery timeline. Furthermore, the U.S. implemented a reduction in commercial removals by 76 percent for 2024 and 2025 (NOAA, 2024), which should further enhance the chances of achieving the rebuilding target within the specified timeframe.

For Northern Gulf (NAFO 3Pn4RS) cod, a substantial reduction in average natural mortality, which likely captures substantial unaccounted fishing mortality, is crucial to rebuild the stock. A mortality level based on 2003 data, when both commercial and recreational fisheries were closed, is chosen as it more accurately reflects natural mortality rates. Under this scenario, the stock is projected to recover within 8 years (starting in 2022, so by 2030), underscores the importance of thoroughly monitoring all fishing removals (Benoît and Ouellette-Plante, 2023).

In another case, 3Ps Atlantic cod is projected to take 14 years to reach its rebuilding target under current productivity conditions and in the absence of fishing, which would place the target year at 2036 (DFO, 2023b). However, current removals of 1,550 tonnes, as per the management procedure adopted by Canada and France in 2023, are aligned with rebuilding objectives that aim to increase the probability of stock growth by 10 percent. Reducing fishing mortality even further could enhance the probability of stock growth by 23 percent, potentially leading to a faster rebuilding process.

### **3. Management Measures**

New management measures reflect a commitment to sustainable fisheries and ecosystem health. All plans now incorporate stronger monitoring requirements, not just for the rebuilding stocks but also for other interacting commercial fisheries. This approach ensures that bycatch is effectively mitigated, and that data collected is both reliable and timely, allowing for more informed decision-making.

In the Gulf of St. Lawrence, Atlantic herring and four groundfish stocks are now subject to stricter bycatch limits, with commercial moratoriums maintained to minimize fishing mortality as much as possible. These measures aim to preserve the stock, allowing it the potential to rebuild if environmental conditions improve. Moratoriums have been introduced and maintained for critical stocks during the development of these rebuilding plans, including Atlantic mackerel, Gulf spring herring, four Gulf groundfish stocks, Haida Gwaii Pacific herring, Northern Gulf cod, and Okanagan Chinook. These moratoriums are vital in preventing further depletion and creating the conditions necessary for recovery.

For stocks where fishing permits were allowed during the planning phase, such as 3Ps cod, WCVI Chinook, and Shrimp in SFA 6, the measures ensured that they were maintained at levels conducive to rebuilding. Additionally, the mackerel bait fishery, which reopened in 2024 at a low level, provides a limited fishing opportunity for five provinces while still supporting the rebuilding goals. These carefully calibrated management measures demonstrate a reasonable and cautious approach to rebuilding fisheries and safeguarding marine ecosystems.

#### 4. Collaboration and Consultation

Collaboratively developed rebuilding plans are essential for addressing the socioeconomic, cultural, and ecological impacts of fisheries management. These plans not only set goals for meeting regulatory requirements but also provide a framework for future fishing opportunities in restored ecosystems. By involving various stakeholders in the planning process, the plans can be more comprehensive and better aligned with the diverse needs and values of the communities they affect.

The ecosystem-based rebuilding plan for Haida Gwaii Pacific herring is a prime example of such collaboration. This plan, developed in partnership between the Council of the Haida Nation, Fisheries and Oceans Canada (DFO), and Parks Canada Agency, emphasizes decision-making structures and ecosystem management. The goal is to ensure that herring continue to play their crucial role in the ecosystem while also maintaining the Haida Nation's cultural, social, and economic needs (CHN, 2022).

The West Coast Vancouver Island (WCVI) Chinook plan is being developed in collaboration with West Coast Vancouver Island First Nations and the Salmon Roundtables with an aim to integrate broader interests in habitat, hatcheries and harvest. To gather input and expertise, a series of 15 workshops were held from February to October 2022. These workshops focused on updating reference points and conducting a risk assessment of factors that limit productive capacity, ultimately informing the plan's rebuilding targets (DFO 2023c).

