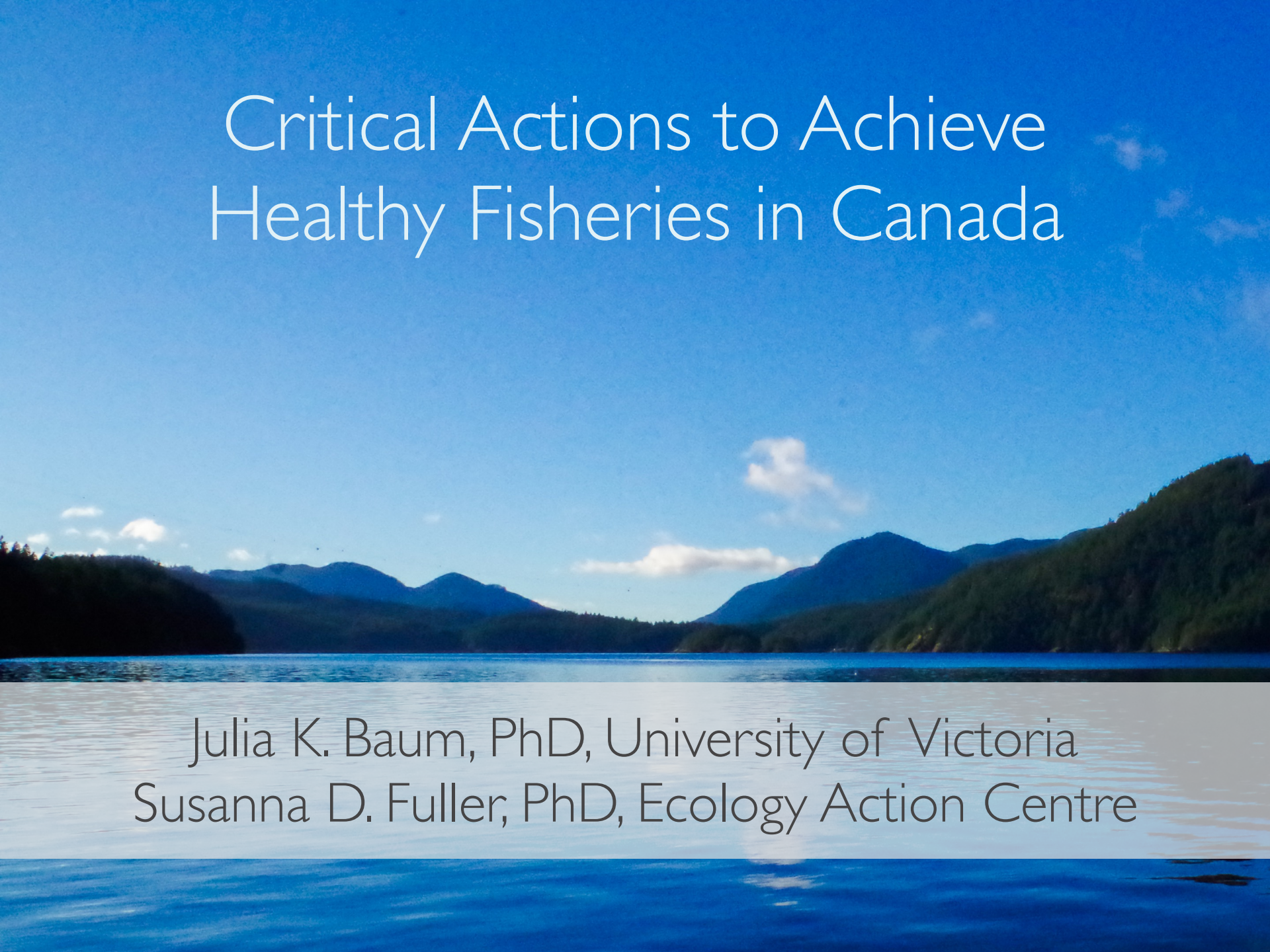


Critical Actions to Achieve Healthy Fisheries in Canada

Julia K. Baum, PhD, University of Victoria
Susanna D. Fuller, PhD, Ecology Action Centre

Our Oceans:

So Much More than Fisheries

OCEAN HEALTH INDEX

Legal and policy framework

National Legal Instruments	Policy Instruments
Fisheries Act (1985)	Aboriginal Fisheries Strategy (1992) Atlantic Fisheries Policy Review – A Framework for the Management of Fisheries on Canada's Atlantic Coast (1995) Canadian Code of Conduct for Responsible Fishing Operations (1998) New Emerging Fisheries Policy (2001, revised 2008) Integrated Aboriginal Policy Framework (2005) Canada's Policy for Conservation of Wild Pacific Salmon (2005) Sustainable Fisheries Framework Policy Suite:
Coastal Fisheries Protection Act (1985)	
Oceans Act (1996)	
Species at Risk Act (2002)	

International Legal Instruments	Policy Instruments
Convention on Biological Diversity (1993)	Aichi Target 6,11,12 (2011)
United Nations Fish Stocks Agreement (2002)	

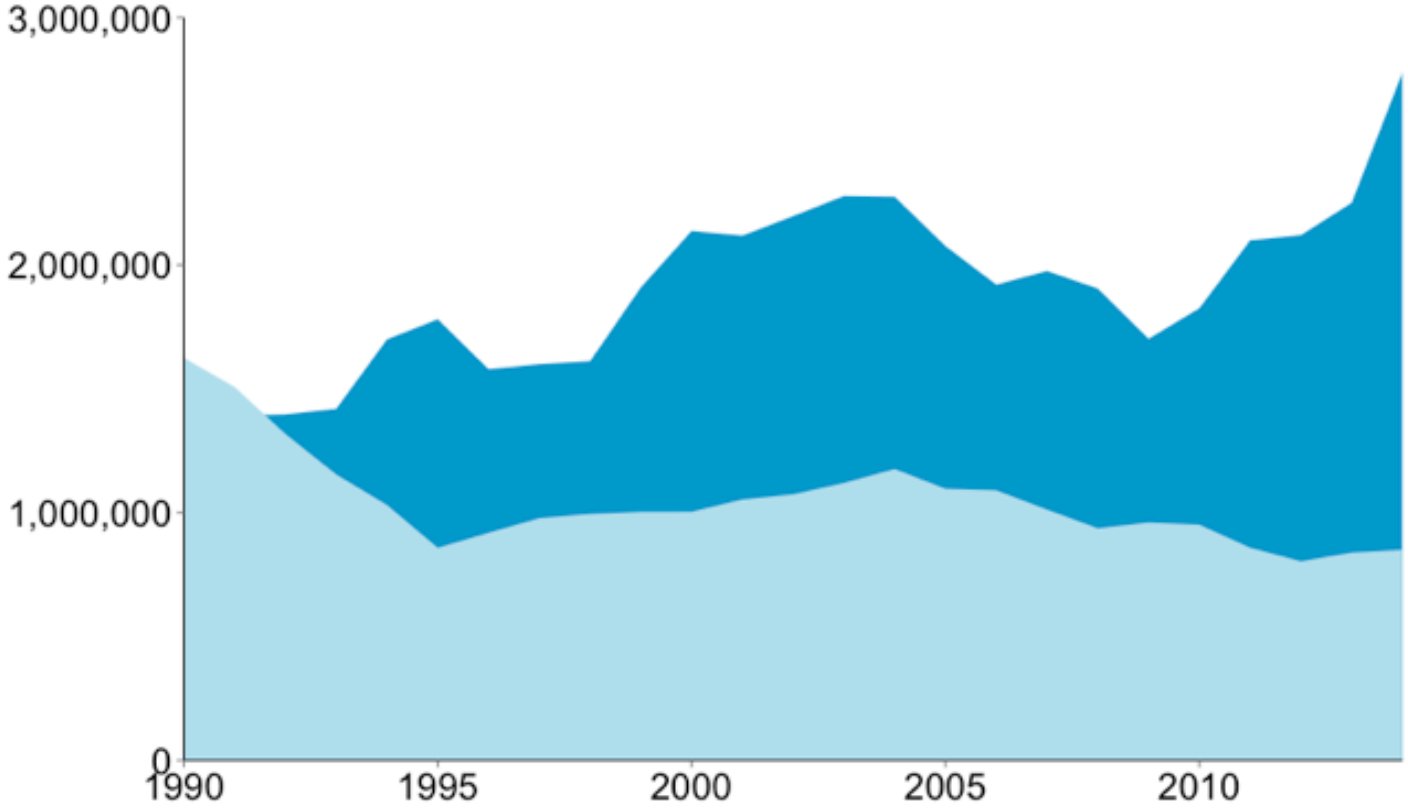
1. Commitment

1. Commitment

Modernize the Fisheries Act:

