



High Seas Treaty Must Reflect Critical Role of Fish in Marine Ecosystems

Agreement can complement current efforts to manage valuable species such as tunas

Overview

Members of the United Nations are negotiating a treaty that would enable the conservation and sustainable use of biodiversity in areas beyond national jurisdiction (ABNJ), including the international waters known as the high seas. Extending from the water column to the sea floor, these international areas are distant—usually 200 nautical miles from coastlines, vast, and teeming with life.

Negotiators are seeking to agree on treaty language that would conserve high seas marine biodiversity comprehensively and ensure its sustainable use. A few States have called for fish to be excluded from the scope of the high seas treaty, concerned that the agreement could undermine the role of regional fisheries management organizations (RFMOs) in regulating international fishing activities.¹

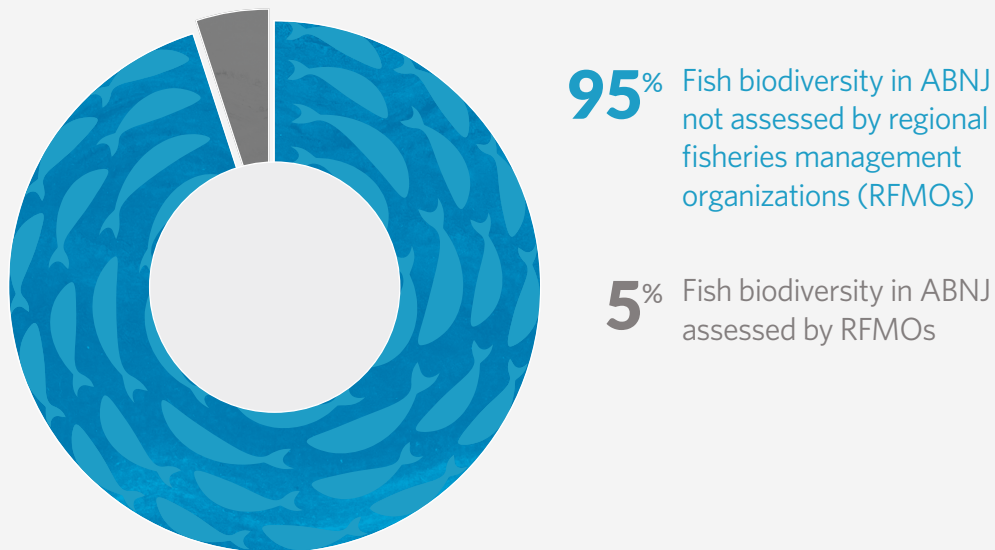
However, because high seas fisheries have been shown to have direct and indirect impacts on a wide range of species beyond those targeted, the treaty's overall objective would be severely hampered if fish or fisheries were explicitly excluded from its scope. To effectively conserve the broad diversity of life in marine areas beyond national jurisdiction, a more holistic approach—one that takes fish biodiversity into account—is critical to provide effective management of high seas biodiversity. Scientists, practitioners, and legal scholars caution that any such broad exclusion from the treaty would be a mistake.²

High seas marine life is incredibly diverse, spanning the food web from tiny phytoplankton to seabirds, turtles, and whales. Fish are a critical component of the biodiversity in ABNJ and play a major role in the function of

marine ecosystems.³ Today, about 17 RFMOs—depending on how the entities are defined—set catch limits and bycatch mitigation measures for high seas fisheries for select species such as tunas, jack mackerel, and swordfish in different regions of the ocean. Although most areas beyond national jurisdiction fall under at least one RFMO, their mandates are narrowly focused on managing a limited number of commercially important fish species and associated bycatch.

Figure 1

Most High Seas Biodiversity Not Tracked by Current Governance Systems



Source: G. Ortuño Crespo et al., “High-Seas Fish Biodiversity Is Slipping Through the Governance Net,” *Nature Ecology & Evolution* 3, no. 9 (2019): 1273-76, <https://doi.org/10.1038/s41559-019-0981-4>

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Although many RFMOs have been working to incorporate ecosystem-based approaches, there is much room for improvement. For example, a 2017 assessment of tuna RFMOs found that the organizations had made only moderate progress in managing bycatch species—for example, the sharks, seabirds, and turtles incidentally caught in these fisheries. They have made less progress in taking a more holistic approach to the impact of their policies on the food web, habitats, and broader ecosystems.⁴ That’s why it is critical for the high seas treaty now being negotiated to embrace an integrated and comprehensive view of biodiversity in these waters, including fish biodiversity, so that the efforts of RFMOs and the future body charged with protecting biodiversity beyond national jurisdiction complement one another.