Other rebuilding plans were drafted in consultation with Rebuilding Plan Working Groups and circulated to their respective Advisory Committees between 2023 and 2024. This process provided opportunities for stakeholders and Indigenous groups to contribute feedback. However, there was no clear process for addressing this feedback, and final plans were not shared with advisory committees before being approved. To improve transparency and effectiveness, the department should strengthen its consultation and engagement procedures in ways that ensure that the development of new rebuilding plans and the periodic review of existing plans are conducted in an open and inclusive manner.

**Table 2.** Evaluation of the presence of the elements that rebuilding plans for prescribed Fishery Audit index stocks must contain to meet the requirements of the Fish Stocks provisions s. 6.2 in the amended Fisheries Act (2019) and in the Fishery (General) Regulations (FGR), and quality of elements as set out in the Rebuilding Plan Guidelines with draft plans and available advisory report. Details are available in a separate spreadsheet: Rebuilding Plan Rubric.xlsx tab Revised\_Regulatory.

To meet regulatory requirements, the plan <i>must at a minimum contain</i> :	Pacific herring – Haida Gwaii	Atlantic herring – 4T (spring spawning component)	Winter Flounder - 4T	White Hake - 4T	Atlantic Cod - 4TVn	American Plaice - 4T	Atlantic mackerel	Atlantic cod – 3Ps	Chinook Salmon - Okanagan
The stock status and trends.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Draft plan not reviewed
The probable causes for the stock's decline.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Not available in current document	Draft plan not reviewed
Measurable objectives aimed at rebuilding the stock, including a target for rebuilding the stock.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Draft plan not reviewed
The timelines for achieving the objectives. Else, the reasons why it is not feasible to do so.	Yes - invokes section 70(6) of the FGR in lieu of s. 70(1d)	Yes - invokes section 70(6) of the FGR in lieu of s. 70(1d)	Yes - invokes section 70(6) of the FGR in lieu of s. 70(1d)	Yes - invokes section 70(6) of the FGR in lieu of s. 70(1d)	Yes - invokes section 70(6) of the FGR in lieu of s. 70(1d)	Yes - invokes section 70(6) of the FGR in lieu of s. 70(1d)	Yes	Yes	Draft plan not reviewed
The management measures aimed at achieving the objectives, including the target.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Draft plan not reviewed
A method to track progress towards achieving the objectives.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Draft plan not reviewed

A schedule for a periodic review of the plan to assess progress towards the objectives, and to determine whether an adjustment to the plan is needed.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Not available in current document	Draft plan not reviewed
Be developed within 24 months after the day on which the Minister first had knowledge that the major fish stock had declined to or below its limit reference point. If the Minister extends the time period by maximum 12 months, the reasons for doing so are published on the Internet site of the Department.	Yes - assumed based on extensions granted	Yes - assumed based on extensions granted	Yes - assumed based on extensions granted	Yes - assumed based on extensions granted	Yes - assumed based on extensions granted	Yes - assumed based on extensions granted	Yes - assumed based on extensions granted	Yes - assumed based on extensions granted	Yes - assumed based on extensions granted
Publish plan and the results of any periodic review of the plan on the Internet site of the Department.	Not published yet	Not published yet	Not published yet	Not published yet	Not published yet	Not published yet	Not published yet	Not published yet	Not published yet

**Table 3.** Evaluation of the presence (Yes, Partial, No) and quality (see description) of Oceana Canada's ten recommended comprehensive requirements with draft rebuilding plans. Details are available in a separate spreadsheet: Rebuilding Plan Rubric.xlsx tab Oceana\_Comprehensive.

To meet Oceana's comprehensive requirements, the plan <i>must at a minimum contain</i> :	Pacific herring - Haida Gwaii	Atlantic herring - 4T (spring spawning component)	Winter Flounder - 4T	White Hake - 4T	Atlantic Cod - 4TVn	American Plaice - 4T	Atlantic mackerel	Atlantic cod - 3Ps	Chinook Salmon - Okanagan
--	-------------------------------	---	----------------------	-----------------	---------------------	----------------------	-------------------	--------------------	---------------------------