- Include modern management principles - precautionary approach and ecosystem-based fisheries management
- Restore protections for fish habitat, not just for "valued" species
- Include a legal obligation to prevent overfishing and to rebuild fish stocks to scientifically-based targets within clearly defined timelines

Landed value & total volume of Canadian seafood



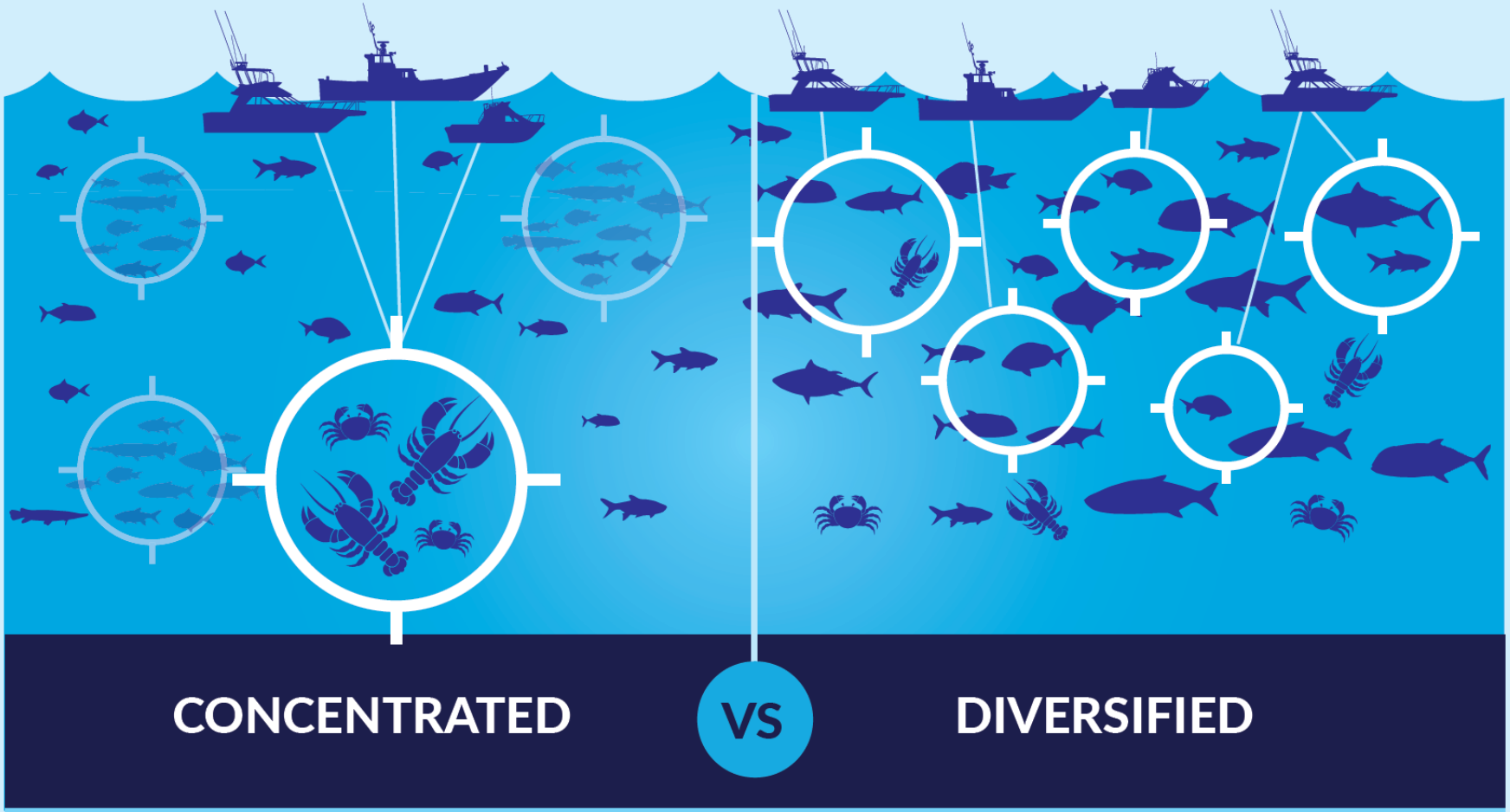
Dollar value in $000s = dark blue
Volume in metric tonnes = light blue

CANADA EXPORTED $6 BILLION OF FISH AND SEAFOOD PRODUCTS IN 2015.

SEAFOOD IS ONE OF THE TOP 3 EXPORTS IN ALL ATLANTIC PROVINCES AND ONE OF THE TOP 7 IN BRITISH COLUMBIA.[5]

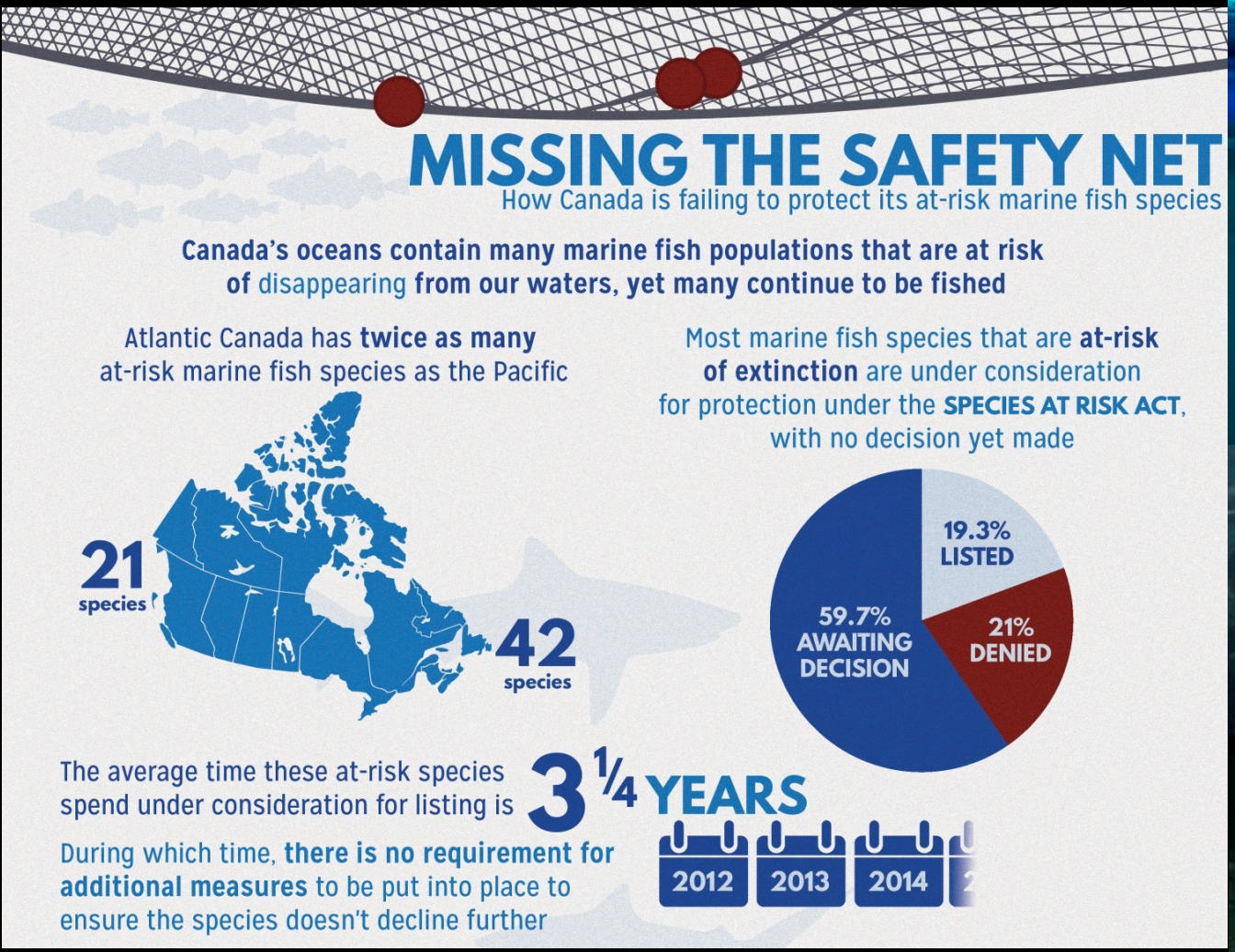
Baum & Fuller 2016 *Canada's Marine Fisheries.* Oceana Report.

