Rebuilding marine life in Canada: Learning from successes

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Ocean pessimism is high

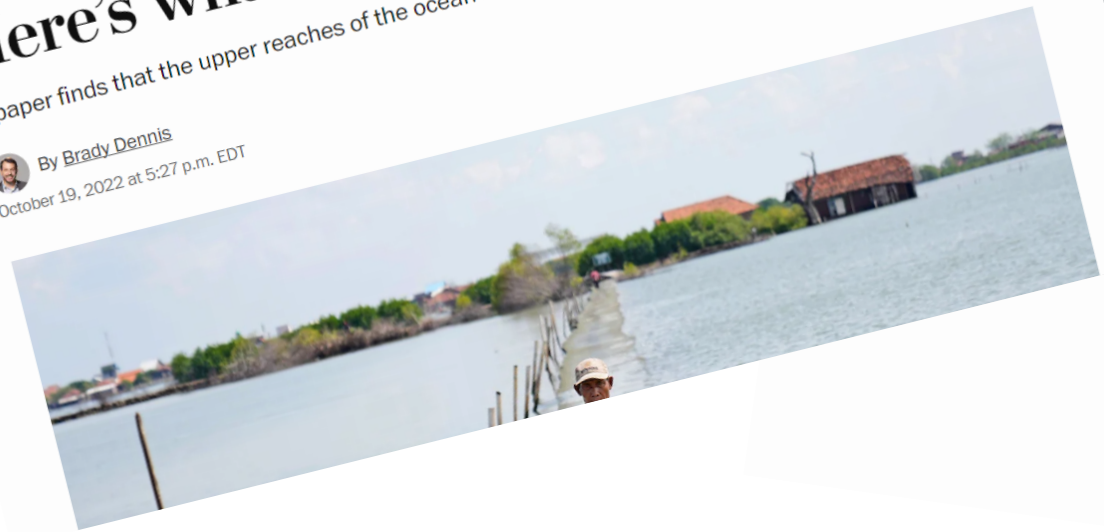
The Washington Post
Democracy Dies in Darkness

Climate & Environment | Climate Solutions | Hurricane season | Global warming | World impacts | Global emissions

Oceans are warming faster than ever. Here's what could come next.

A paper finds that the upper reaches of the ocean have been heating up since the 1950s