An overview of all fisheries interacting with the stock, socioeconomic and cultural importance, history of management and assessment.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Not available in current document	Draft plan not reviewed
A review of impediments to successfully rebuilding the stock.	Yes	Yes	Partial	Partial	Partial	Partial	Partial	Not available in current document	Draft plan not reviewed
Specific objectives that include: 1) Target abundance to ecologically restored levels. 2) Probability estimates of at least 75 per cent that the target abundance will be met within the timeframe. 3) Interim objectives. 4) Other stock-specific objectives.	Yes	Partial	Partial	Partial	Partial	Partial	Partial	Not available in current document	Draft plan not reviewed
The timeline for achieving the target and desired likelihood or probability of achieving the rebuilding target.	Partial	Yes	No	Partial	Partial	Partial	Yes	Not available in current document	Draft plan not reviewed
Management measures that have a high probability of success of meeting the objectives, including harvest decision or control rules.	Partial	No	No	No	No	No	Partial	Not available in current document	Draft plan not reviewed
An analysis of socio-economic, cultural and ecological impacts of the rebuilding plan.	Yes	Partial	Partial	Partial	Partial	Partial	Partial	Not available in current document	Draft plan not reviewed

Development of the plan is initiated sufficiently in advance to ensure that the plan is ready to be implemented if a stock declines to its LRP.	No	No	No	No	No	No	No	No	Not available in current document	Draft plan not reviewed
Developed in consultation with Indigenous peoples when there is a legal duty to consult, collaborate to ensure plan is compatible Indigenous Knowledge Systems.	Yes	Partial	Partial	Partial	Partial	Partial	Partial	Partial	Not available in current document	Draft plan not reviewed
Published and implemented within 120 days from the date of the plan's approval by the Minister. Data is made publicly available (i.e. in appendices).	Partial	No	No	No	No	No	No	No	Not available in current document	Draft plan not reviewed
Remain in effect until the stock reaches its rebuilding target with 75% probability and the IFMP includes management measures to maintain stock growth above the USR or to the TRP.	Yes	Partial	Partial	Partial	Partial	Partial	Partial	Partial	Not available in current document	Draft plan not reviewed

## Remaining Critical Stocks

Despite the progress, many critical fish stocks in Canada remain without adequate rebuilding plans. Currently, 17 per cent (33 of 194 stocks) of fish stocks are critically depleted and 34.5 per cent (67 stocks) are classified as uncertain due to the lack of an accepted status. This uncertainty likely masks several critical stocks that urgently need rebuilding efforts (Schijns, 2022). Only four of the 33 critically depleted stocks currently have a published rebuilding plan, and none of those plans fully meet the new regulatory requirements. Notably, the Fishery Audit stock list excludes Pacific salmon, of which additional critical, uncertain and declining stocks are also in need of recovery strategies.

The Department of Fisheries and Oceans (DFO) has shown intentions of following best practices rather than waiting for regulatory triggers for a few critical stocks. For instance, the rebuilding processes for Yellowtail flounder (4T), Cod (4X5Y), and Atlantic herring (4X5Y) are underway, with expected listing in the coming months. Additionally, the Northern cod and capelin (2J3KL) stocks in the Newfoundland and Labrador region are initiating processes to develop Upper Stock Reference points and other targets (DFO, 2024e), which are essential to guide recovery efforts for these declining populations.

The urgency to hasten the pace of completing and implementing rebuilding plans cannot be overstated. The current state of fisheries management is untenable when coupled with the consequences of increasing levels of environmental and economic uncertainty and impacts. Overfishing has repeatedly led to the collapse of vital stocks, resulting in significant job losses and community devastation as seen in the often-quoted lesson of the collapse of Northern cod and other groundfish. This example continues to be a globally recognized management failure (Harris, 1990; Hutchings and Myers, 1994) that put more than 35,000 people out of work and cost Canadians billions of dollars.

The newly approved rebuilding plans set a solid precedent for the effectiveness and necessity of such measures. It is crucial for the DFO to build on this momentum and expedite the development and implementation of additional plans. With better management, it is possible to rebuild more than 80% of fish stocks to healthy levels within a decade (McLennan et al., 2023), providing unparalleled benefits for marine life, fishing opportunities, and coastal communities.