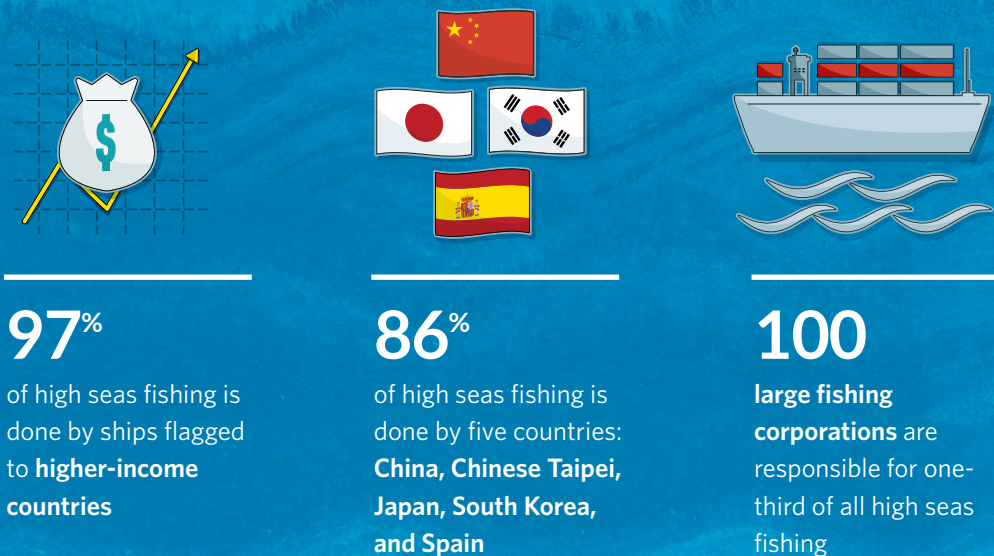
High seas fishing and emerging threats

The high seas make up nearly two-thirds of the ocean, and their great distance from shore makes them more difficult and expensive for fishers to access. It is not surprising, then, that relatively few countries conduct most of the fishing in these waters. Harmful fishing subsidies worsen the problem: Without these government subsidies, as much as 54% of high seas fishing grounds would be unprofitable at current fishing rates.⁵

Scientists estimate that 95% of high seas fish biodiversity is not currently assessed by RFMOs.⁶ (See Figure 1.) Meanwhile, the list of species being fished on the high seas is short: Thirty-nine (predominantly tunas and mackerels) account for 99.5% of the catch. And almost all of those fish go to high-end markets in wealthy countries, rather than provide subsistence or food security for developing countries.⁷ (See Figure 2.)

Figure 2

Limited Number of Nations Benefit From Most High Seas Fishing Distant waters accessible only to those with greater resources



Sources: D.J. McCauley et al., "Wealthy Countries Dominate Industrial Fishing," *Science Advances* 4, no. 8 (2018): eaau2161, <https://doi.org/10.1126/sciadv.aau2161>; G. Carmine et al., "Who Is the High Seas Fishing Industry?" *One Earth* 3, no. 6 (2020): 730-38, <https://doi.org/10.1016/j.oneear.2020.11.017>

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Lower-income countries neither participate in nor benefit from high seas fishing as much as wealthy nations do, but they still are susceptible to its negative impact. The ocean is a highly connected space; high seas and coastal ecosystems are intertwined.⁸ Ineffective management of biodiversity in the high seas, therefore, can have negative effects on the biodiversity of coastal communities, including the availability of important fish species. That's because apex predators such as sharks and tunas play a critical role in maintaining ecosystem functions. Their excessive removal, including through overfishing, therefore can have devastating consequences for the marine environment.⁹

More effective management of high seas biodiversity, however, can result in more equitable outcomes, with small-scale, developing country, and coastal fishers probably among the big winners.¹⁰ High seas ecosystems today face many new and emerging challenges. For example, climate change is altering ocean ecosystems and may already be shifting the locations of key species. That reality could pose significant challenges for governance because geographic management practices remain relatively static.¹¹ In benthic and deep-sea ecosystems, where temperatures have varied little over millions of years, climate change now threatens to push temperatures beyond the adaptation range of many species. That includes those that play an important role in supporting commercially important fish stocks.