We need healthy fisheries



**WE'RE MAKING MORE MONEY FROM OUR SEAFOOD INDUSTRY THAN EVER,
BUT ALL THE VALUE IS CONCENTRATED IN JUST A FEW SPECIES.
THIS LACK OF DIVERSIFICATION IS NOT SUSTAINABLE.**

How well are we managing Canadian fisheries?



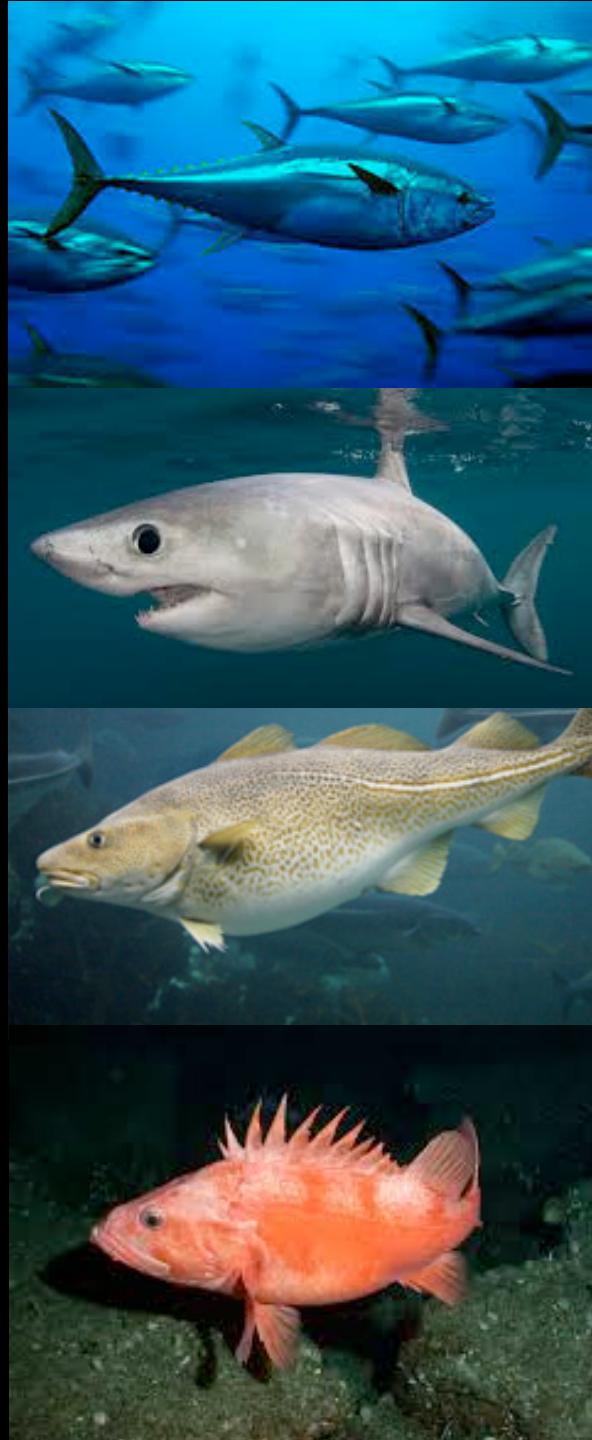
McDevitt-Irwin, Fuller, Grant & Baum 2015 Missing the safety net: evidence for inconsistent and insufficient management of at-risk marine fisheries in Canada. *CJFAS*

How well are we managing Canadian fisheries?

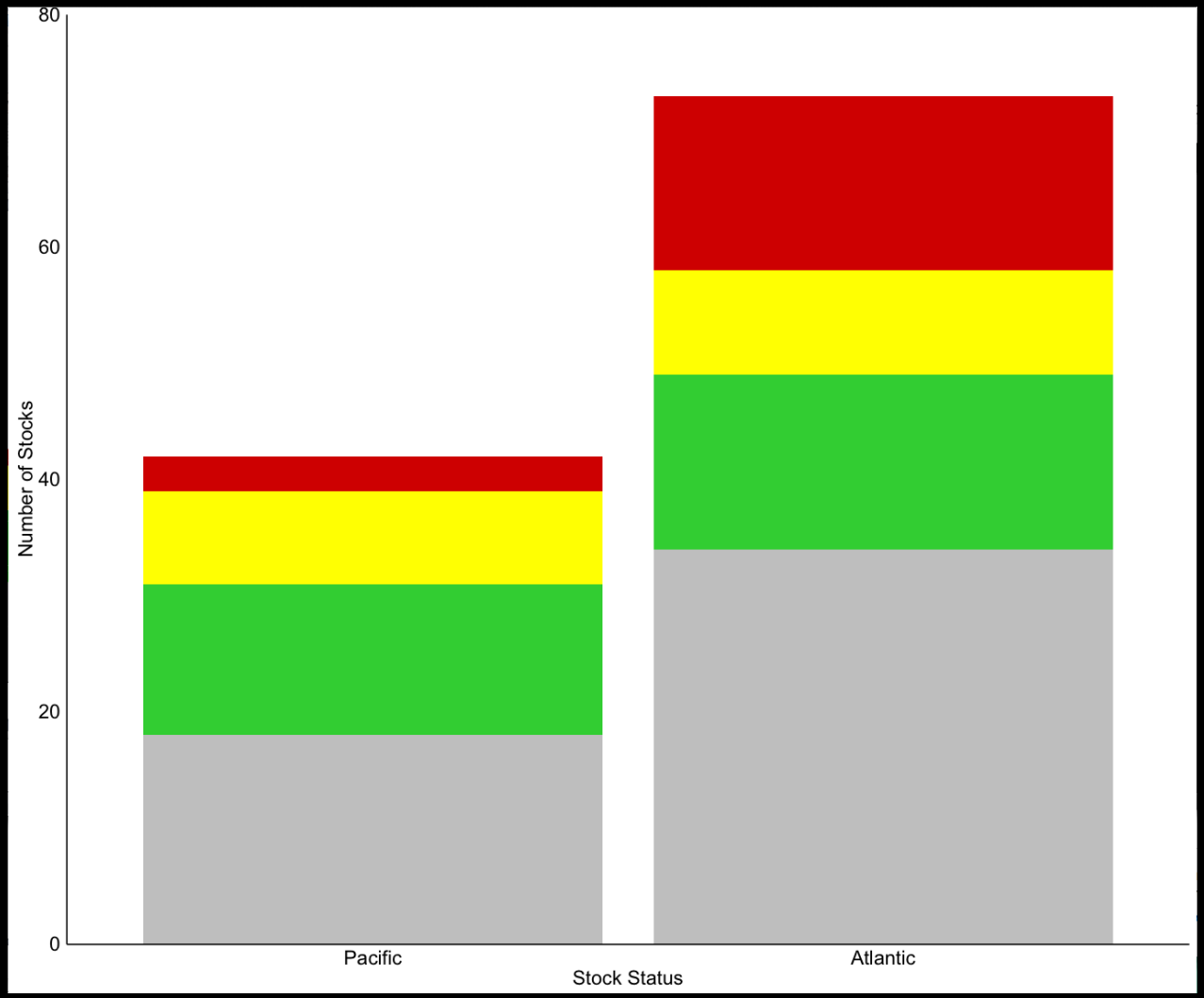
TABLE 1. Species Assessed by Committee on the Status of Endangered Wildlife in Canada and Awaiting Designation under Canada's Species At Risk Act:

	COSEWIC ASSESSMENT DATE	COSEWIC STATUS	# OF YEARS IN SARA PROCESS
Cod *Gadus morhua*	**April, 2010**	Endangered	**5.25**
Porbeagle *Lamna nasus*	Assessed as endangered in **May, 2004** and denied in **June, 2006**. Reassessed **May, 2014**.	Endangered	Total years since first assessed **11.17**
Bluefin Tuna *Thunnus thynnus*	**May, 2011**	Endangered	**4.17**
Sockeye Salmon *Oncorhynchus nerka*	April, 2006	Endangered	**9.25**