## Conclusion

The recent approval of new rebuilding plans by the Canadian government represents a significant step towards reversing the negative impacts of past fisheries management practices. While these plans mark a crucial milestone, the work is far from complete. Many critical stocks still lack adequate rebuilding strategies, and the pace of implementation must be accelerated to prevent further environmental and economic losses. By continuing to develop and enforce robust rebuilding plans, Canada can achieve its vision of sustainable and prosperous fisheries, ensuring the long-term health of its marine ecosystems and the wellbeing of coastal communities.

## References

- Archibald, D. W. & Rangeley, R. (2018). The Quality of Rebuilding Plans in Canada. In: Fishery Audit 2018: Unlocking Canada's Potential for Abundant Oceans. Oceana Canada. [https://www.oceana.ca/sites/default/files/the\\_quality\\_of\\_rebuilding\\_plans\\_in\\_canada\\_final\\_2018nov05.pdf](https://www.oceana.ca/sites/default/files/the_quality_of_rebuilding_plans_in_canada_final_2018nov05.pdf)
- Archibald, D. W. & Rangeley, R. (2019). The Quality of Current and Future Rebuilding Plans in Canada. In: Fishery Audit 2019: Unlocking Canada's Potential for Abundant Oceans. Oceana Canada. [https://oceana.ca/sites/default/files/the\\_quality\\_of\\_current\\_and\\_future\\_rebuilding\\_plans\\_in\\_canada\\_2019.pdf](https://oceana.ca/sites/default/files/the_quality_of_current_and_future_rebuilding_plans_in_canada_2019.pdf)
- Benoit, H.P., and Ouellette-Plante, J. (2023). Scientific Elements of the Northern Gulf of St. Lawrence (NAFO 3Pn4RS) Atlantic Cod Rebuilding Plan. DFO Can. Sci. Advis. Sec. Res. Doc. 2023/085. iv + 28 p. [https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2023/2023\\_085-eng.pdf](https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2023/2023_085-eng.pdf)
- Council of Haida Nation. (CHN). (2022). Haida Gwaii 'iináang | iinang Pacific Herring: An Ecosystem Overview and Ecosystem-based Rebuilding Plan. <https://haidamarineplanning.com/wp-content/uploads/2022/11/1.-DRAFT-Haida-Gwaii-Herring-An-Ecosystem-Overview-and-Ecosystem-based-Rebuilding-Plan-4.pdf>
- DFO. (2009). A Fishery Decision-Making Framework Incorporating the Precautionary Approach. Fisheries and Oceans Canada. <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precaution-eng.html>
- DFO. (2022a). Guidelines for writing rebuilding plans per the Fish Stocks Provisions and A Fishery Decision-making Framework Incorporating the Precautionary Approach. Fisheries and Oceans Canada. <https://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/precautionary-precaution-eng.html>
- DFO. (2023a). Assessment of the northern contingent of Atlantic mackerel (*Scomber scombrus*) in 2022. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2023/015. [https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2023/2023\\_015-eng.pdf](https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2023/2023_015-eng.pdf)
- DFO. (2023b). Review of Rebuilding Plan Simulations for Northwest Atlantic Fisheries Organization (NAFO) Subdivision 3Ps Atlantic Cod. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2023/007. [https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2023/2023\\_007-eng.pdf](https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2023/2023_007-eng.pdf)
- DFO. (2023c). Sustainable Fisheries Framework Work Plan for Fiscal 2023–2024. Fisheries and Oceans Canada. <https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2023-2024/wp-pt-eng.html>
- DFO. (2024a). Notice of Invoking Subs. 70(3) of the Fishery (General) Regulations. 2024 - West Coast Vancouver Island Chinook. Fisheries and Oceans Canada. <https://www.dfo-mpo.gc.ca/fisheries-peches/decisions/provisions-dispositions/2024/001-eng.html>
- DFO. (2024b). Notice of Invoking Subs. 70(3) of the Fishery (General) Regulations. 2024 – Northern shrimp (SFA 6). Fisheries and Oceans Canada. <https://www.dfo-mpo.gc.ca/fisheries-peches/decisions/provisions-dispositions/2024/003-eng.html>
- DFO. (2024c). Notice of Invoking Subs. 70(3) of the Fishery (General) Regulations. 2024 - Atlantic cod (3Pn4RS). Fisheries and Oceans Canada. <https://www.dfo-mpo.gc.ca/fisheries-peches/decisions/provisions-dispositions/2024/004-eng.html>
- DFO. (2024d). Science Advice to Support the Rebuilding Plan for Atlantic Cod (*Gadus morhua*) in the Southern Gulf of St. Lawrence, NAFO Division 4T-4Vn (November-April). DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2024/033. [https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2024/2024\\_033-eng.pdf](https://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2024/2024_033-eng.pdf)
- DFO. (2024e). Sustainable Fisheries Framework Work Plan for Fiscal 2024–2025. Fisheries and Oceans Canada. <https://www.dfo-mpo.gc.ca/about-notre-sujet/publications/work-plan-travail/2024-2025/wp-pt-eng.html>