By Brady Dennis
October 19, 2022 at 5:27 p.m. EDT

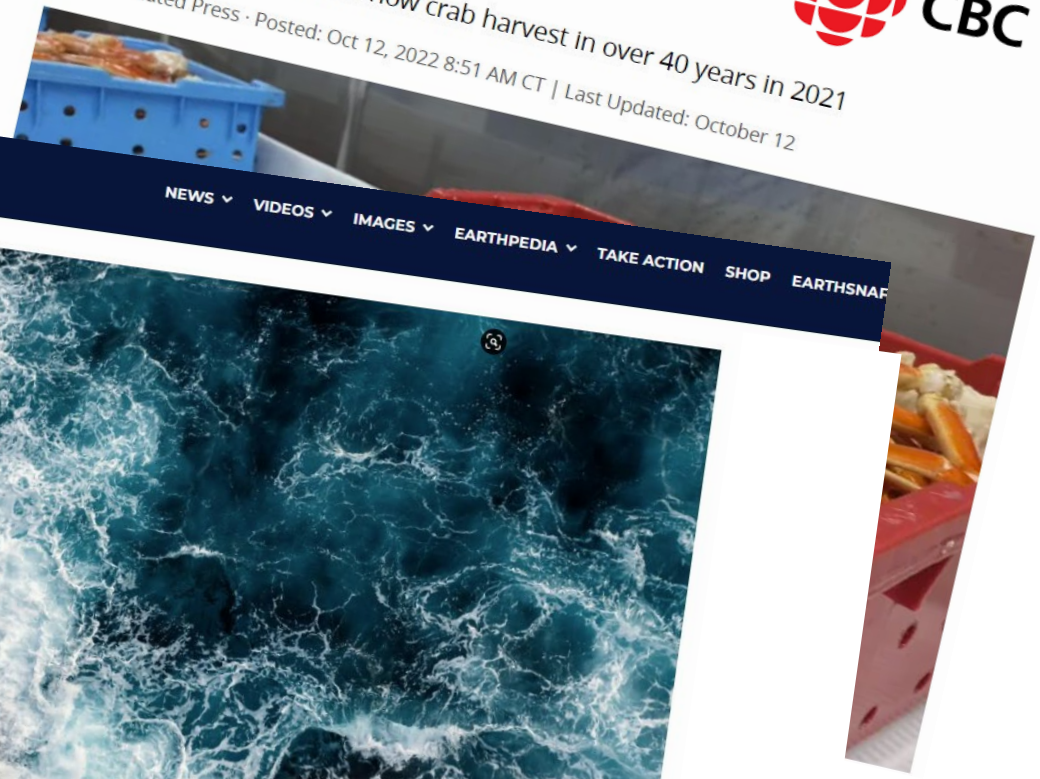


Alaska's Bering snow crab, king crab seasons cancelled

Decision follows smallest snow crab harvest in over 40 years in 2021

The Associated Press · Posted: Oct 12, 2022 8:51 AM CT | Last Updated: October 12

CBC



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Save

09-22-2022

Plastic pollution is making the ocean more acidic

By Katherine Bucko
Earth.com staff writer

A change of mind is needed

I. Reframing how we think about the ocean

II. Learning from successes

III. Solving multiple challenges at once

I. Re-framing how we think about our ocean

- Rebuilding fisheries
- Restoring habitat
- Recovering threatened species
- Reclaiming hope

Review

Rebuilding marine life

https://doi.org/10.1038/s41586-020-2146-7

Received: 24 May 2019

Accepted: 18 February 2020

Published online: 1 April 2020

Check for updates

Carlos M. Duarte[1,2,3]✉, Susana Agusti[1], Edward Barbier[4], Gregory L. Britten[5], Juan Carlos Castilla[6], Jean-Pierre Gattuso[7,8,9], Robinson W. Fulweiler[10,11], Terry P. Hughes[12], Nancy Knowlton[13], Catherine E. Lovelock[14], Heike K. Lotze[15], Milica Predragovic[1], Elvira Poloczanska[16], Callum Roberts[17] & Boris Worm[15]

Sustainable Development Goal 14 of the United Nations aims to "conserve and sustainably use the oceans, seas and marine resources for sustainable development". Achieving this goal will require rebuilding the marine life-support systems that deliver the many benefits that society receives from a healthy ocean. Here we document the recovery of marine populations, habitats and ecosystems following past conservation interventions. Recovery rates across studies suggest that substantial recovery of the abundance, structure and function of marine life could be achieved by 2050, if major pressures—including climate change—are mitigated. Rebuilding marine life represents a doable Grand Challenge for humanity, an ethical obligation and a smart economic objective to achieve a sustainable future.

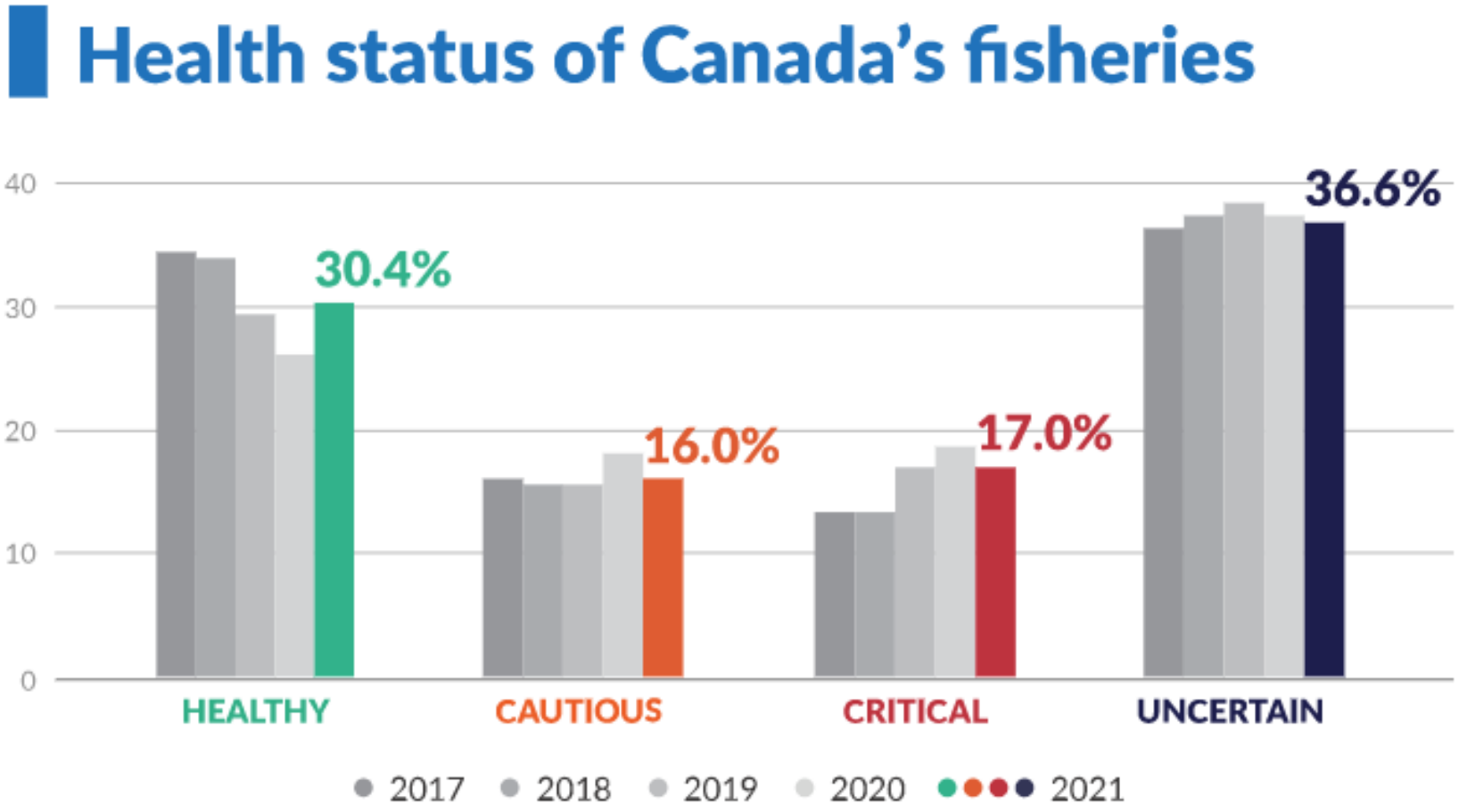
Source: Duarte et al. (2020) Nature 580:39-51

