

Policy transparency key to saving world's fisheries

The sustainability of fisheries depends on the transparency with which coastal states incorporate scientific advice into policies, reports a study published in the journal PlosBiology.

A new study provides the first global evaluation of how management practices influence fisheries' sustainability. The study assessed the effectiveness of the world's fisheries management regimes using evaluations by nearly 1,200 fisheries experts and analyzing these in combination with data on the sustainability of fisheries catches. The results indicated that most fisheries management regimes are lagging far behind standards set by international organizations, and that the conversion of scientific advice into policy, through a participatory and transparent process, plays the most critical role in determining the sustainability of fisheries.



Credit: Sascha Regmann Project Blue Sea, Marine Photobank.

“The world's fisheries are one of the most important natural assets to humankind,” says lead author Camilo Mora, a Colombian researcher at Dalhousie University and the University of California San Diego. “Unfortunately, our use of the world's fisheries has been excessive and has led to the decline or collapse of many stocks.”

According to the most recent report on the status of the world's fisheries by the United Nations Food and Agriculture Organization, fisheries supply at least 15% of the animal protein consumed by humans, provide direct and indirect employment for nearly 200 million people worldwide and generate \$US85 billion annually. This same report indicates that 28% of the world's fisheries stocks are currently being overexploited or have collapsed and 52% are fully exploited.

“The consequences of overexploiting the world's fisheries are a concern not only for food security and socio-economic development but for ocean ecosystems,” says Boris Worm, a professor at Dalhousie University and co-author of the paper. “We now recognize that overfishing can also lead to the erosion of biodiversity and ecosystem productivity.”

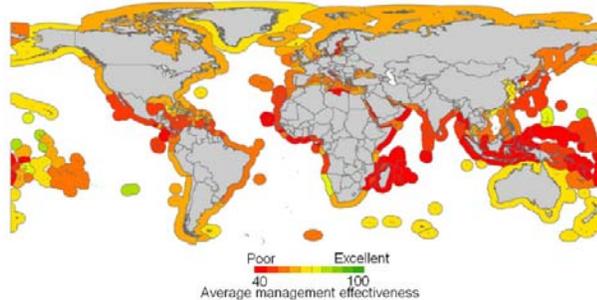
“The different socioeconomic and ecological consequences associated with declining fish stocks are an international concern and several initiatives have been put forward to ensure that countries improve the way they use their marine resources,” explains Mora. “Some of these initiatives include the United Nations Code of Conduct for Responsible Fisheries, the Convention on Biological Diversity, and the Millennium Ecosystem Assessment. Although these initiatives have been endorsed by most governments, a global assessment on the extent to which these ideals are actually implemented and effective remains lacking.”

In this study, Mora and his colleagues analyzed a set of attributes upon which country-level fisheries could be evaluated. The attributes that they pinpointed included the scientific quality of management recommendations, the transparency of converting scientific recommendations into policy, the enforcement of policies, and the extent of subsidies, fishing effort and fishing by foreign fleets.

To quantify those attributes the researchers developed a questionnaire designed to elicit worst- to best-case scenarios. The survey was translated into five languages and distributed to over 13,000

fisheries experts around the world. Nearly 1,200 evaluations were used in the study. The responses of the surveyed experts were compared to, and found to be in accordance with, empirical data, supporting the validity of the data obtained in the study.

The results of this global survey showed that 7% of all coastal states carry out rigorous scientific assessment for the generation of management policies, 1.4% also have a participatory and transparent process to convert scientific recommendations into policy, and less than 1% also implement mechanisms to ensure the compliance with regulations. No one country was additionally free of the effects of excess fishing capacity, subsidies or access to foreign fishing.



Effectiveness of the world's fisheries management regimes. This map shows the average scores each country received for the scientific robustness of its fisheries recommendations, transparency in converting scientific recommendations into policy, capability to enforce regulations and the extent of subsidies, fishing effort and foreign fishing.

“Countries vary considerably on the quality of their science, policy transparency, enforcement of regulations and extent of subsidies, fishing effort and foreign fishing,” says Mora. “Perhaps the most striking result of our survey was that not a single country in the world was consistently good with respect to all these management attributes. So which countries are doing well and which are not is a question whose answer depends on the specific attribute you are looking at.”

The results of the study show that wealthier countries, though they have predominantly better science and enforcement capabilities, face the negative repercussions of excessive subsidies and larger fishing capacity, which have resulted largely from increased modernization of national fleets. In contrast, low income countries largely lacked robust science and enforcement capabilities and although these nations have less fishing capacity nationally, they disproportionately sold fishing rights to nations that did. The study showed that in 33% of the coastal states classified as low-income (commonly countries in Africa and Oceania) most fishing is carried out by foreign fleets from either the European Union, South Korea, Japan, China, Taiwan or the United States. The only attribute in which low- and high-income countries overlapped significantly was their limited ability to convert scientific recommendations into policy. The mechanism for this pattern, however, was different. Poor countries reportedly struggle with the effects of corruption while wealthier countries often encounter more political or economical pressures.

For the second part of the study, Mora and his colleagues combined the database on management effectiveness with a recently developed index that quantifies the probability that the catch of a particular country is sustainable or not. This part of the study showed that out of several attributes analysed, the transparency with which scientific recommendations are turned into policy plays the strongest role in the fate of fisheries sustainability.

“Policy-making is at the centre of the entire process of fisheries management,” explains co-author Marta Coll, at the Institut de Ciències del Mar in Spain. “If this is heavily influenced by political pressures or corruption, it is unlikely that good scientific advice will ever be translated into proper regulations. Similarly, authoritarianism in this process is likely to reduce compliance with the resulting policies.”

“Several examples provide evidence supporting the results of this study,” says Carl Safina at the Blue Ocean Institute, who was not involved in the study. “Many developed countries, including the European Union, the United States and Canada, which have access to perhaps some of the best

science available, have witnessed some of the most dramatic collapses known to us, such as the collapse of the cod and haddock in the early 1990s. All of this because of high pressures on the process of policy-making to increase catches, despite scientific advice to reduce them.”

“A similar situation occurs with the quotas for bluefin tuna in the Mediterranean,” explains Safina. “In this case, concerns about the collapse of this stock have led scientists to recommend quotas that have been almost doubled due to strong pressures in the process of policy-making.”

“For developing nations the situation is more regrettable, given that many of these countries, particularly in Africa and Oceania, face shortages in food supply,” says coauthor Rashid Sumaila at the University of British Columbia. “We know, for instance, that in many of these nations, shark populations have been decimated as a result of shark fining. Unfortunately the regulation of this activity remains largely ineffective, most commonly as a result of corruption while generating or enforcing policies.” Indeed, the study by Mora and colleagues indicates that policy-making is strongly influenced by corruption in poor countries in Africa, Asia and Central and South America.

“This study provided us with a look at both sides of the coin,” says Andrew Rosenberg at the University of New Hampshire, who was not involved in the study. “On one hand, it reminds us of the difficult challenges facing fisheries management globally in protecting critical natural resources from overexploitation. On the other hand it delivers a message of hope that when policy-making is transparent, participatory, and based on science things can improve.”

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For access to a copy of the paper, photos, maps, animations, video and b-roll please visit http://www.fmap.ca/ramweb/media/management_effectiveness/home.php . Before embargo lifts use “fish” as username and “2009fish” as password. For additional information contact Catherine Muir at cmuir@mathstat.dal.ca or 902-494-2146 in Halifax, Nova Scotia, Canada.

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