- Government of Canada. (2022). Regulations Amending the Fishery (General) Regulations: SOR/2022-73. *Canada Gazette Part II*, 156(8). <https://www.canadagazette.gc.ca/rp-pr/p2/2022/2022-04-13/html/sor-dors73-eng.html>
- Harris, L. (1999). Independent Review of the State of the Northern Cod Stock. Fisheries and Oceans Canada. <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/114277.pdf>
- Hutchings J. A., Myers R. A. (1994). What can be learned from the collapse of a renewable resource? Atlantic cod, *Gadus morhua*, of Newfoundland and Labrador. *Canadian Journal of Fisheries and Aquatic Sciences*, 51: 2126–2146.
- 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/>
- Levesque, B., Archibald, D. W. & Rangeley, R. (2021). The Quality of Recent Rebuilding Plans in Canada. In: Fishery Audit 2021: Unlocking Our Potential for Abundant Oceans. Oceana Canada. <https://oceana.ca/wp-content/uploads/sites/24/The-Quality-of-Recent-Rebuilding-Plans-in-Canada-2021-FINAL.pdf>
- McLennan, L., Schijns, R. & Rangeley, R. (2023). Projections of Fishery Recovery in Canada. In: Fishery Audit 2023: Unlocking Canada's Potential for Abundant Oceans. Oceana Canada. <https://oceana.ca/wp-content/uploads/sites/24/2023/11/A3.-Projections-of-Fishery-Recovery-in-Canada.pdf>
- NOAA. (2024). Fisheries of the Northeastern United States; 2024 and Projected 2025 Specifications for the Atlantic Mackerel Fishery. *Federal Register*, 89(72). <https://www.federalregister.gov/documents/2024/04/12/2024-07650/fisheries-of-the-northeastern-united-states-2024-and-projected-2025-specifications-for-the-atlantic>
- Schijns, R. (2022). A Fuller Picture of the State of Canada's Fisheries: Assessments for Data-Limited Stocks. Oceana Canada. <https://oceana.ca/en/reports/a-fuller-picture-of-the-state-of-canadas-fisheries-assessments-for-data-limited-stocks/>
- Schijns, R. & Rangeley, R. (2022). The Quality of Rebuilding Plans in Canada. In: Fishery Audit 2022: Unlocking Canada's Potential for Abundant Oceans. Oceana Canada. <https://oceana.ca/wp-content/uploads/sites/24/2022/11/A3.-The-Quality-of-Recent-Rebuilding-Plans-in-Canada.pdf>
- Schijns, R. & Rangeley, R. (2023). The Quality of Rebuilding Plans in Canada. In: Fishery Audit 2023: Unlocking Canada's Potential for Abundant Oceans. Oceana Canada. <https://oceana.ca/wp-content/uploads/sites/24/2023/11/A1.-The-Quality-of-Recent-Rebuilding-Plans-in-Canada.pdf>
- Schijns, R. & Rangeley, R. (2024). Five Year Progress Report of the Modernized Fisheries Act. In: Fishery Audit 2024: Unlocking Canada's Potential for Abundant Oceans. Oceana Canada. <https://oceana.ca/en/reports/fishery-audit-2024/>