

Three things to save the ocean

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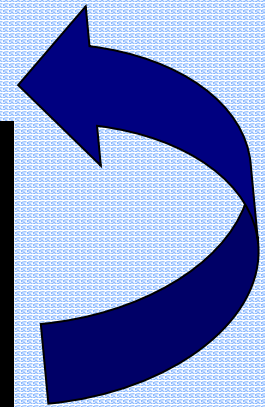
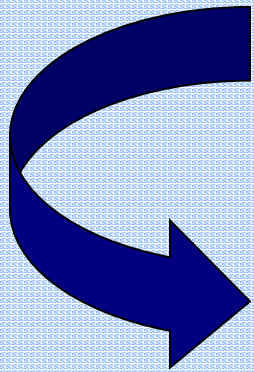
@DrRashidSumaila

Outline of talk

- Why do we need to save the ocean?
- Three things we need to abandon in order to save the ocean;
- Concluding comments.

**Interdisciplinary ocean economist:
acutely aware of the environment-
economy connection**

Ocean Environment



Humans & Economy

Interdisciplinarity; Integration, Partnership; Co-creation of knowledge

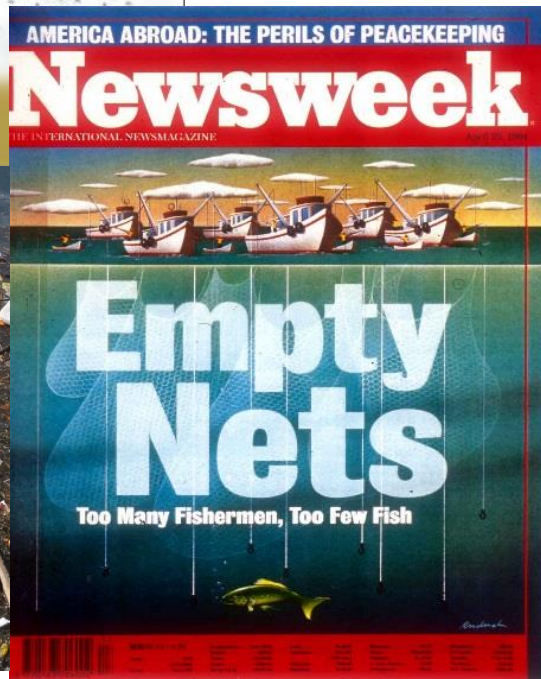
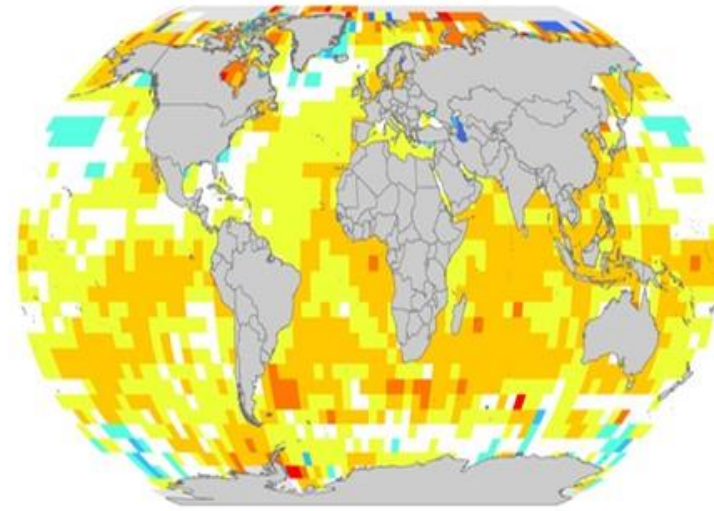
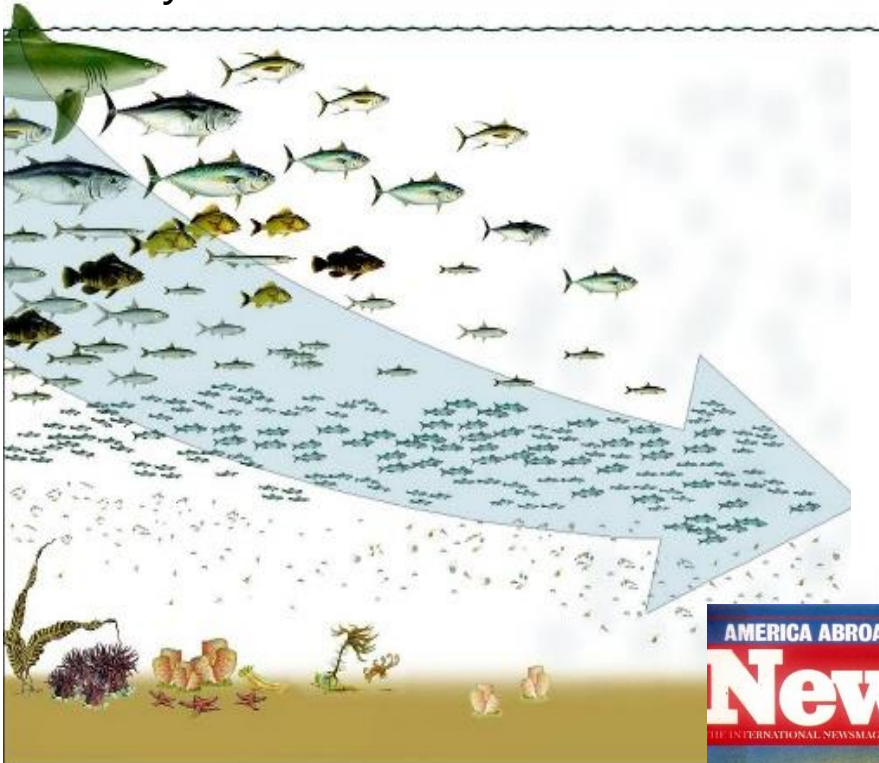
It is policy-relevant, I not just a theoretical economist