McDevitt-Irwin, Fuller, Grant & Baum 2015 Missing the safety net: evidence for inconsistent and insufficient management of at-risk marine fisheries in Canada. *CJFAS*



State of Canadian marine fisheries

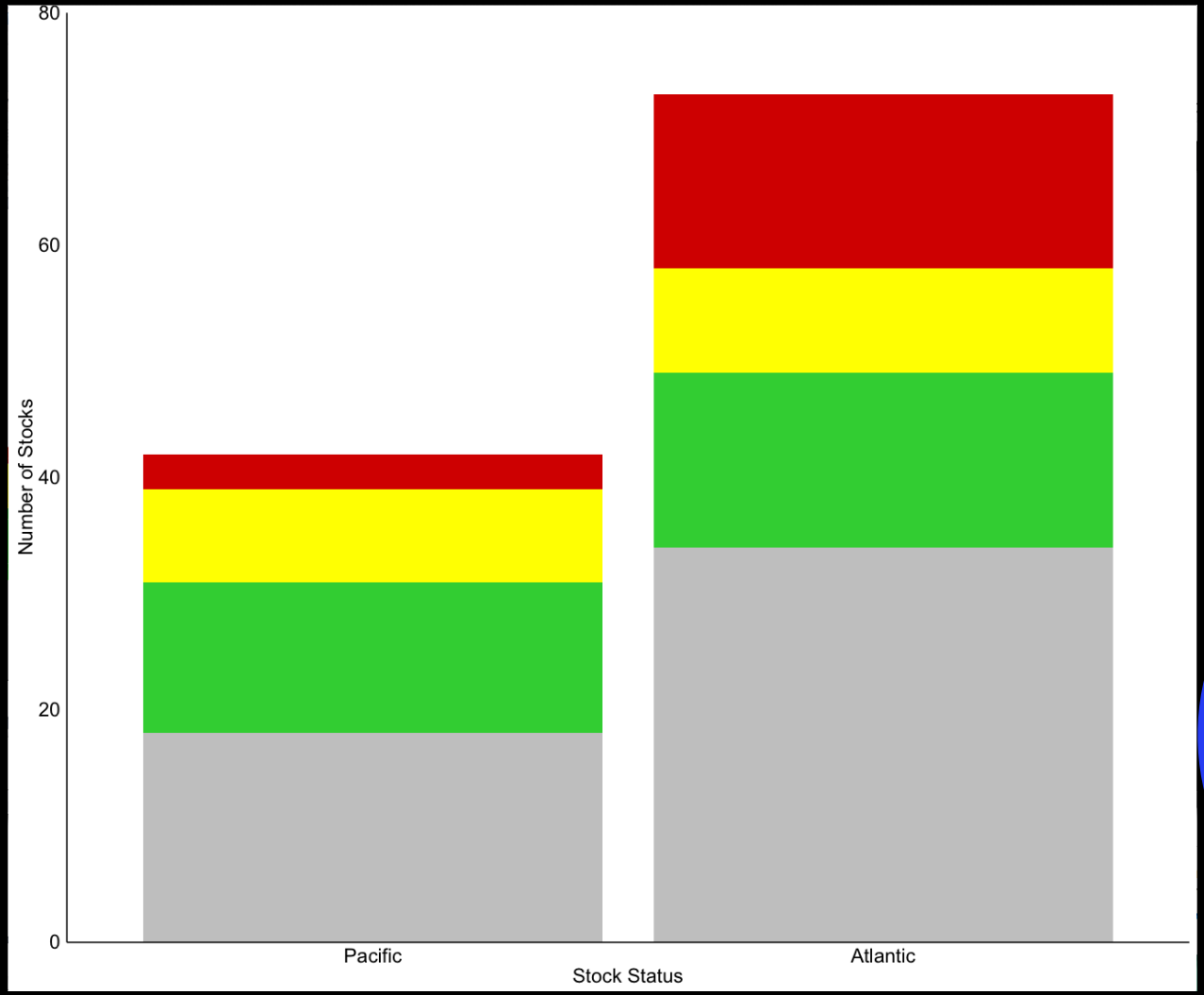


Red = Critical
Yellow = Cautious
Green = Healthy
Grey = Unknown

115 stocks

Baum & Fuller 2016 *Canada's Marine Fisheries.* Oceana Report.

State of Canadian marine fisheries



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115 stocks

*Only **24%** of Canada's marine fish and invertebrate stocks can be considered as 'healthy'*

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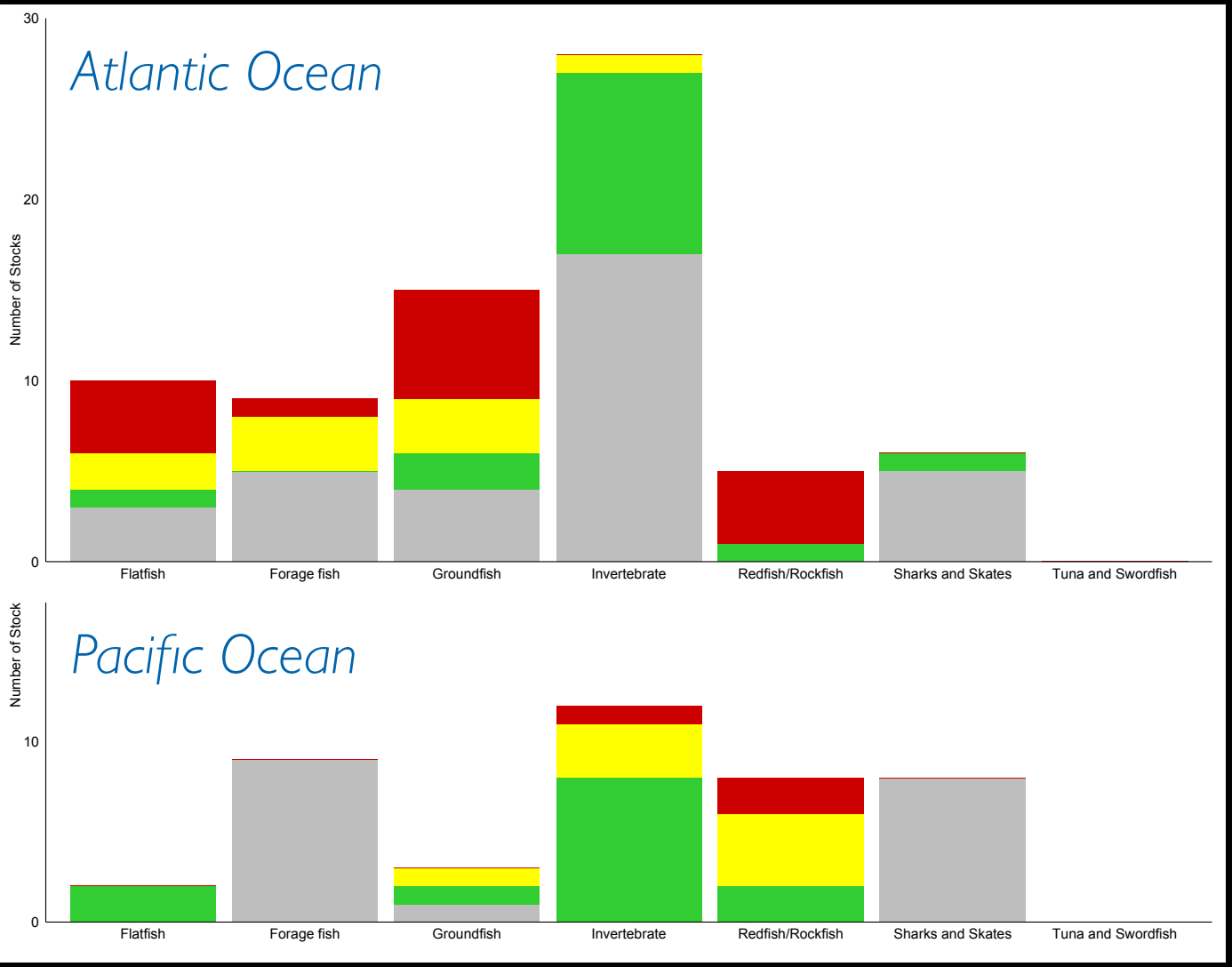
State of Canadian marine fisheries