Big picture: what needs to change

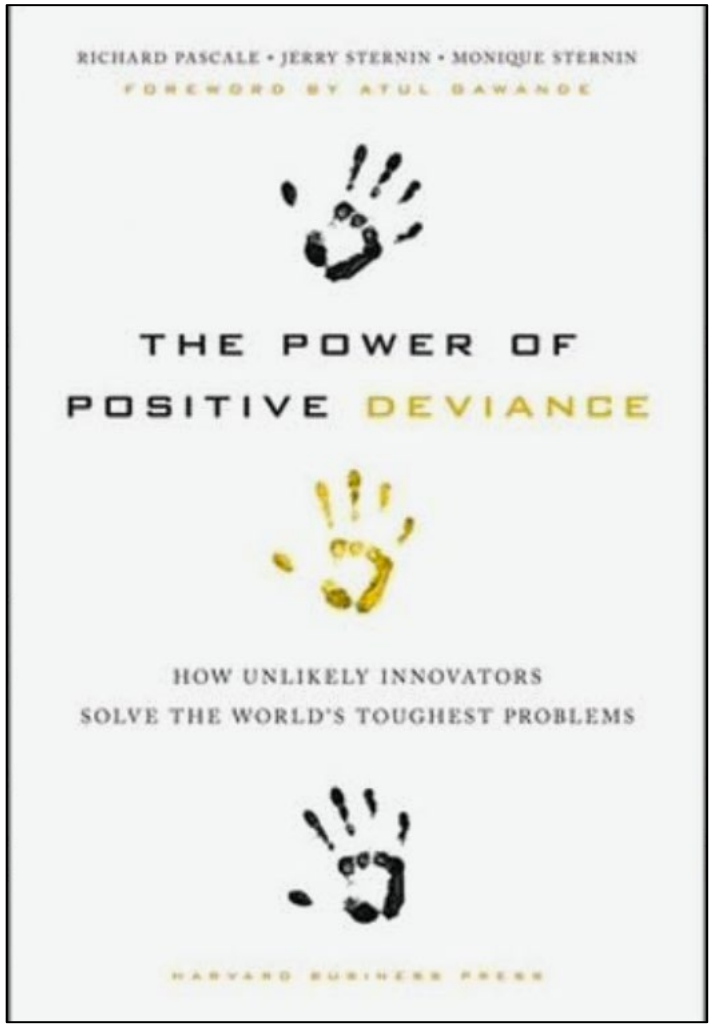
Rebuilding wedges	Saltmarshes	Mangroves	Seagrass	Coral reefs	Kelp	Oyster reefs	Fisheries	Megafauna	Deep-sea habitats
Protect species	Low	Low	Low	Low	Low	High	Critical	Critical	Critical
Harvest wisely	Low	Critical	Low	High	High	Critical	Critical	Critical	Critical
Protect spaces	Critical	Critical	Medium	High	Medium	Critical	High	High	Critical
Restore habitats	Critical	Critical	High	Medium	Medium	Critical	Medium	Medium	Medium
Reduce pollution	Medium	Medium	Critical	Critical	Critical	High	Medium	Medium	High
Mitigate climate change	High	High	High	Critical	High	High	High	High	High
Recovery targets by 2050	Substantial to complete	Substantial to complete	Substantial to complete	Partial to substantial	Substantial to complete	Substantial to complete	Substantial to complete	Substantial	Partial to substantial