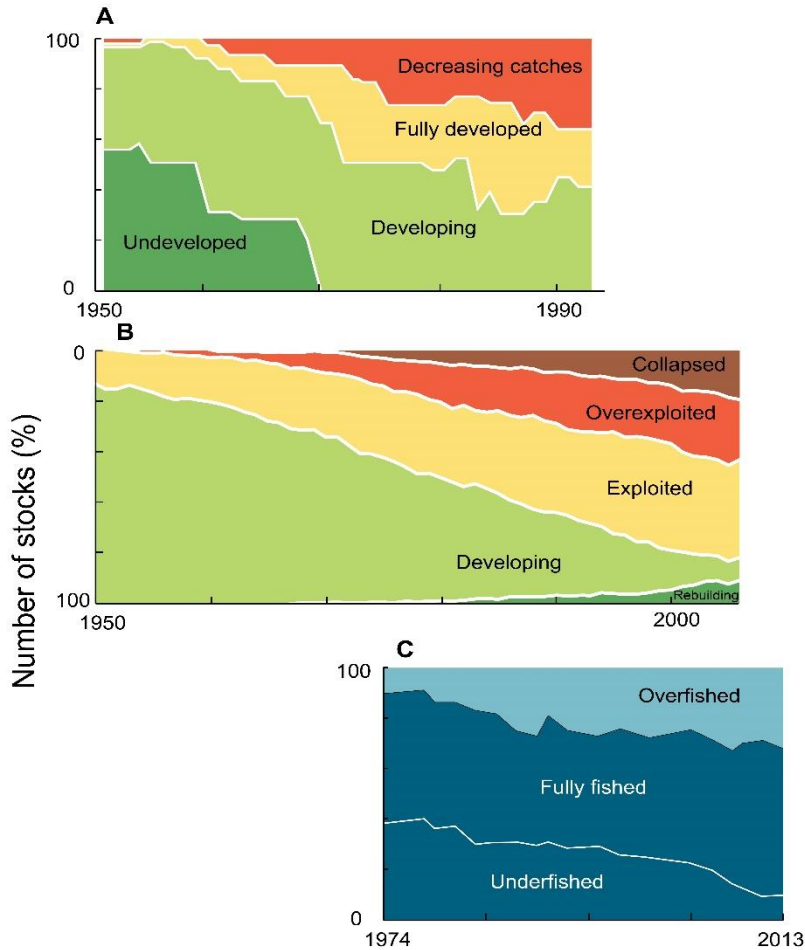
Why we need to save the Ocean

'Overtaking' & 'overpolluting' → Vanishing Fish

Pauly *et al.* 1998; Jackson *et al.* 2001, Halpern *et al.* 2008; Abbott & Sumaila 2019



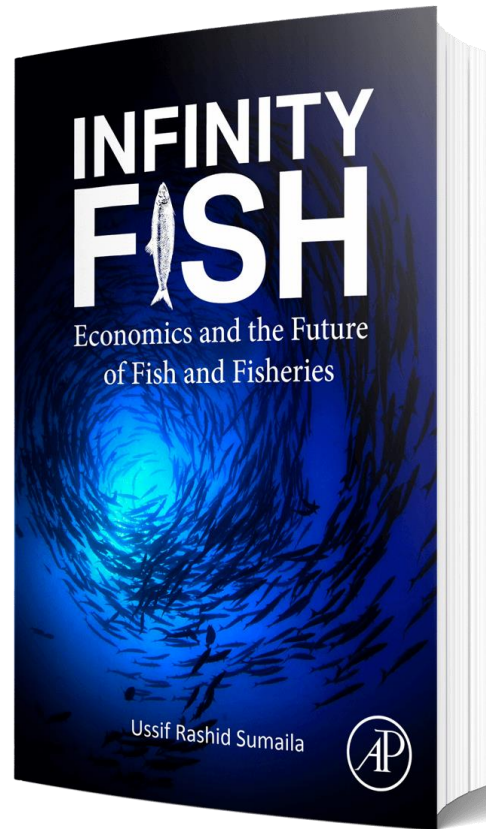
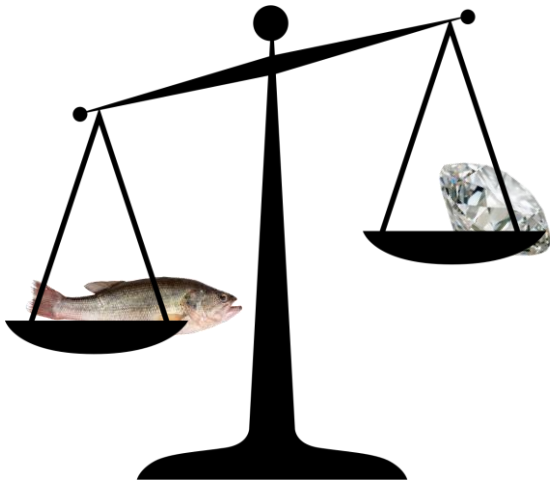
Ocean biodiversity loss has serious human consequences



Infinity Fish

Economics and the Future of Fish and Fisheries

"Fish is more valuable than diamond!!"



Sumaila, U.R.
(2021). *Infinity fish: Economics and the future of fish and fisheries.*
Elsevier-Associated Press.

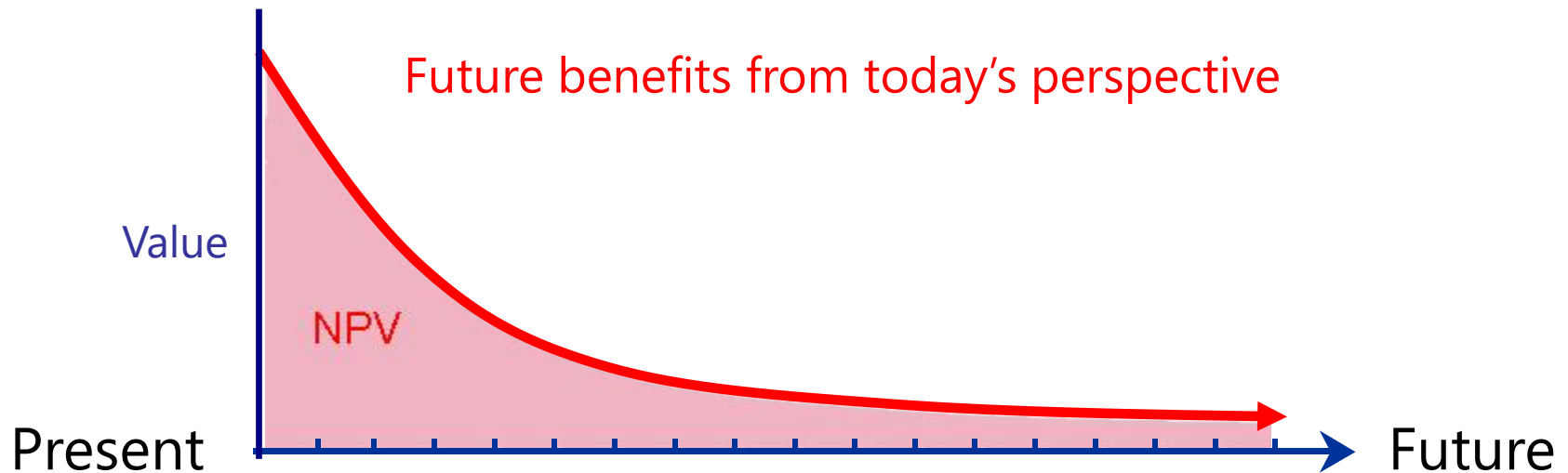
Pass on a healthy ocean teeming with life to our children and grandchildren so they too can have the option to do the same.

