



## POLICY FORUM

### MARINE CONSERVATION

# *U.S. seafood import restriction presents opportunity and risk*

Marine mammal protections require increased global capacity

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**O**n 1 January 2017, the U.S. National Oceanic and Atmospheric Administration (NOAA) will enact a new rule (1) requiring countries exporting seafood to the United States to demonstrate that their fisheries comply

with the U.S. Marine Mammal Protection Act (MMPA). The United States is the world's largest seafood importer (2); the MMPA is among the world's strongest marine mammal protection laws; and most of the world's ~125 marine mammal species are affected by fisheries bycatch (accidental entanglement in fishing gear) (3). This regulation could thus have significant conservation benefits, potentially spilling over to other areas of

marine governance, if it is accompanied by substantial investments to boost scientific and compliance capacity in developing countries. Otherwise, it risks having little effect besides inflicting economic hardship on already poor communities.

Bycatch is the greatest human threat to small cetaceans (4) and some populations of large whales (5). Bycatch played a major role in the recent extinction of the Yangtze River dolphin, or baiji (*Lipotes vexillifer*) (6), and there is high risk that it will soon cause the extinction of the vaquita (*Phocoena sinus*), a porpoise endemic to the northern Gulf of California (7). Marine mammals are entangled in many of the most common fishing gears, including gillnets, pelagic longlines, purse seines, pots, and traps (8).

The MMPA—adopted in 1972—prohibits intentionally harming marine mammals in





A California sea lion has drowned in a deep water drift net. A new regulation sets limits on marine mammal bycatch in U.S. fish imports similar to U.S. fisheries' limits.

U.S. fishing activities, and it requires bycatch to be kept within the limits of what marine mammal populations can sustain—known as “potential biological removal” (PBR) (9). To ensure accountability, the MMPA mandates periodic estimation of marine mammal population sizes (and uncertainty) to set PBR, monitoring of bycatch rates, and implementation of mitigation measures, such as gear modifications or fishery closures when PBR is exceeded. These requirements apply to U.S. fisheries both inside and outside national waters, except where superseded by an international fishery management treaty to which the United States is a party (1). The MMPA has resulted in dramatic improvements in the status of many marine mammal populations, including Eastern Tropical Pacific dolphins, harbor porpoises, and California sea lions (10).

The new regulation effective 1 January 2017 requires that any fishery or aquaculture enterprise exporting products to the United States meets standards equivalent in effectiveness to those the MMPA requires of U.S. fisheries, in terms of both monitoring and bycatch mitigation, in all waters where harvest occurs (1). Exporting countries must prove compliance for each exporting fishery not exempted by NOAA due to remote likelihood of marine mammal impacts (e.g., freshwater fisheries and most nonsalmon aquaculture) (1). Noncompliant products [including those from illegal, unreported, and unregulated (IUU) fishing] can neither be exported directly, nor reexported, to the United States, and NOAA reserves the right to require intermediary countries processing noncompliant products to certify the origins of similar compliant products to be

allowed to export these to the United States (1). Countries will be given a (maximum) 5-year grace period to achieve and document compliance before import restrictions come into force (1).

Although leveling the playing field for U.S. fishers is clearly part of the rationale (8), this new regulation could be a game-changer if it inspires widespread compliance. With over 120 countries exporting seafood to the United States (8) (table S1), it could expand the highest available standard of protection for marine mammals caught in commercial fisheries (including most large whales, many small cetaceans, and some pinnipeds). Although some of the most critically endangered marine mammals—found in coastal and estuarine waters of Africa, Asia, and Latin America—face their most serious threats from artisanal fisheries, which do not export (11), they too could benefit indirectly from improvements in marine mammal monitoring. Because many fisheries with high marine mammal bycatch are also overfishing their target stocks (11, 12), efforts to comply with the current rule could spill over into broader fishery reforms having ecological and economic benefits.

However, some countries may choose not to comply, and many developing countries may be unable to comply due to lack of monitoring and enforcement capacity (13). Widespread noncompliance would blunt any conservation benefits, and import bans could inflict significant economic hardship on some already poor countries.

To reduce these risks, we urge the international community to support capacity-building efforts in the most economically vulnerable countries. We urge the U.S. government to promote rigorous compliance in larger, capacity-rich countries through collaborative diplomacy—an intent NOAA has signaled (1).