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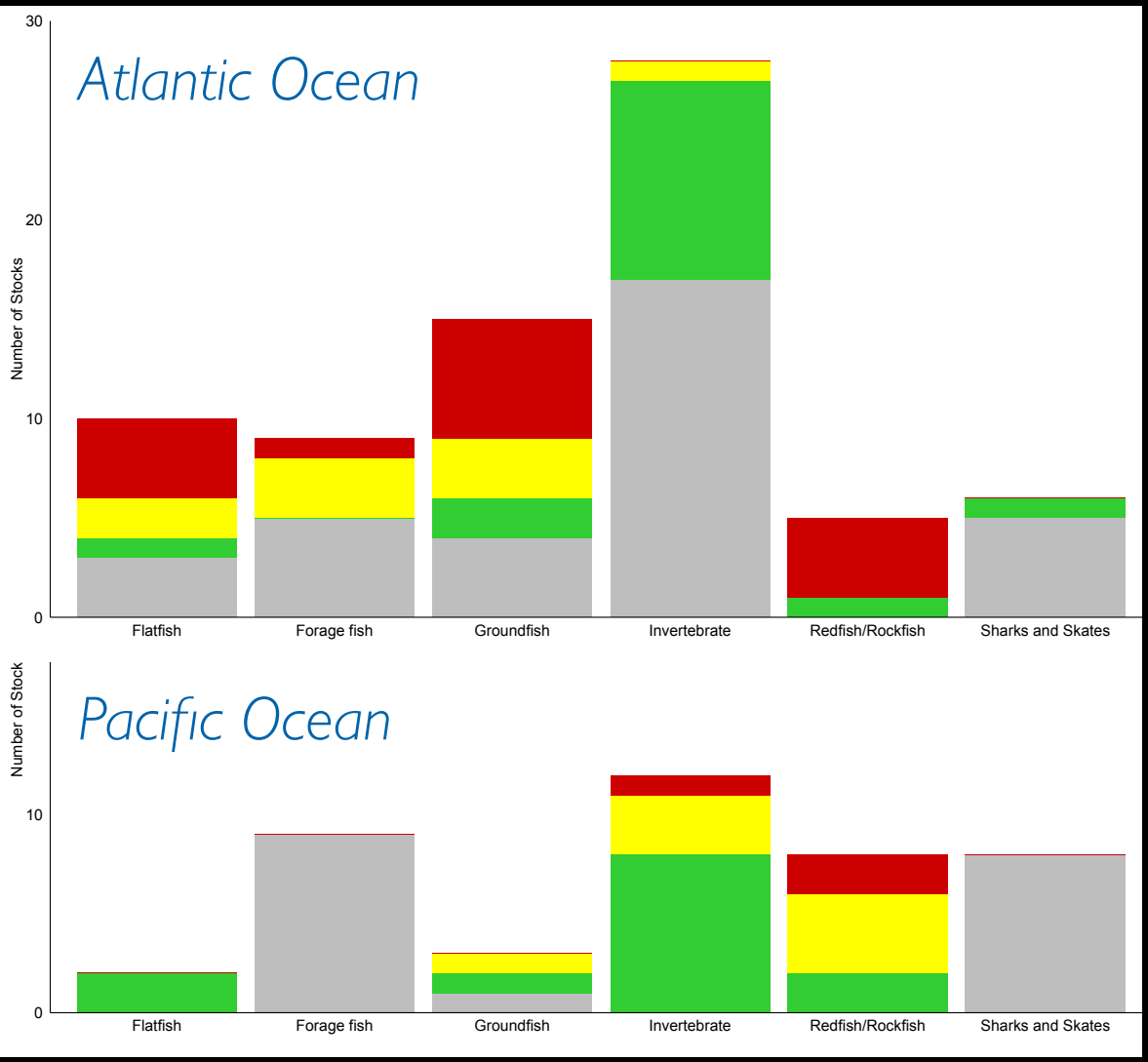

"We have also committed to set a higher bar for openness and transparency in government" - PM Trudeau's Mandate letter to the Minister of Fisheries

Baum & Fuller 2016 *Canada's Marine Fisheries.* Oceana Report.

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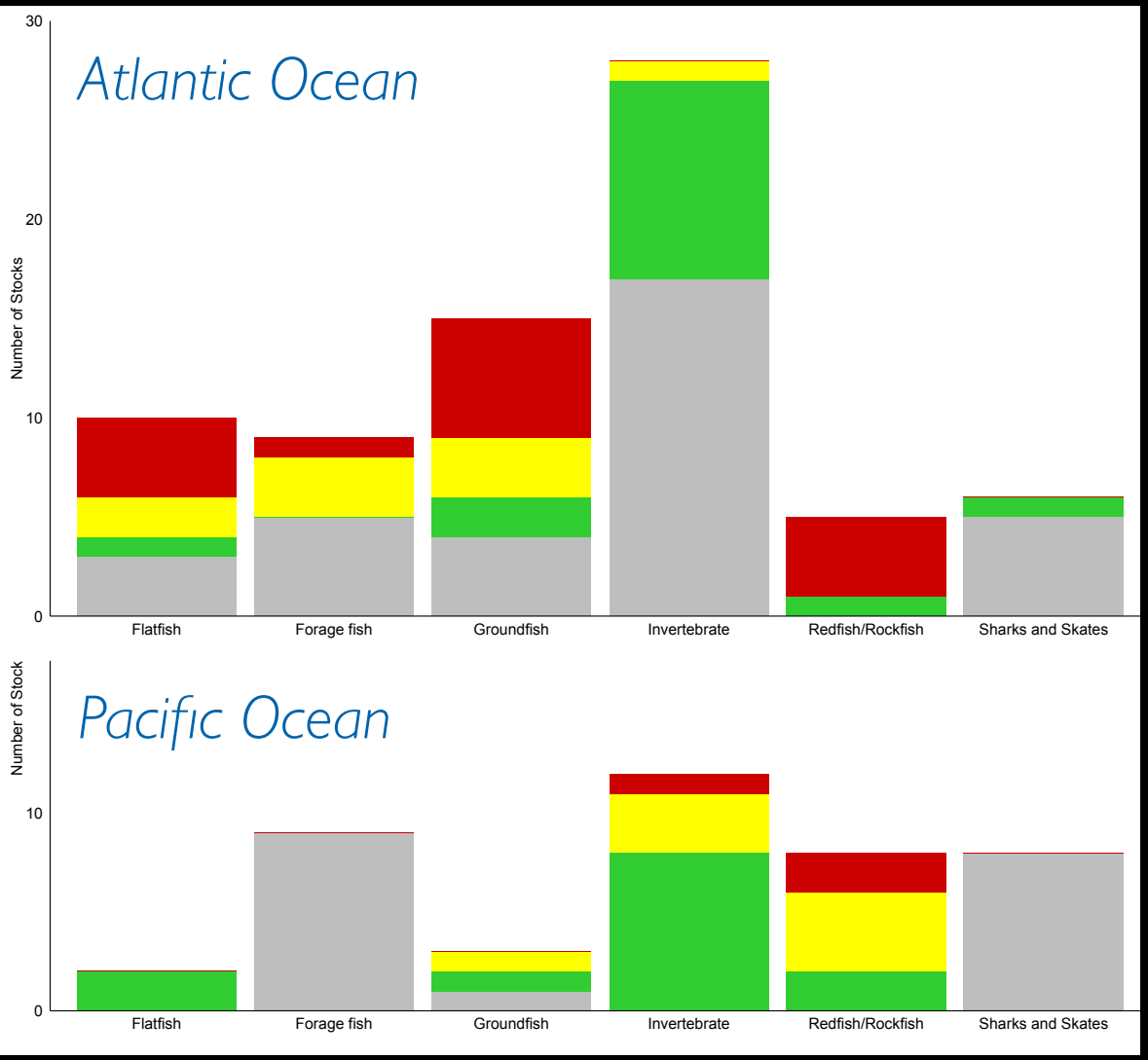
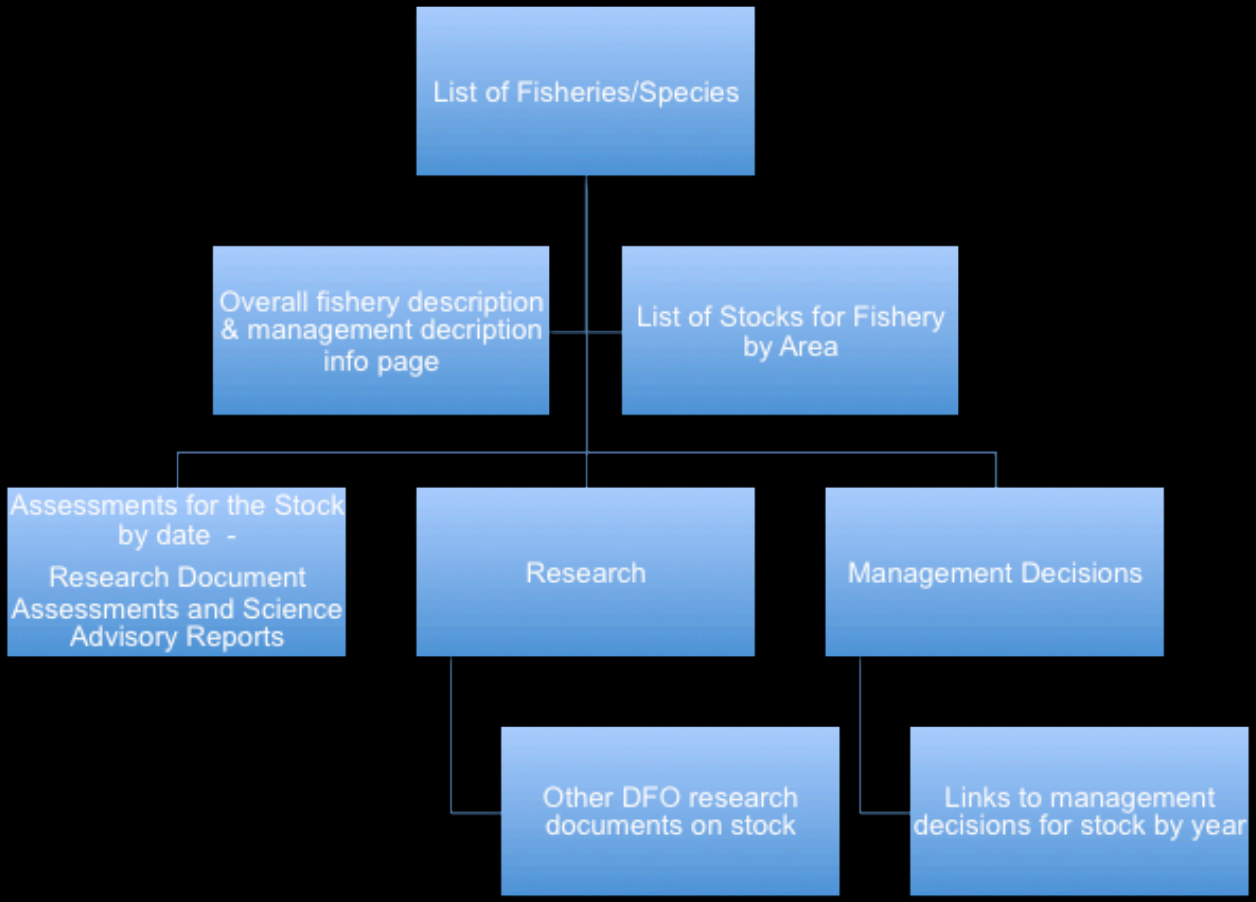