To save the ocean (and ourselves) we must **abandon the notion that we have to **take** “Everything Everywhere All at Once”!!**

***NOT All* at Once: Intergenerational justice**

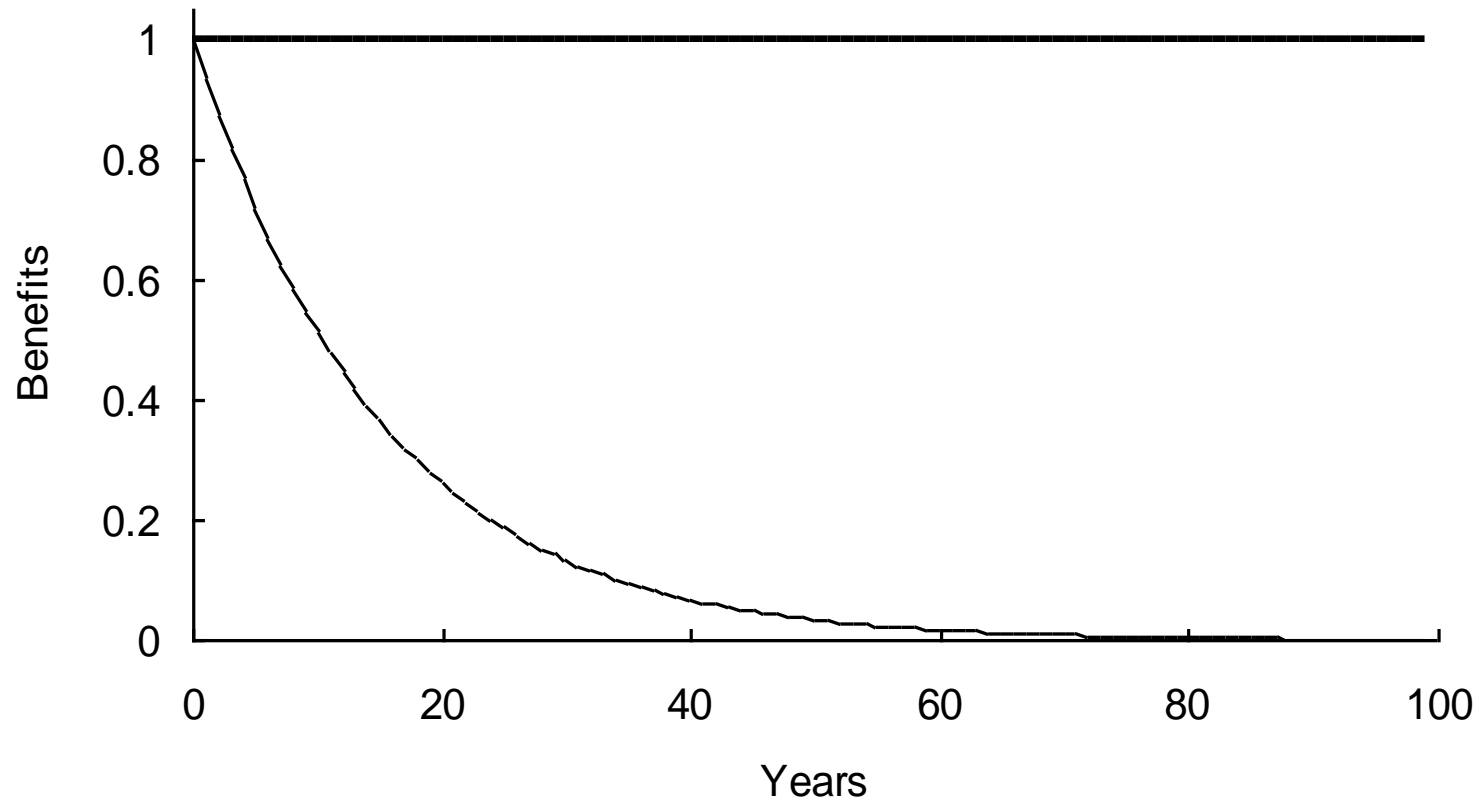
Interesting quote from a controversial person

“Egoism is the law of perspectives as it applies to feelings according to which what is *closest* to us appears to be *large* and *weighty*, while size and weight *decrease* with our *distance* from things” (attributed to Nietzsche, 1844-1900).



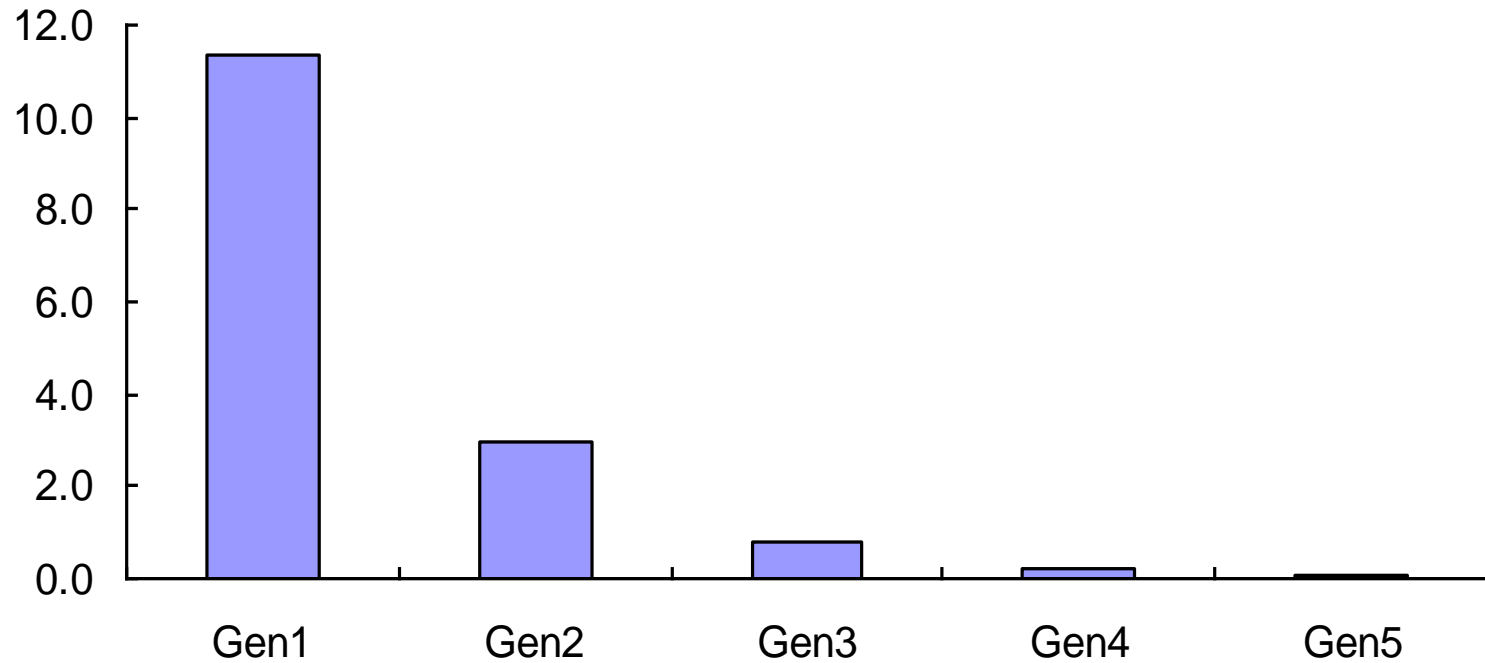
Discounting in economics

Flow of 1 unit of benefit in current and discounted value (net present value – NPV)