Source: Duarte et al. (2020) Nature 580:39-51

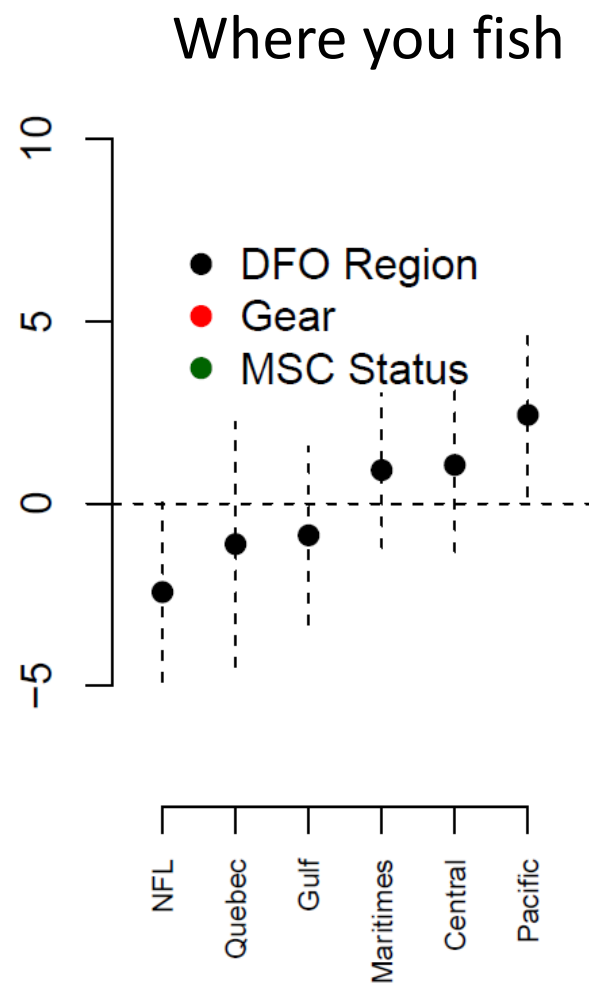
II. Learning from successes



Source: Oceana (2021) Fishery Audit (https://fisheryaudit.ca/)



What explains fisheries health in Canada?