TRANSPARENCY??

"We have also committed to set a higher bar for openness and transparency in government" - PM Trudeau's Mandate letter to the Minister of Fisheries

Baum & Fuller 2016 *Canada's Marine Fisheries.* Oceana Report.

A template for transparency



Baum & Fuller 2016 *Canada's Marine Fisheries*. Oceana Report.

2. Accountability

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DFO must be held accountable

- Annual reporting of status of fish stocks to parliament and the public
- Scientific data and decision-making must be transparent:

  -Promote a culture of transparency including reinstating peer-review for stock assessments

  -Improve and enhance the public availability of data

Rebuilding is possible

Resilience and Recovery of Overexploited Marine Populations

Philipp Neubauer,[1]* Olaf P. Jensen,[1] Jeffrey A. Hutchings,[2,3] Julia K. Baum[4]

Recovery of overexploited marine populations has been slow, and most remain below target biomass levels. A key question is whether this is due to insufficient reductions in harvest rates or the erosion of population resilience. Using a global meta-analysis of overfished stocks, we find that resilience of those stocks subjected to moderate levels of overfishing is enhanced, not compromised, offering the possibility of swift recovery. However, prolonged intense overexploitation, especially for collapsed stocks, not only delays rebuilding but also substantially increases the uncertainty in recovery times, despite predictable influences of fishing and life history. Timely and decisive reductions in harvest rates could mitigate this uncertainty. Instead, current harvest and low biomass levels render recovery improbable for the majority of the world's depleted stocks.

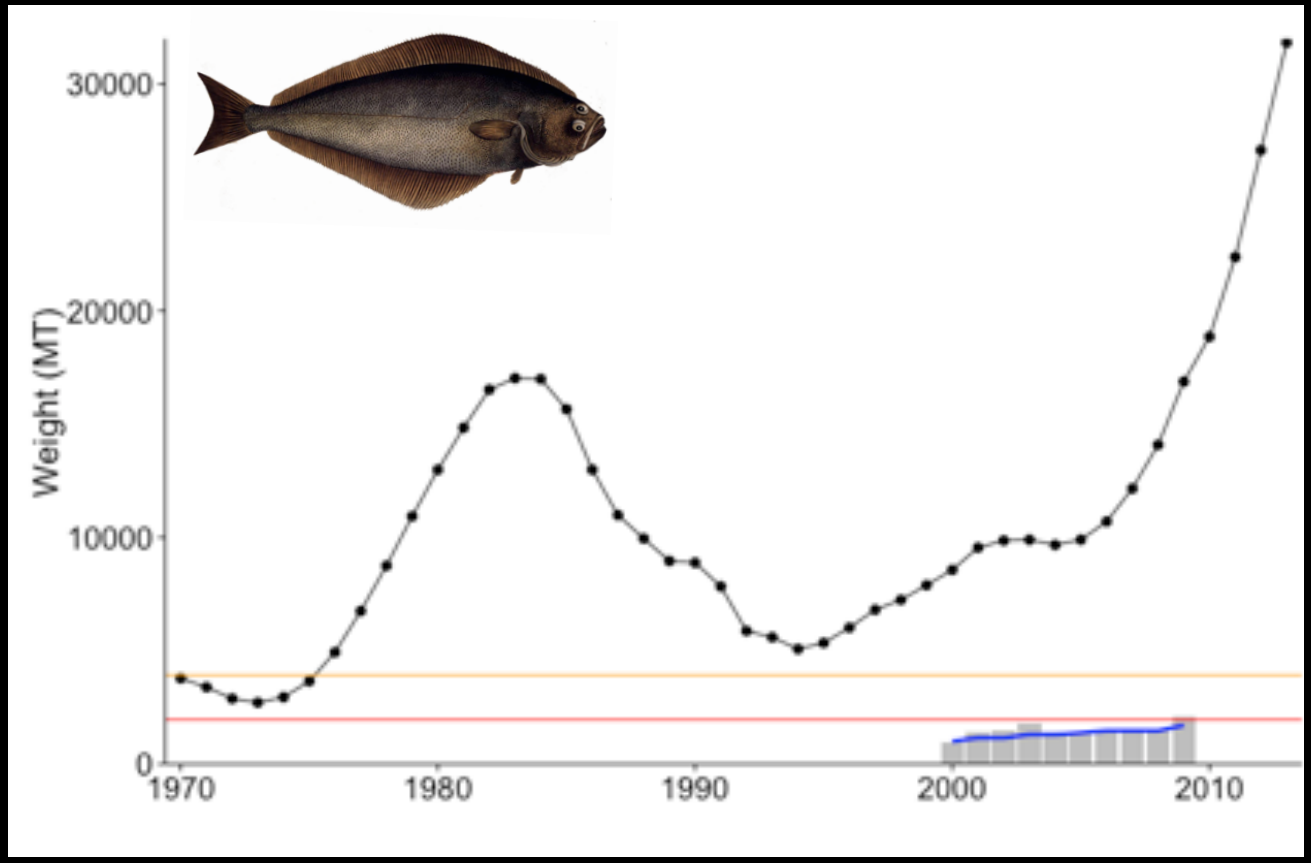
Recovery of overexploited marine populations would be a "win-win" outcome for fisheries and conservation, easing pressure on wild populations and associated ecosystems (*1*–*3*), and ultimately enhancing catches, revenues, and food security (*4*–*6*). Recognizing the global importance of recovery, the United Nations (UN) 2002 World Summit on Sustainable Development proposed that global fisheries be rebuilt to maximum sustainable yield (MSY) levels by 2015 (*5*, *7*). Echoing this call, several countries, including Australia and the United States, mandated rebuilding in their fisheries leg-