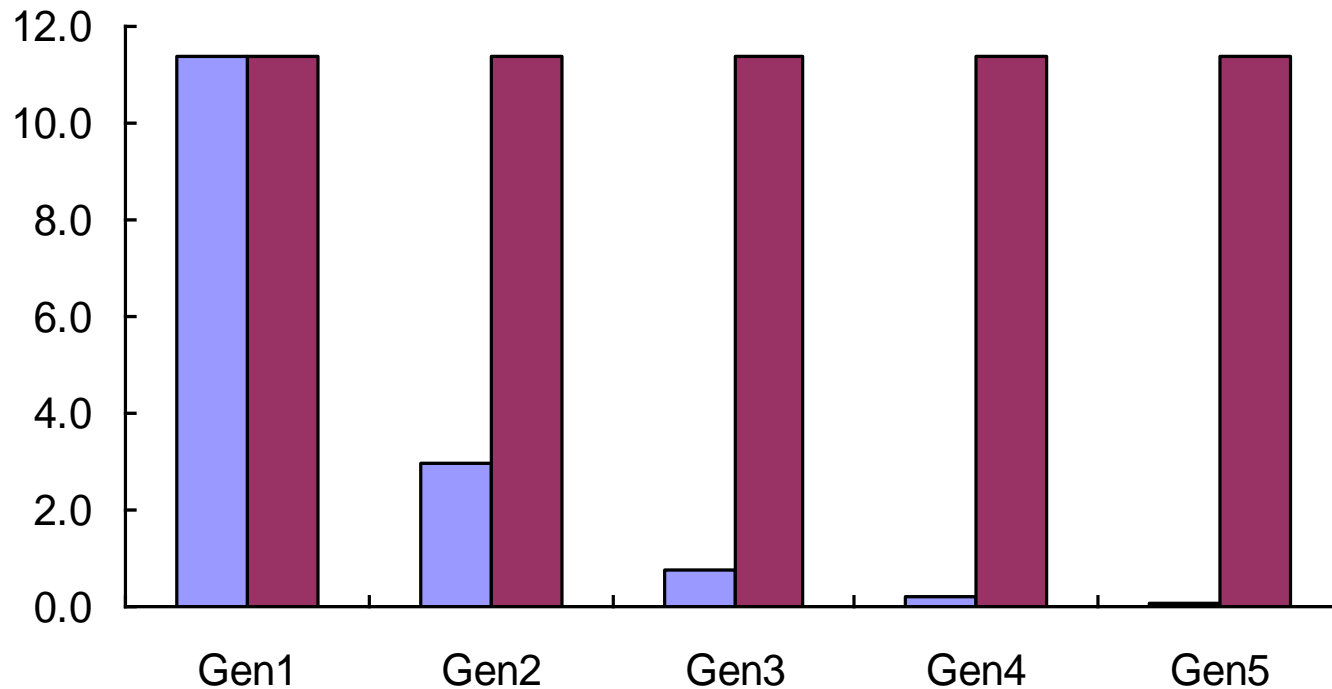
NPV accruing to each of 5 generations within 100 yrs.

Conventional discounting



NPV accruing to each of 5 generations within 100 yrs.

Resetting the discounting clock



Intergenerational cost–benefit analysis and marine ecosystem restoration

Ussif Rashid Sumaila

Fisheries Centre, University of British Columbia, 2259 Lower Mall, Vancouver, BC, Canada V6T 1Z4



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METHODS

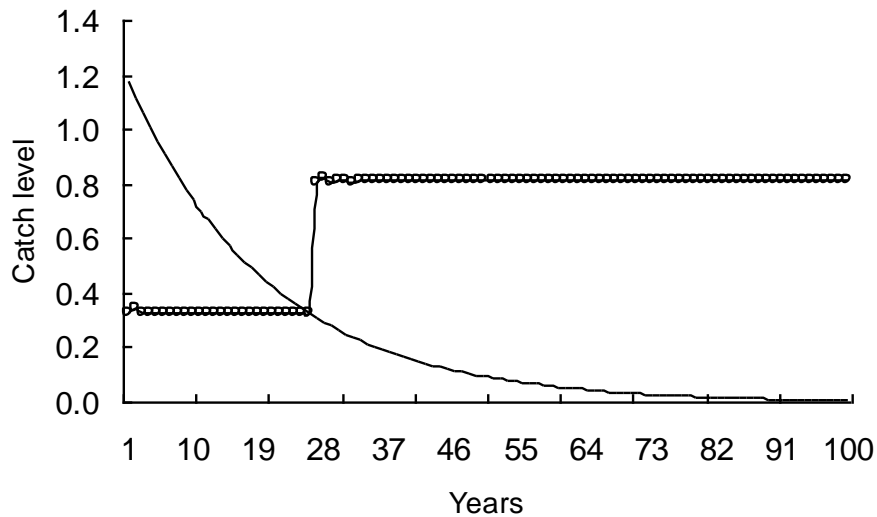
Intergenerational discounting: a new intuitive approach

Ussif R. Sumaila*, Carl Walters

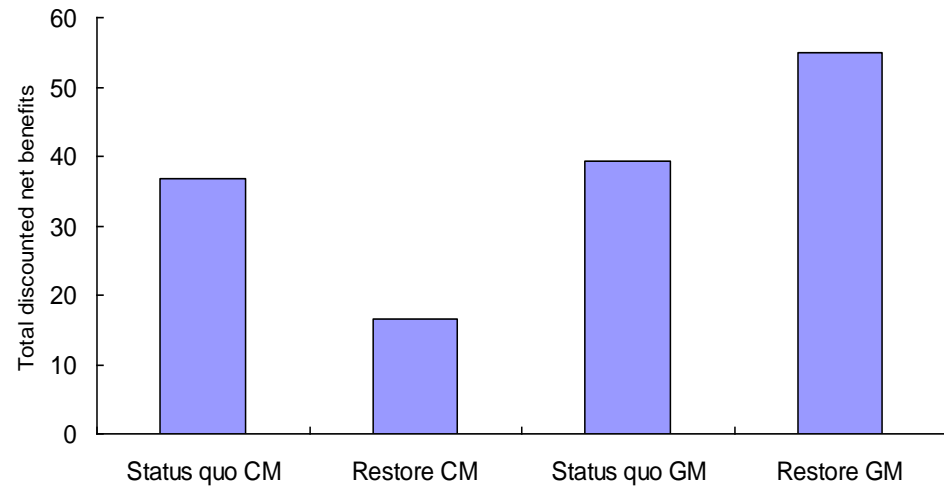
Fisheries Centre, University of British Columbia, 6660 NW Marine Drive, Vancouver, Canada V6T 1Z4

Application of intergenerational discounting: Rebuilding overfished stocks

Harvest profile



To restore or not to restore?