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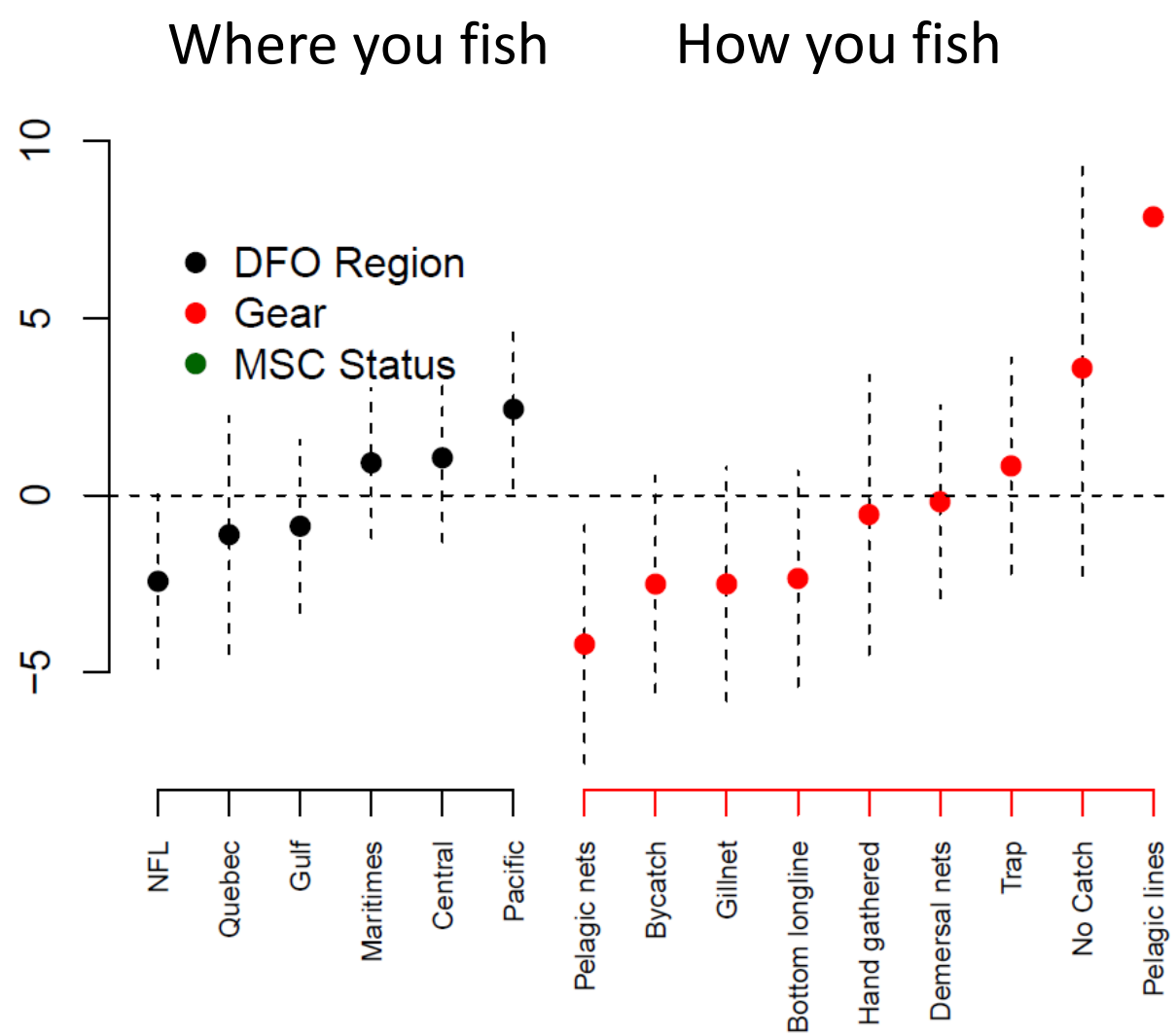