A case study of unmanaged high seas fish: Mesopelagics

Fish living at the 200-1,000-metre depth—known as the ocean’s “twilight zone”—take daily vertical migrations, making their way up towards the more productive surface of the water column at night and traveling back to the depths during the day.¹² These unique organisms are able to survive in extreme environments with little light and oxygen.

Mesopelagic biodiversity spans from bacteria to jellyfish and cephalopods; several hundred species of small fish known as lanternfish are particularly abundant.¹³ Scientists estimate that mesopelagics not only are the most abundant fishes but also are the most abundant vertebrates on the planet.¹⁴ Their biodiversity is so dense that their presence threw off measurements of the ocean floor taken by naval researchers in the 1940s.¹⁵

Still, mesopelagics are woefully understudied, probably because of the difficulty of doing so, the cost, and historically limited interest. That means there are major gaps in the scientific community’s understanding of these organisms and, in particular, their role in the global carbon cycle.¹⁶

What analysis has been done indicates that the impact could be significant. Researchers at the Woods Hole Oceanographic Institution estimate that this twilight zone could help take 2 billion to 6 billion metric tons of carbon out of the atmosphere every year¹⁷—comparable to the amount emitted by passenger cars globally.¹⁸ Because scientists are still trying to better understand the relationship between mesopelagic ecosystems and climate change, they have urged precaution against exploiting these mesopelagic resources until more information is known.



Mesopelagic fishes, such as this lancetfish, form an important part of high seas biodiversity and are not currently managed by any international body, a gap in ocean governance that should be filled.

Today, these mesopelagic fish are not targeted in commercial fisheries, but interest is increasing in harvesting them for fish-meal and other supplements.¹⁹ International law requires that States cooperate to manage fish stocks in international waters—primarily through RFMOs—but the unique characteristics of mesopelagic fish, combined with difficulties that many RFMOs have had in integrating broader biodiversity and ecosystem considerations into their management, make the governance of future mesopelagic fisheries particularly challenging. The high seas treaty would provide a way to address some of these challenges and complement the work that RFMOs are doing. However, this opportunity can be realized only if the treaty includes fish as part of marine biodiversity.

How a high seas treaty could benefit fisheries

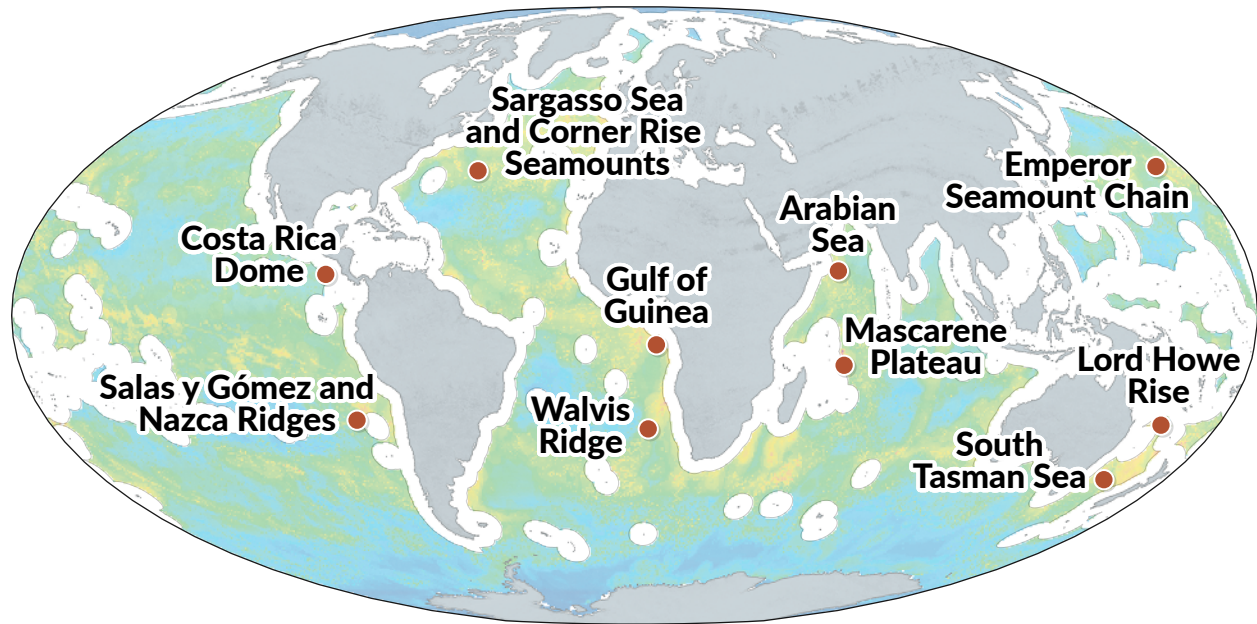
The waters beyond national jurisdiction are an increasingly busy space, and that increases the risk that the impact of activities such as seabed mining or geoengineering would harm fish stocks. A treaty, and the governance body it would create, could help to address current and emerging challenges to marine ecosystems in international waters by:

- **Providing a holistic lens to inform conservation and management of the high seas.** Today, high seas resources are managed in a siloed governance system, with individual management organizations often focused only on the specific activity, species, or region under their mandate. A high seas treaty could help to ensure that management decisions take into account the cumulative impact of multiple stressors, which would lead to more organizations taking an ecosystem-based approach.
- **Ensuring cooperation and coordination among States, stakeholders, and other governance organizations, including RFMOs.** The high seas treaty could establish systems and mechanisms for coordination with other governance organizations whose activities and decisions have the potential to affect each other—for example, via the consultation process for a marine protected area (MPA).
- **Facilitating the sharing of data and information.** Making data and information more available and sharing it across management areas would be critical for adaptation to the impacts of climate change on fisheries and other marine biodiversity.²⁰ The high seas treaty could support these future data and information-sharing needs.
- **Enabling the establishment of effective MPAs on the high seas.** Scientists have found that MPAs in these waters can play a critical role in supporting fisheries and promoting climate resilience. They would provide important stepping-stones along the routes of highly migratory species such as turtles, whales, and seabirds, promote genetic diversity, and help maintain carbon stocks.²¹ For these high seas MPAs to be effective, they must be created with management measures that can be enforced effectively. Such MPAs and other measures adopted by parties to the high seas treaty could complement the steps taken by RFMOs. (See Map 1.)
- **Setting robust global requirements for conducting environmental impact assessments (EIAs) for potentially damaging activities.** Establishing a precautionary threshold and global standards for assessing potentially damaging high seas activities such as open ocean aquaculture farms would help States evaluate appropriate mitigation measures to identify and reduce harm to the environment. The treaty could bring greater awareness of activities that harm high seas ecosystems and biodiversity and boost accountability.

Map 1

Special Places in the High Seas Span the World's Oceans and Regions

Areas with high concentrations of conservation features worthy of protection



Sources: UCSB analysis; Marineregions.org; Natural Earth

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Conclusion

The current system of fisheries governance organizations manages only a narrow slice of biodiversity on the high seas: specific fish species. Many RFMOs struggle to effectively manage the fisheries under their jurisdictions because of limited capacity, resources, or political will. Although some RFMOs do have the authority to consider limited aspects of the ecosystems that support their target species, none have the mandate to comprehensively manage all aspects of marine biodiversity; most already struggle to find sufficient time to complete their most fundamental tasks.

Putting a high seas treaty in place would not undermine or replace RFMOs. To the contrary, it would rely on those organizations to effectively manage the target fish species under their purview and would support their work by protecting the ecosystems upon which those fisheries rely. The treaty could help fill current governance and management gaps.

As long as the high seas treaty considers fish as part of marine biodiversity, the agreement would support the RFMOs' work by identifying and mitigating threats that might harm fish stocks. Those steps could include establishing effective high seas MPAs and requirements for robust EIAs for potentially harmful activities. A well-crafted treaty also would facilitate cooperation, coordination, and information-sharing among relevant organizations. That would create a more holistic, ecosystem-based lens that takes into account cumulative impacts—insights that would help inform management decisions.

A strong high seas treaty that is fully empowered to consider all marine biodiversity is key to supporting RFMOs and more broadly to building an international ocean governance system that effectively manages and preserves shared ocean resources. Putting such an agreement in place would result in healthier waters, thriving biodiversity, and more equitable outcomes for the global community.

Endnotes

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