***NOT* Everything: Biodiversity justice**

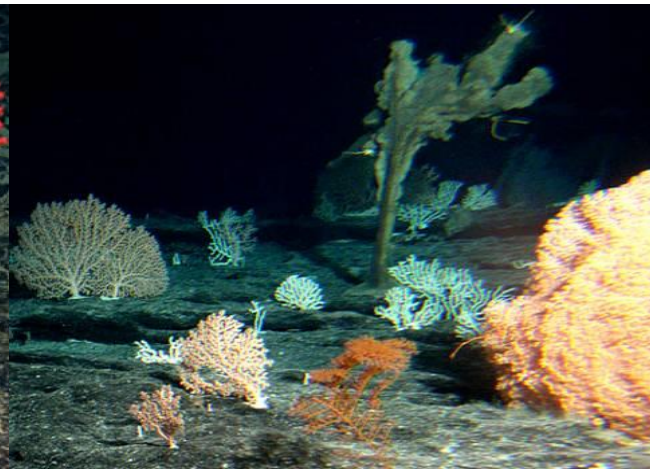
Don't fish orphans of the ocean

- Usually live long and grow very slowly;
- These species, for the most part, are impossible to fish sustainably;
- From the private perspective, it is rational to mine them out (Clark 1973; Norse et al. 2012).



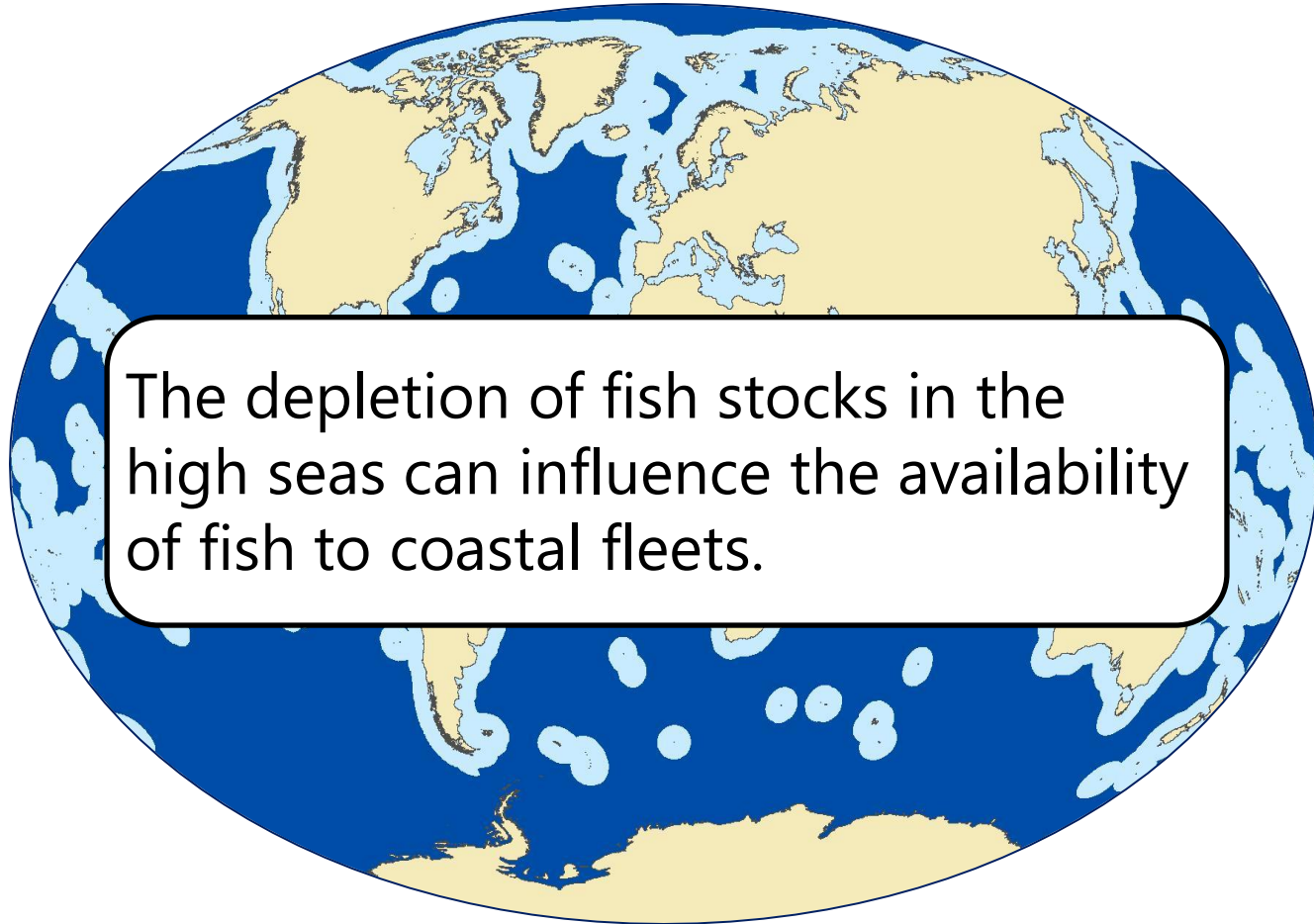
Avoid deep sea mining (DSM)

- DSM extracts minerals including rare earth resources from the sea floor;
- Supporters claim that DSM is necessary for batteries and electronic infrastructure;
- Opponents argue that the environmental impacts of mining are too destructive;
- My concern: Lack of knowledge + truncated valuation.