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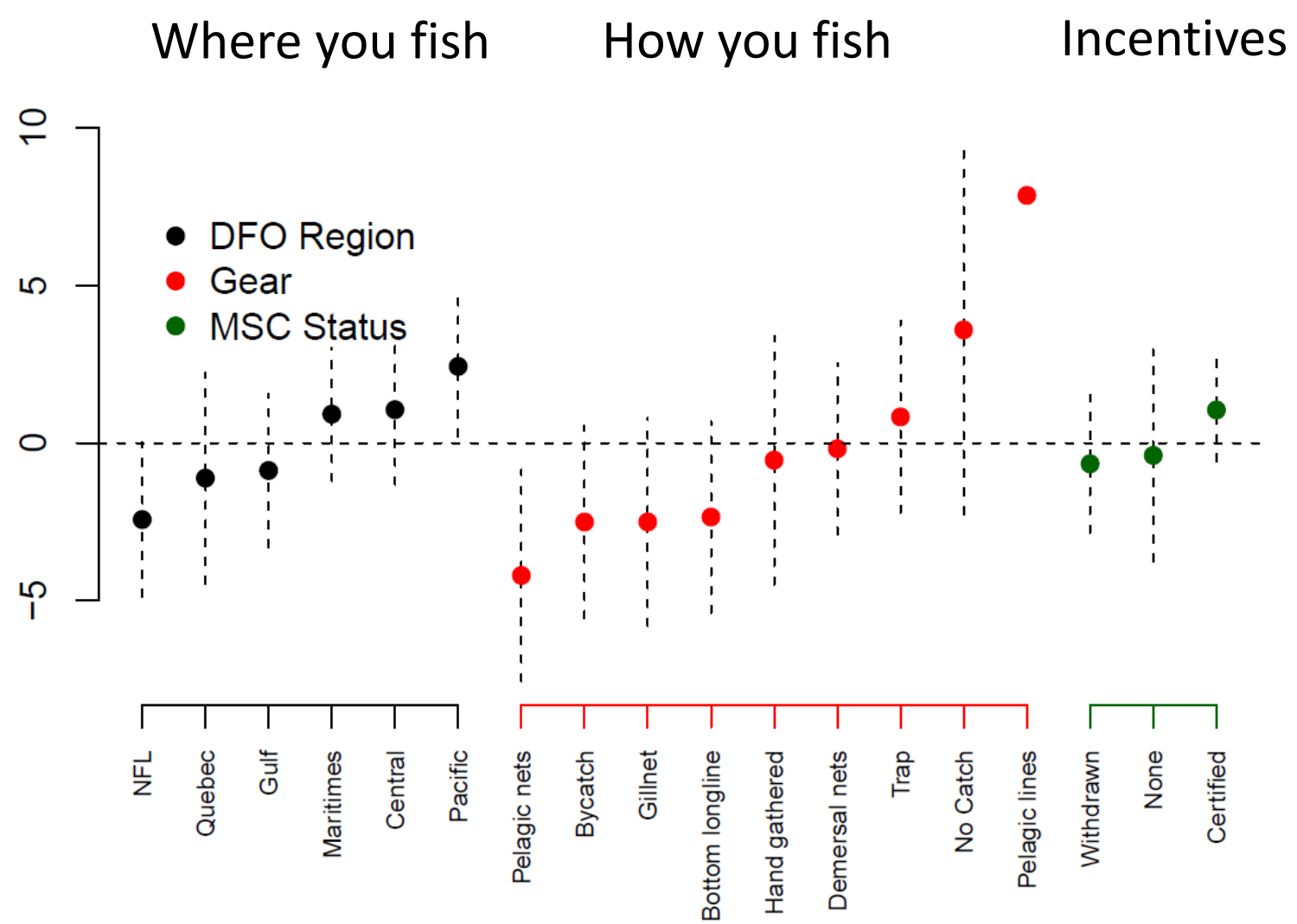
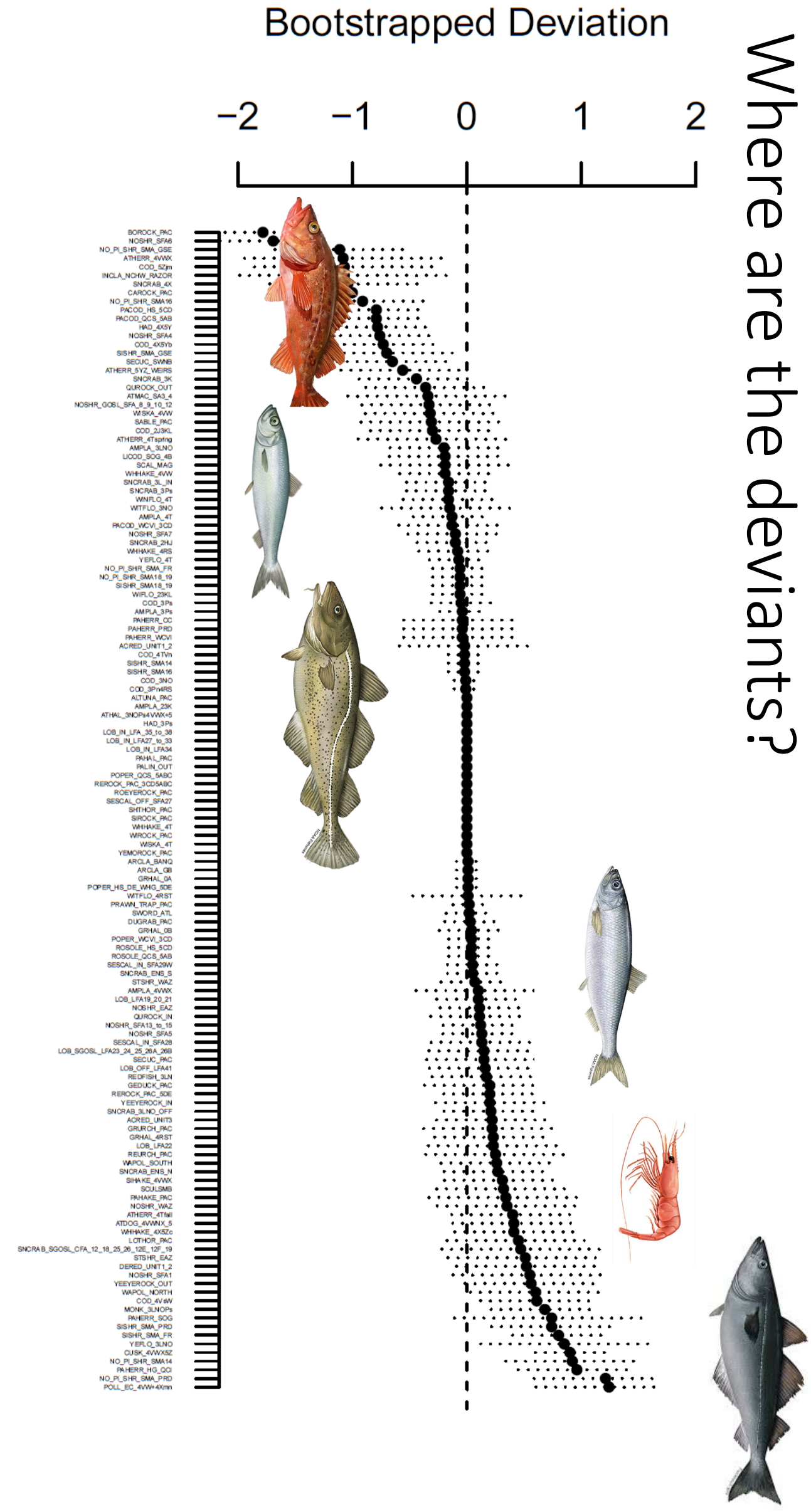