2 Key Recovery Lessons:

- ***Swift Action:*** fish stocks have the best chance of recovering when fishing pressure is cut at the first sign of trouble;
- ***Uncertainty:*** *delays in management action delay recovery AND make the entire process highly uncertain*

Neubauer, Jensen, Hutchings and Baum 2013 *Science*

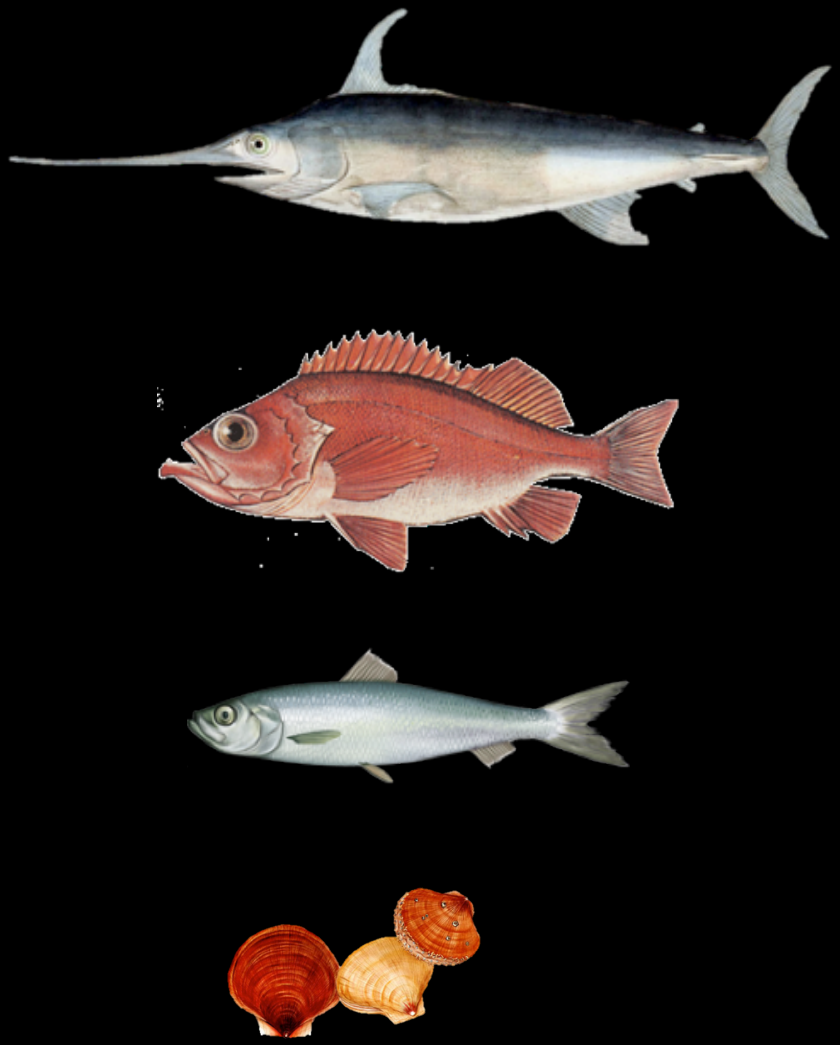
Rebuilding is possible



Atlantic halibut - Scotian Shelf & Southern Grand Banks

Baum & Fuller 2016 *Canada's Marine Fisheries*. Oceana Report.

Rebuilding is possible



Key Elements for Recovery:

- ***Science:*** estimates of stock status or abundance, reference points or proxies,
- ***Management Tools:*** effort control in line with scientific advice, harvest control rules, reduction of F, existence of a rebuilding or recovery plan, minimum size limits to protect juveniles, spatial / temporal closures for spawning or critical habitat protection
- ***Monitoring:*** observers, video monitoring, VMS, dockside monitoring

Baum & Fuller 2016 *Canada's Marine Fisheries.* Oceana Report.

Rebuilding is possible but…

Challenges to Rebuilding

- ***Estimating population abundance can be difficult*** (i.e. lobster, tuna rely on CPUE)
- ***Shifting baselines:*** need to be clear on what is real recovery
- ***Climate Change / Vulnerability:***

Rebuilding is possible but…

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- Use scientific evidence and the precautionary principle, and take into account climate change, when making decisions affecting fish stocks and ecosystem management.

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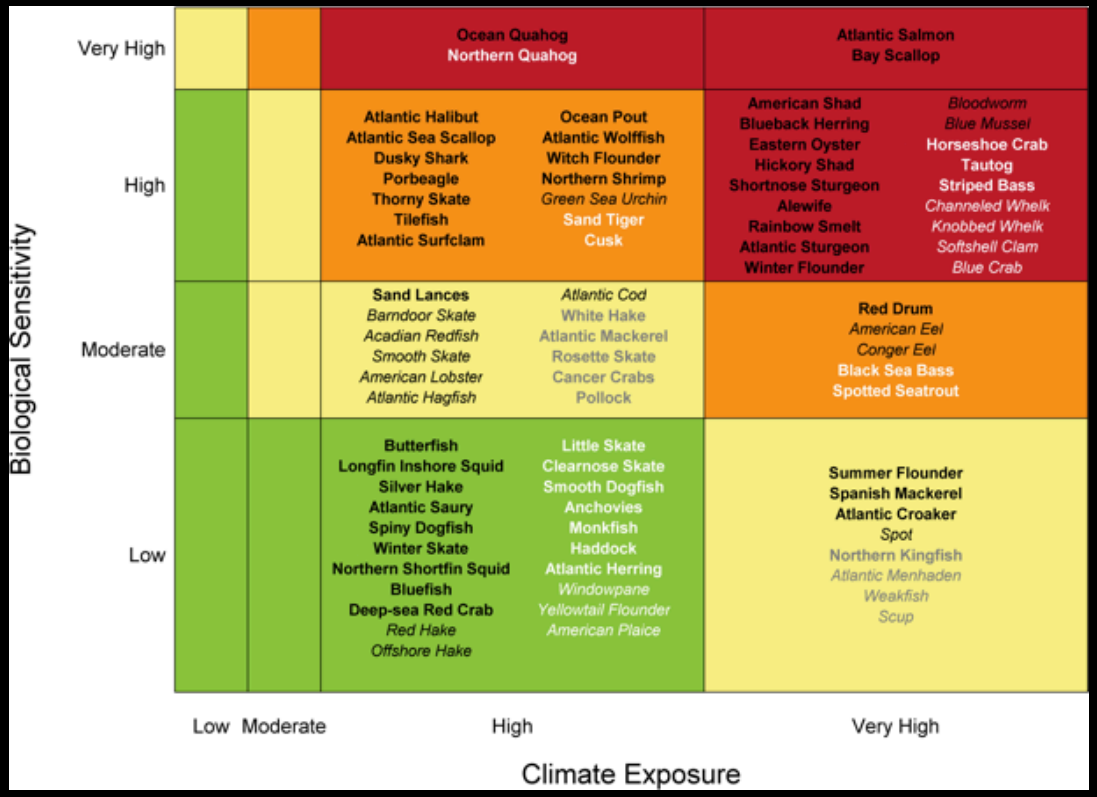