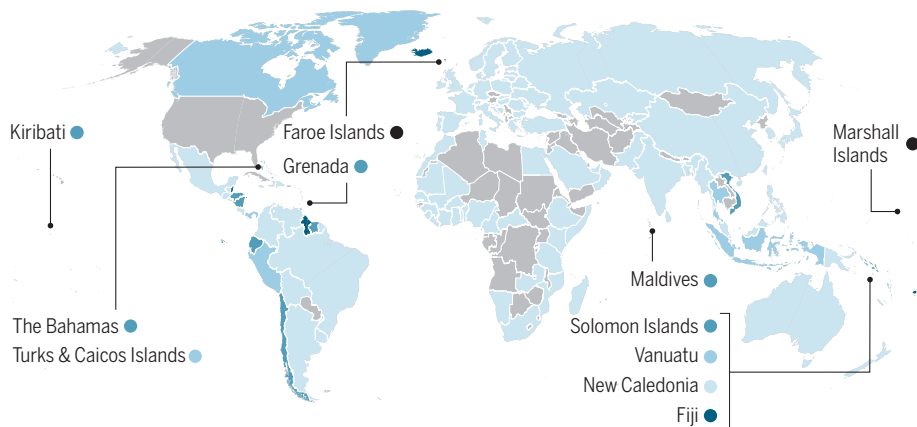
In gross economic terms, the largest seafood exporters to the United States are large countries in Asia (China, Indonesia, Vietnam, Thailand, and India) and Latin America (Chile, Ecuador, and Mexico) as well as Canada (table S1). These countries export many products (table S2), some of which NOAA deems likely to be exempt (e.g., tilapia and farmed shrimp), others not (e.g., lobster and tuna not caught in purse seines) (8).

How the new rule is applied to China and how China chooses to respond could be pivotal in many respects. China is the world's largest seafood producer (2), is likely the world's largest seafood re-exporter, and is the largest seafood exporter to the United States (8). Reforms in Chinese fisheries would thus have far-reaching benefits. Because China is also likely to be the largest alternate market



## Annual seafood exports to the United States by country

Annual seafood exports (14), as a fraction of the country's annual GDP (15). Plants and algae, freshwater species, farmed products besides salmon, reptiles, and amphibians are excluded because of probable exemption (see table S2).



### Seafood export to United States as % of GDP

● Unknown ● ≤0.1% ● 0.11–0.5% ● 0.51–1% ● 1.01–2% ● >2%

for products facing U.S. import bans, any certification requirements placed on its supply chain might indirectly increase compliance incentives for other countries.

The countries most economically dependent on seafood exports to the United States (see the figure) are small Latin American countries (e.g., Guyana, Belize, Ecuador, Honduras, Suriname, and Nicaragua), Small Island Developing States (SIDS) (e.g., Marshall Islands, Fiji, Kiribati, Maldives, Grenada, Bahamas, and Solomon Islands), and a few developed countries [Faroe Islands (of Denmark), Iceland, and Chile]. Seafood exports to the United States (excluding some clearly exempt categories, table S2) make up 0.5% or more of GDP in the 16 countries listed above (as much as 5 to 6% in the Marshall Islands and Faroe Islands) and in Vietnam (14, 15).

Most of these countries' U.S. exports are dominated by a small number of products (14) (table S2). Some of the products may be exempted [e.g., tuna from purse seines in the Pacific Islands (1)], but many seem likely to be affected [e.g., wild-caught shrimp from Guyana, tuna from Suriname and Grenada, cod from Iceland, and farmed salmon from the Faroe Islands and Chile (8)]. Bans on these exports could have severe economic impacts if comparable demands and prices are unavailable in other markets.

The small Latin American countries and most of the SIDS that would be potentially affected are relatively poor and likely to need rapid and substantial improvements in scientific and management capacity to be able to comply at U.S.-equivalent standards within the 5-year grace period (13). Efforts to comply will need to be driven from within the countries themselves, but history suggests that outside support and funding could increase the chances of success (16).

Compliance with the new import regulation requires capacity to monitor marine mammal abundance and bycatch rates, and to implement bycatch mitigation measures where necessary. Abundance monitoring is a significant gap—only ~5% of the ocean has been surveyed well enough to detect the presence of rare cetacean species or trends in common ones (17). Estimating marine mammal abundance throughout a country's Exclusive Economic Zone generally requires large, costly surveys (18). But regional coordination can exploit an economy of scale by allowing countries to share costs, ships, trained observers, analytical expertise, and data. Coordination also promotes regional planning and management. The Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS) provides an example of such regional cooperation in monitoring that NOAA specifically cites as adequate for meeting the new import standards (1).

Bycatch mortality is best monitored by placing trained observers on a representative sample of boats, but there are also rapid assessment methods that estimate bycatch mortality rates roughly from interview surveys (19). If bycatch is found to be

exceeding allowable harm limits, mitigation workshops could allow stakeholders to design locally adapted strategies to reduce bycatch with minimal impact on fishing yield (20). Strategies can include changing the fishing timing, location, or gear, or the use of acoustic "pingers" to deter marine mammals from nets. IUU fishing remains a challenge, but emerging satellite technologies are rapidly expanding options to monitor and coordinate enforcement (21).

The international community can support each of these efforts through both funding and building scientific capacity. The United States will need to lead in providing such support. But other countries, foundations, and intergovernmental organizations may also be willing to help some of the small Latin American countries and SIDS, which face high economic stakes but have relatively few fisheries requiring reform. ■

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