Where are the deviants?



Lessons so far

- Rebuilding successes after fishery closure
- Indigenous involvement and bycatch issues can drive success
- Large benefits for nature and people

III. Solving three key challenges at once

Article

Protecting the global ocean for biodiversity, food and climate

https://doi.org/10.1038/s41586-021-03371-z

Received: 19 December 2019

Accepted: 18 February 2021

Published online: 17 March 2021

Check for updates

Enric Sala[1]✉, Juan Mayorga[1,2], Darcy Bradley[2], Reniel B. Cabral[2], Trisha B. Atwood[3], Arnaud Auber[4], William Cheung[5], Christopher Costello[2], Francesco Ferretti[6], Alan M. Friedlander[1,7], Steven D. Gaines[2], Cristina Garilao[18], Whitney Goodell[1,7], Benjamin S. Halpern[9], Audra Hinson[3], Kristin Kaschner[8], Kathleen Kesner-Reyes[10], Fabien Leprieur[11], Jennifer McGowan[12], Lance E. Morgan[13], David Mouillot[11], Juliano Palacios-Abrantes[5], Hugh P. Possingham[14], Kristin D. Rechberger[15], Boris Worm[16] & Jane Lubchenco[17]

The ocean contains unique biodiversity, provides valuable food resources and is a major sink for anthropogenic carbon. Marine protected areas (MPAs) are an effective tool for restoring ocean biodiversity and ecosystem services[1,2], but at present only 2.7% of the ocean is highly protected[3]. This low level of ocean protection is due largely

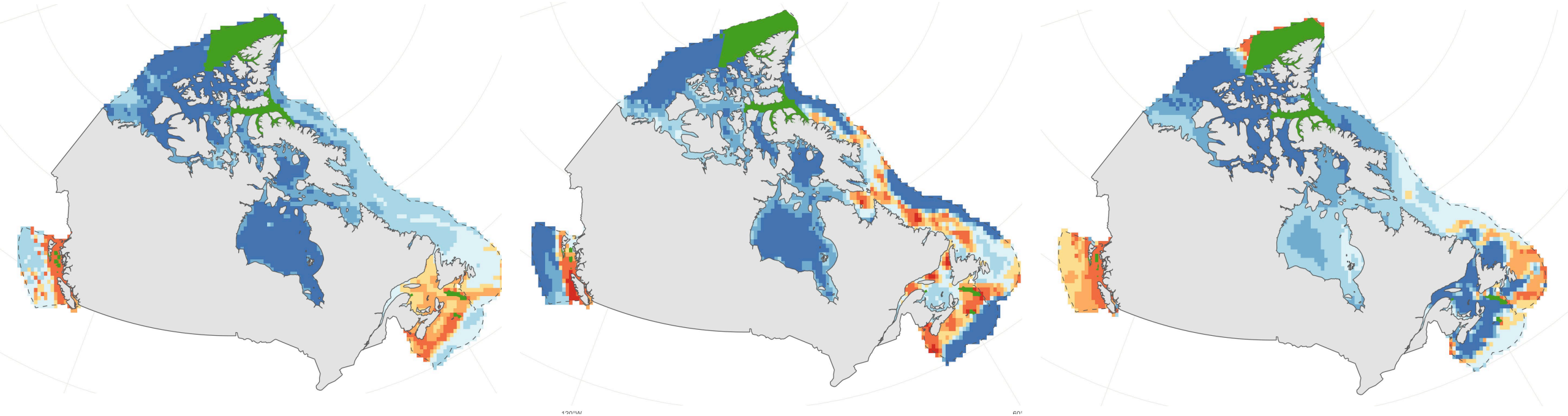
Source: Sala et al. (2021) Nature 592:397–402