***NOT* Everywhere:**
**Biodiversity, economic, climate
& social justice**

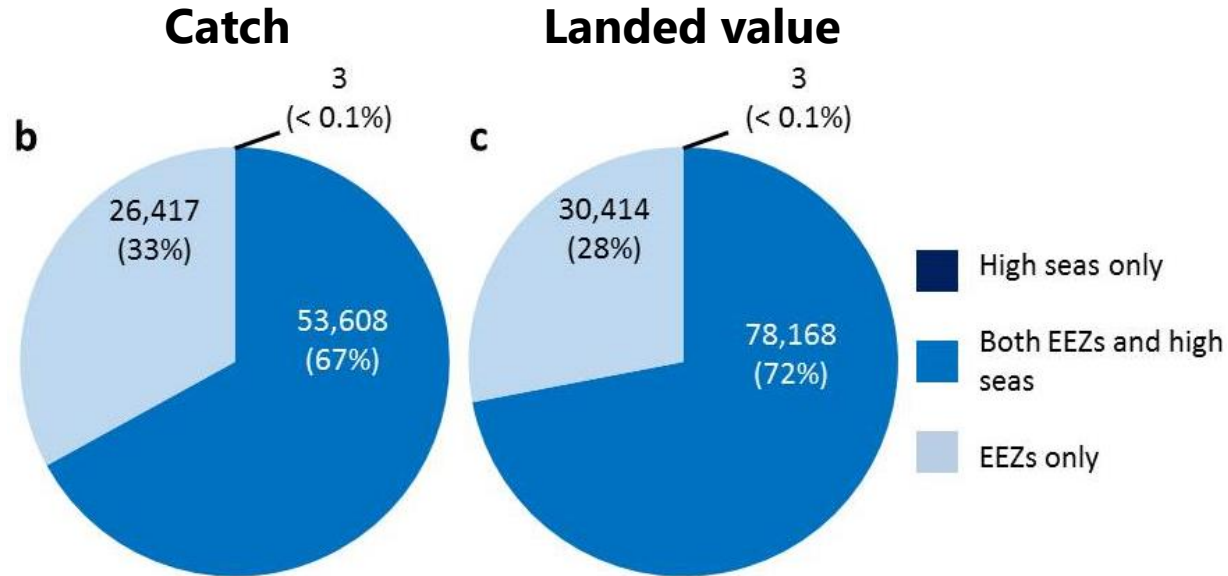
There is one global ocean



Exclusive economic zones (light blue) and high seas (dark blue)

Catches in EEZs versus the high seas

- Only ~1.5% fish species are exclusively high seas (“Orphans of the ocean”);
- Less than 1% of global catch and landed value are from orphans of the ocean;
- A few rich fishing nations capture ~70% of fish revenues;
- High seas fisheries are relatively badly managed.



The High Seas and Us

Understanding the Value of High-Seas Ecosystems

Rogers, A.D., Sumaila, U.R., Hussain, S.S. and Baulcomb, C.



OPEN ACCESS

PERSPECTIVE

Close the High Seas to Fishing?

Crow White, Christopher Costello

Published: March 25, 2014 • DOI: 10.1371/journal.pbio.1001826

OPEN

Winners and losers in a world where the high seas is closed to fishing

SUBJECT AREAS:

CONSERVATION BIOLOGY

ENVIRONMENTAL ECONOMICS

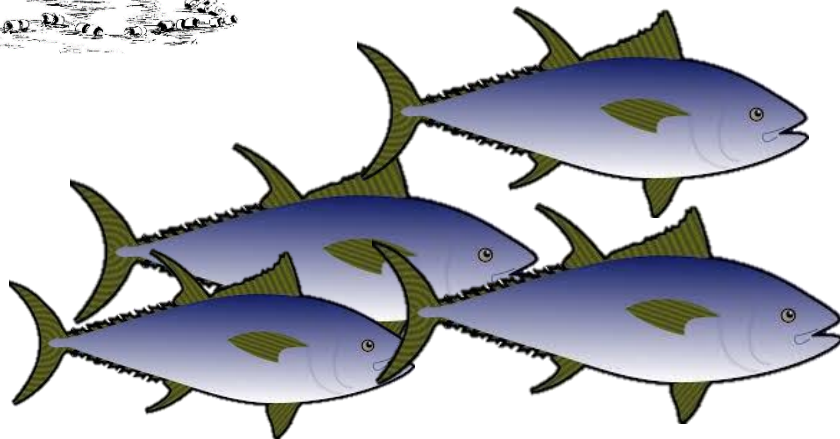
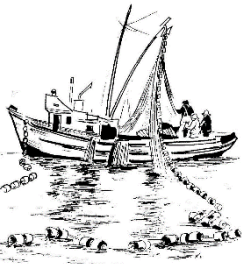
U. Rashid Sumaila¹, Vicky W. Y. Lam², Dana D. Miller¹, Louise Teh¹, Reg A. Watson³, Dirk Zeller², William W. L. Cheung¹, Isabelle M. Côté², Alex D. Rogers⁴, Callum Roberts⁷, Enric Sala⁸ & Daniel Pauly²

Rogers, Sumaila et al. (2014)

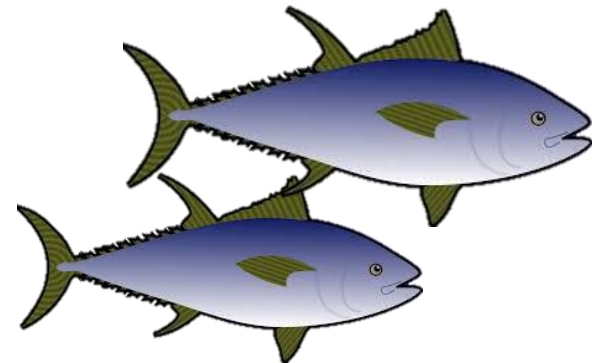
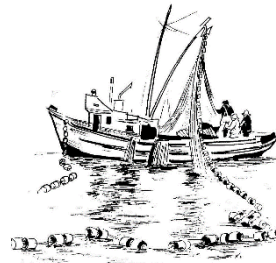
White & Costello (2014)

Sumaila *et al.* (2015)

Close high seas (Fish bank for the world)



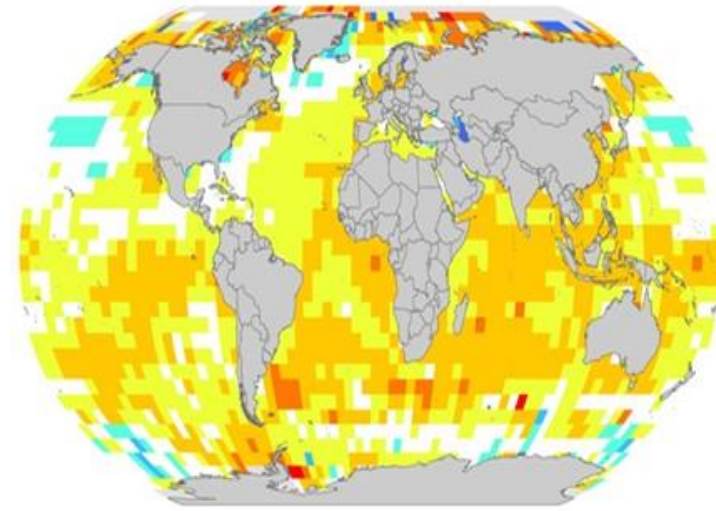
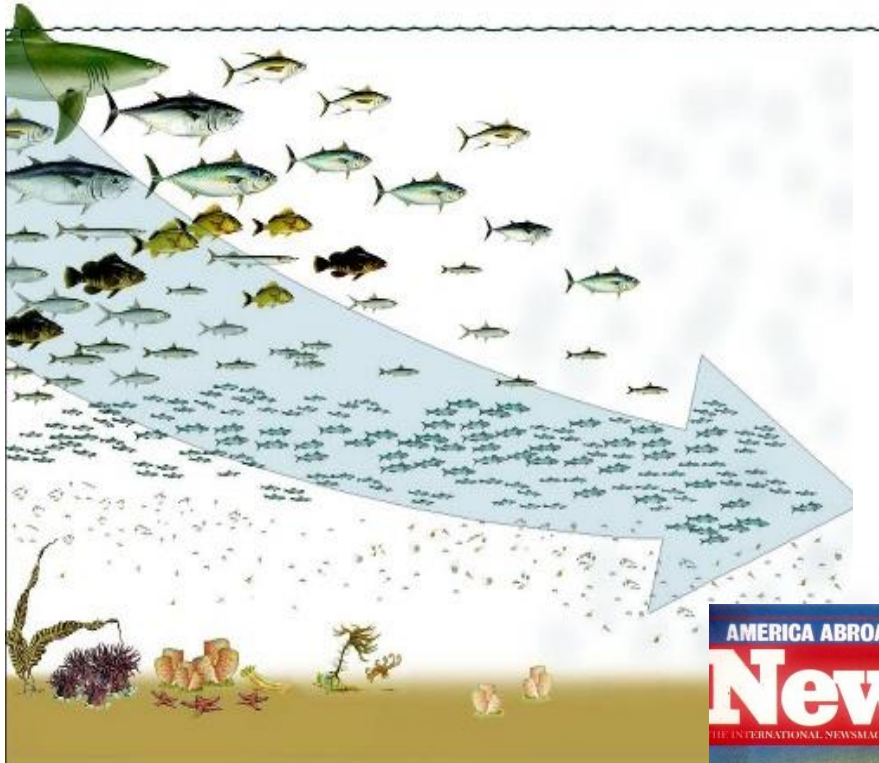
High seas