Hare et al. 2016

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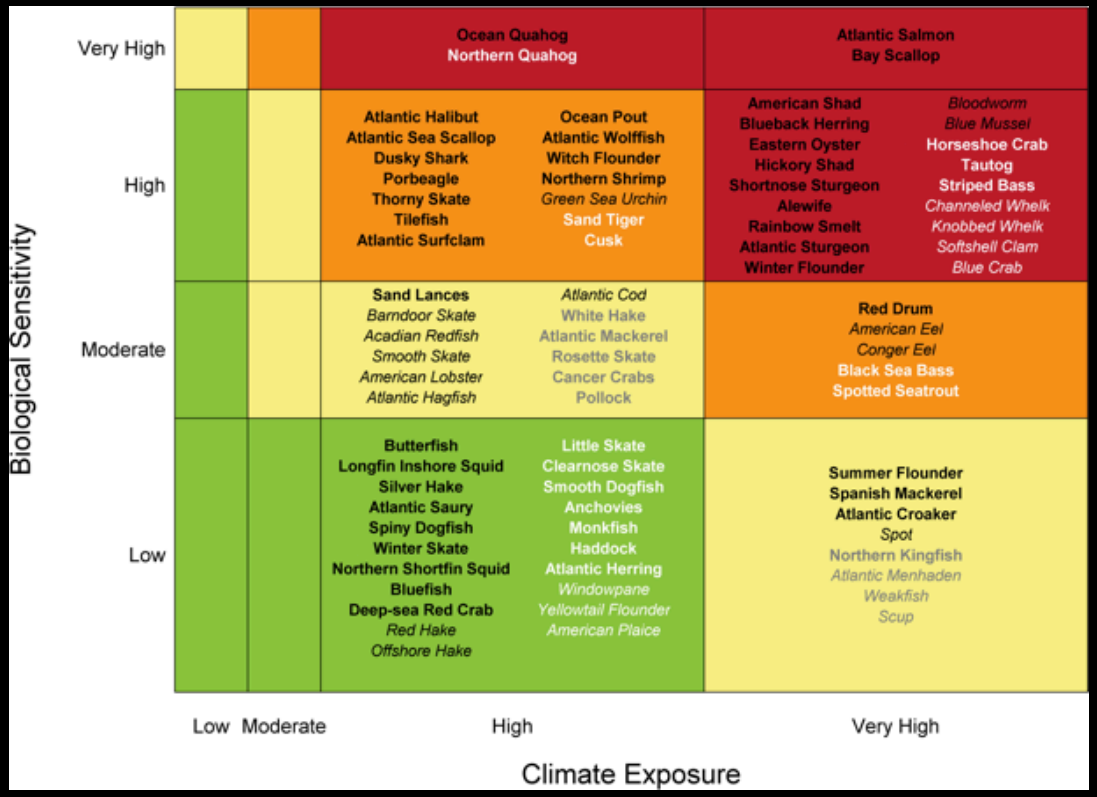

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- ***Climate Change / Vulnerability:***
- ***Ecosystem interactions and Socio- economic considerations:*** *cod vs shrimp*

Rebuilding is possible but… we need a commitment to do so

Minister of Fisheries, Oceans and the Canadian Coast Guard Mandate Letter

Office of the Prime Minister | Cabinet du Premier ministre

Ottawa, Canada K1A 0A2

In particular, I will expect you to work with your colleagues and through established legislative, regulatory, and Cabinet processes to deliver on your top priorities:

- Work with the Minister of Environment and Climate Change to increase the proportion of Canada's marine and coastal areas that are protected – to five percent by 2017, and ten percent by 2020 – supported by new investments in community consultation and science.
- Restore annual federal funding for freshwater research, and make new investments in Canada's Experimental Lakes Area.
- Restore funding to support federal ocean science and monitoring programs, to protect the health of fish stocks, to monitor contaminants and pollution in the oceans, and to support responsible and sustainable aquaculture industries on Canada's coasts.
- Use scientific evidence and the precautionary principle, and take into account climate change, when making decisions affecting fish stocks and ecosystem management.
- Work with the provinces, territories, Indigenous Peoples, and other stakeholders to better co-manage our three oceans.

3. Implementation

3. Implementation

Rebuilding tools must be implemented

- Capacity and resources for scientists and managers must be available
- Critical elements for rebuilding included in management plans, including ecosystem protections

Be Strategic:

- Learn from our own successes (Atlantic halibut) and failures (Atlantic cod)

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- Ensure **Fisheries Act measures are used** to their full potential for not listed at risk marine fish
- Align with **international goals** for sustainable fisheries and oceans (Aichi Target 6, SDG 14)

4. Strategic Focus

4. Strategic Focus

- Allocate necessary resources to maximize success of rebuilding
- Identify biologically realistic targets and timelines
- Prioritize populations for recovery measures, and get to work

Critical Actions Required Now by Canadian Federal Government :

- **1. Commitment to Healthy Fisheries:** Modernize the Fisheries Act
- **2. Accountability:** DFO must be transparent and accountable to Canadians
- **3. Implementation:** Restore capacity within DFO & Implement proven tools for fish recovery
- **4. Strategic Focus:** Endangered, Threatened and critical zone populations need attention now

Julia Baum

Baum Lab @ UVic

baumlab.weebly.com @BaumLab

Susanna D. Fuller

Ecology Action Centre @sdfuller

Fish sensibly - Recognize that climate change is also impacting our oceans

SCIENCE

Cod's Continuing Decline Linked to Warming Gulf of Maine Waters

By ERICA GOODE OCT. 29, 2015

Freshly-caught Gulf of Maine cod in December 2011. Marine scientists say rising temperatures in the gulf have decreased reproduction and increased mortality among Atlantic cod. Gretchen Ertl for The New York Times

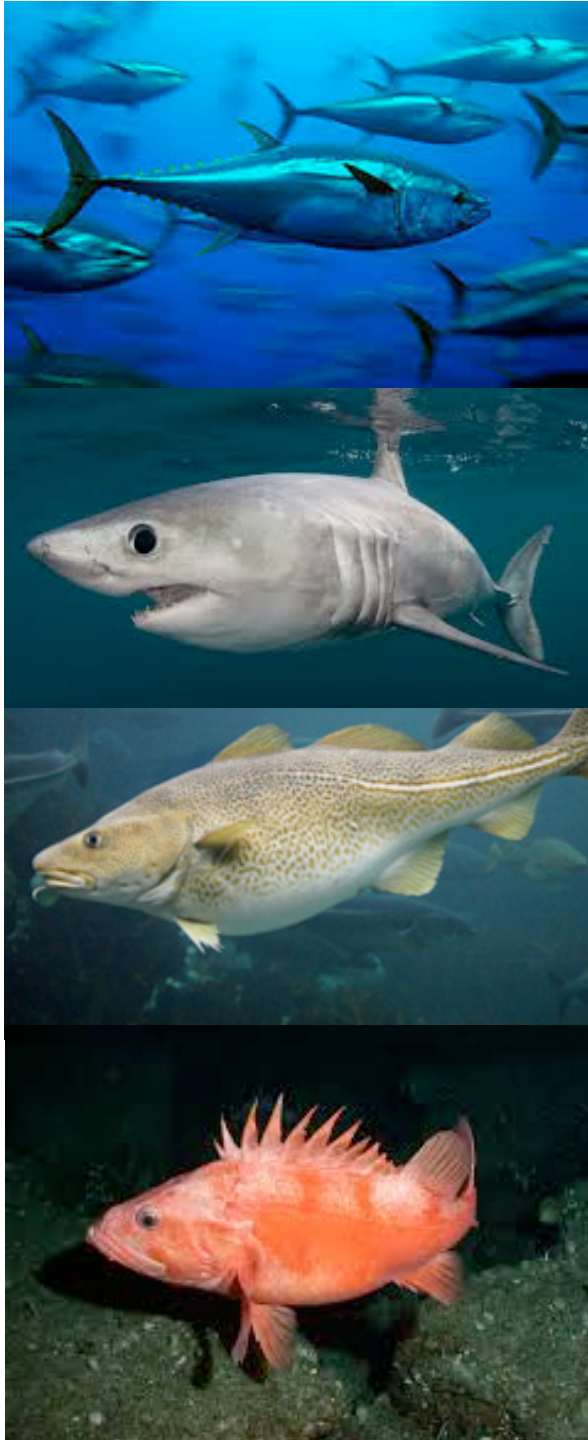
Protect endangered marine species

In 2020, Canada uses best available science to evaluate the status of species at risk **and** takes quick decisive action to recover species toward clearly articulated recovery targets:

- **Act quickly**: DFO develops and implements effective management measures either through SARA or the *Fisheries Act* as soon as a marine species is assessed by COSEWIC as being at-risk

For Endangered and Threatened species, DFO:

- Develops management measures to be included in IFMPs that should lead to population recovery
- Determines quotas and precautionary reference points based on progress made on rebuilding stocks
- Uses the habitat protection provisions of the *Fisheries Act* to ID critical fish habitat and include its protection in IFMPs
- Conducts regular, transparent assessments of progress toward recovery to hold managers accountable



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