Smart planning for species, carbon and food

Biodiversity conservation

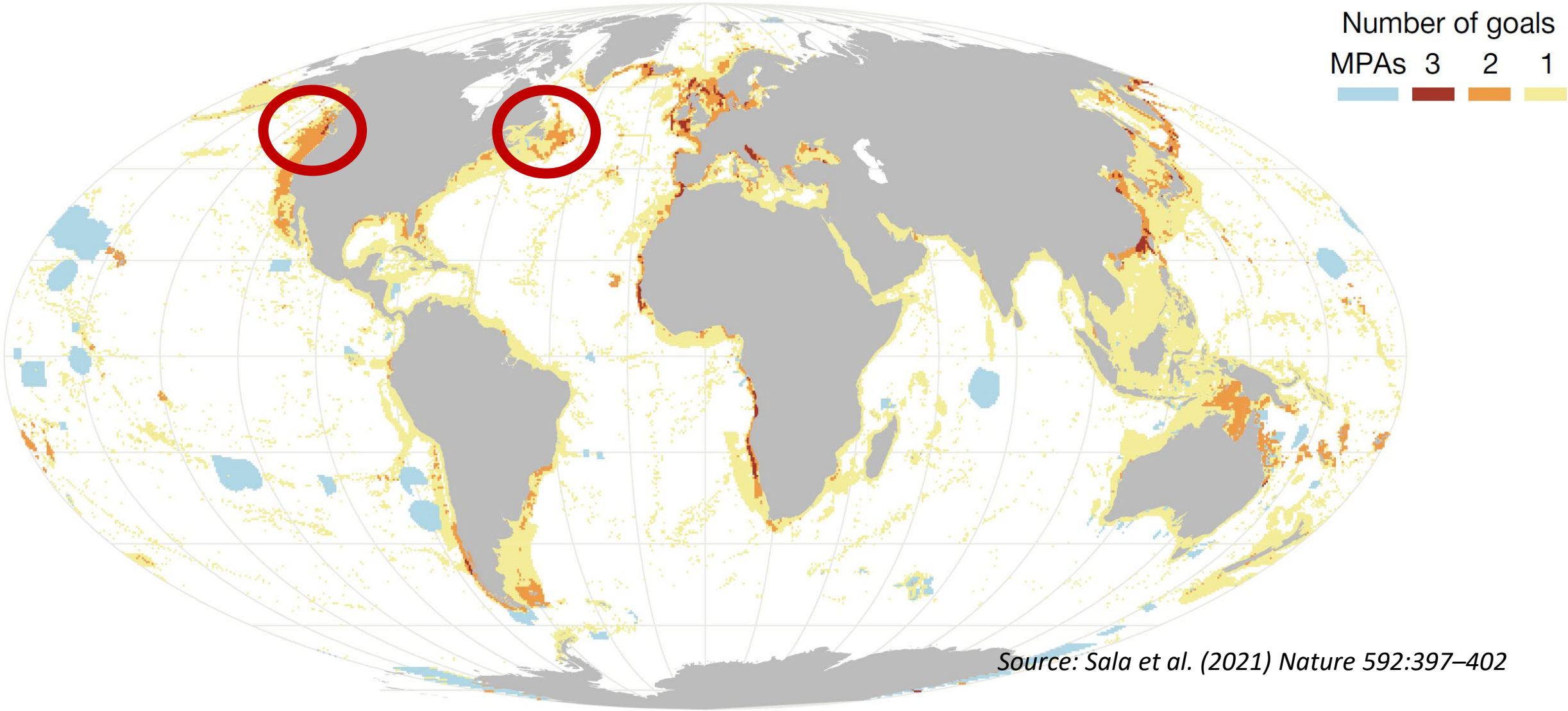
Carbon storage

Food supply



Source: Sala et al. (2021) Nature 592:397–402

Canada is of global importance



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Thank you!