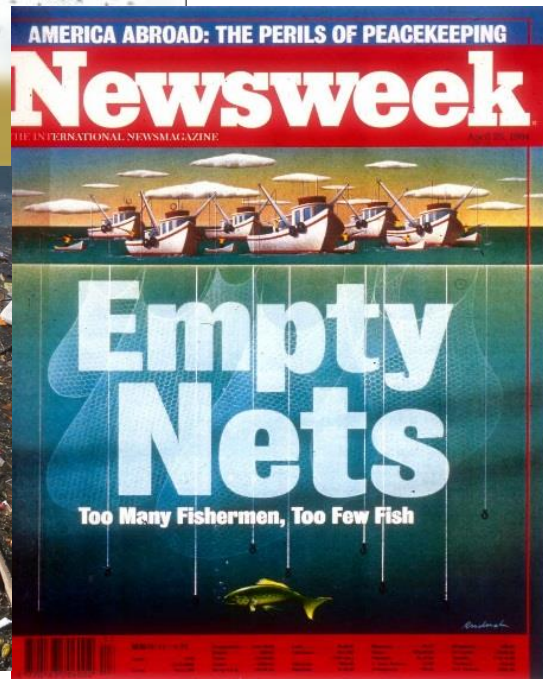
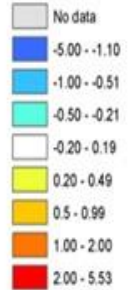
EEZ

***“Not Everything Not Everywhere
Not All at Once”!!***

We'll tackle threats to our ocean



SST Change (degree C)
average 1988-2007 relative
to 1950-69



LETTER

WTO must ban harmful fisheries subsidies

U. RASHID SUMAILA, DANIEL J. SKERRITT, ANNA SCHUHBAUER, SEBASTIAN VILLASANTE, ANDRÉS M. CISNEROS-MONTEMAYOR, HUSSAIN SINAN, DUNCAN BURNSIDE,

PATRIZIA RAGGI ABDALLAH, KEITA ABE, [...] AND DIRK ZELLER [+286 authors](#) [Authors Info & Affiliations](#)

SCIENCE • 28 Oct 2021 • Vol 374, Issue 6567 • p. 544 • DOI:10.1126/science.abm1680

22,449 28



Global fishing subsidies can contribute to overfishing. PHOTO: XIE MINGFEI/VCG/GETTY IMAGES



Science has spoken! This is what DG @NOIweala declared after receiving with Amb. @WillsSantiago a letter signed by nearly 400 ocean experts led by @DrRashidSumaila and Dr Anna Shuhbauer on a WTO agreement to curb harmful fisheries subsidies. Read:

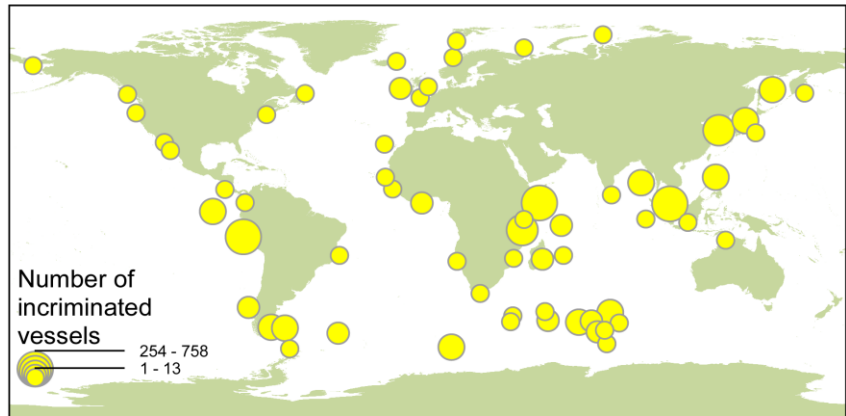


wto.org
Scientists seeking MC12 agreement on fishing subsidies present letter to DG Okonjo-Iweala
Nearly 300 ocean experts from around the world prese...

7:45 AM · Nov 8, 2021

47 Retweets 4 Quotes 90 Likes

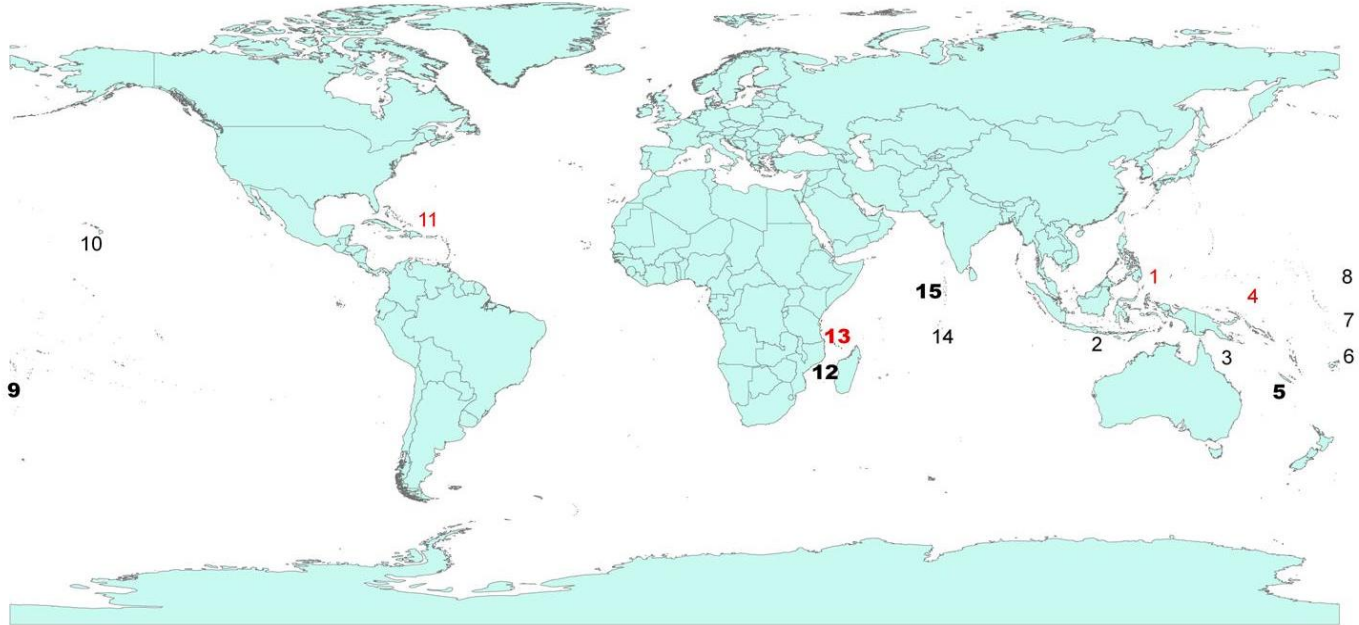
Make illegal fishing uneconomic



Number of incriminated vessels fishing illegally between 1980 and 2003

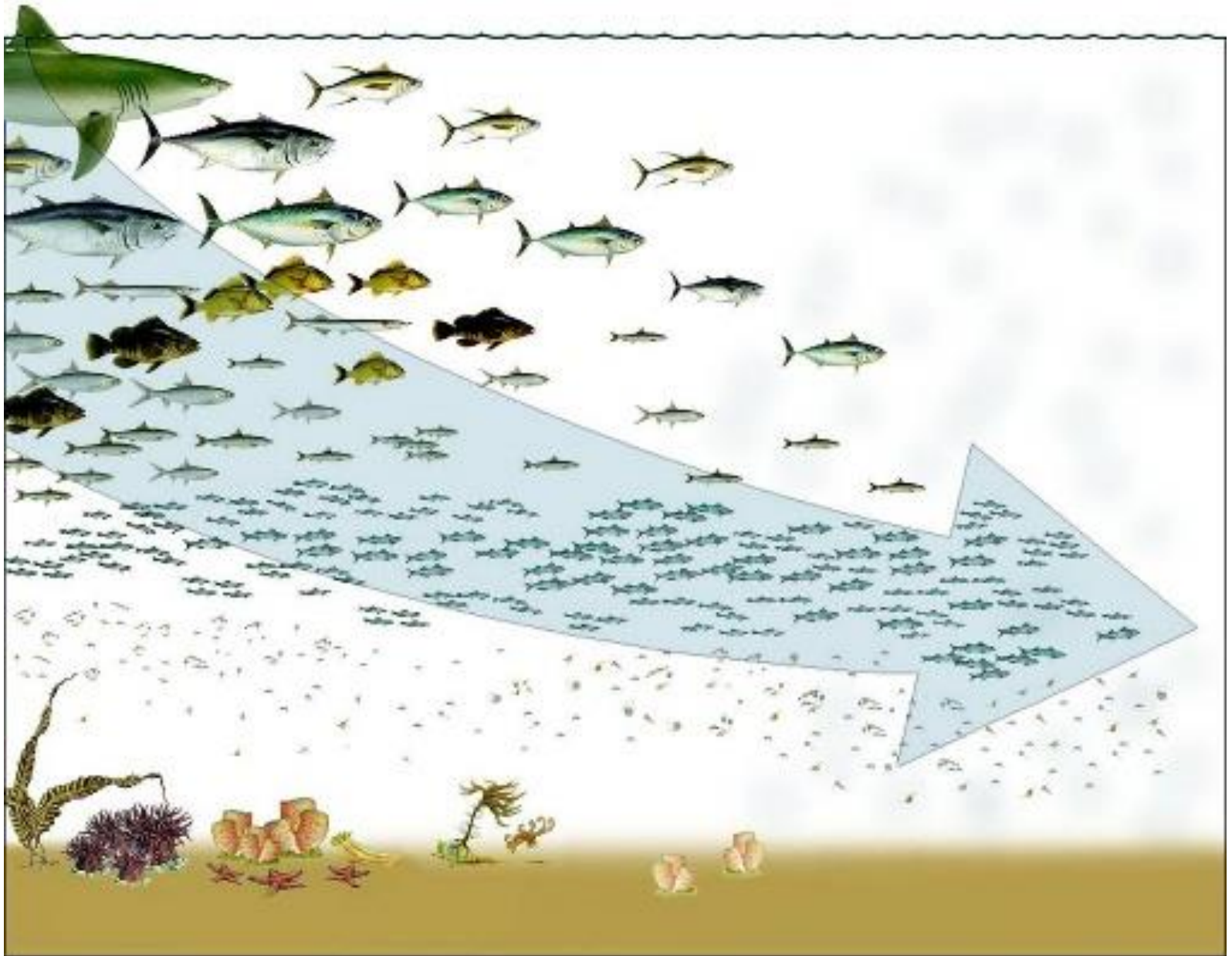
Buy insurance by protecting a sizable portion of the ocean

(e.g., Clark 1996; Sumaila 1998; UN High Seas Treaty 2023)



- | | |
|---|---|
| 1. Coral Triangle Initiative [^] | 9. Cook Islands MPA ^{**} |
| 2. Indonesia MPA network [*] | 10. Papahānaumokuākea Marine National Monument [*] |
| 3. Australian Commonwealth Marine Reserves ^{**} | 11. Caribbean Challenge [*] |
| 4. Micronesia Challenge [^] | 12. Primeiras and Segundas MPA [*] |
| 5. New Caledonia MPA ^{**} | 13. Western Indian Ocean Coastal Challenge [^] |
| 6. Fiji Islands Locally Managed Marine Areas [*] | 14. Chagos Marine Reserve ^{**} |
| 7. Phoenix Islands Protected Area (Kiribati) [*] | 15. Maldives Biosphere Reserve [*] |
| 8. Pacific Remote Islands, Marianas Trench, Rose Atoll Marine National Monuments [*] | |

GEF, Fisheries management & Infinity Fish



**Thanks to STAP and the GEF for
inviting me – great honour!**

**Thanks to you all for your
attention!**

 [@DrRashidSumaila](https://twitter.com/DrRashidSumaila)



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