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News

Commercially valuable fish species hit the red list

Study shows perilous state of fish stocks as management meeting begins.

Daniel Cressey

Ahead of a key international meeting on tuna catches, an assessment is painting a bleak picture of the conservation status of some of the world's most commercially valuable fish species.

Bruce Collette, who studies ocean fish at the National Marine Fisheries Service Systematics Laboratory in Washington DC, and his colleagues conducted the first global assessment of the scombrids and billfish, groups of fish that include some of the species with the highest value as seafood, such as tuna and marlin, as well as staples such as mackerel.

The team assessed 61 species of fish according to the criteria used by the International Union for the Conservation of Nature (IUCN) in Gland, Switzerland, to produce its Red List of endangered species. In a policy-forum paper published today in *Science*¹, the researchers report that seven species are vulnerable, endangered or critically endangered (see **Table 1**). The IUCN will probably confirm these categorizations in a future update of the list.

The assessment comes out just as international representatives from some of the intergovernmental organizations charged with managing regional tuna stocks convene in La Jolla, California, for the Kobe III meeting on 11–15 July. Despite international concern over the number of tuna being caught, these organizations have generally resisted a major clampdown on fishing.

"Maybe the Red List and the general esteem in which the Red List is held by people who are not fisheries scientists ... will put a little starch in them," says Collette.

His team's study confirms a widespread belief that many tuna and marlin species are over exploited. Red List assessment methods look at threats to species globally, rather than at stock sizes and catch data, so they give a fuller picture of the actual state of a species than do assessments of individual fisheries.



Many species of tuna are in serious danger from overfishing.

The Asahi Shimbun via Getty Images

“I’m very convinced it will happen. I’m not convinced it will happen in time.”

"Our Red List assessments corroborate findings by fisheries scientists. What is important about our study is that it is a different methodology than what is used by fisheries scientists for stock assessments, and therefore we serve as an independent verification," says Kent Carpenter, a marine biologist at Old Dominion University in Norfolk, Virginia, and a co-author on the paper.

In some respects the finding is more positive than those of previous assessments of individual species, which suggested some species were more vulnerable than they now appear to be. But the latest study does show that the most commercially valuable species are highly threatened. These are top predators with long lifespans — and their loss could have cascading effects on the whole ocean ecosystem.

Double jeopardy

Another recent paper shows the dramatic impact that human activity has had on top ocean predators. Boris Worm and Derek Tittensor, biologists at Dalhousie University in Halifax, Canada, assessed the ranges of 13 species of tuna and billfish. Their study was published at the end of June in the *Proceedings of the National Academy of Sciences*².

They found that 9 of the 13 species had experienced a significant drop in range size since 1960. Atlantic bluefin tuna (*Thunnus thynnus*) have seen a 46% drop in range.

This, says Worm, is a worrying example of 'double jeopardy'. "A species that's becoming low in numbers also shrinks in its range, and that makes it much more vulnerable to extinction. It's easier to wipe out the species entirely," he says.

Worm believes that the ever-growing body of scientific evidence will eventually convince regulators to limit catches. "I'm very convinced it will happen," he says. "I'm not convinced it will happen in time."

Kobe beef

The five regional fisheries management organizations (RFMOs) meeting at Kobe III manage tuna fisheries in 91% of the world's oceans, notes the Pew Environment Group, an advocacy organization based in Washington DC. But many of the actual decisions on fisheries are taken at the management organizations' individual meetings — such as that of the Inter-American Tropical Tuna Commission, which met on 4–8 July in La Jolla. These meetings have in the past largely ignored scientific advice, setting catch quotas at levels that many scientists believe will ultimately cause tuna populations to crash.

In a paper published in *Marine Policy* yesterday³, Tom Polacheck, a senior researcher at the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Australian national research agency in Hobart, presents a case study of how a paper from CSIRO submitted to a subgroup of the Indian Ocean Tuna Commission had to be pulled owing to political concerns.

"It would be of little importance for the general provision of scientific advice in RFMOs if this was an isolated instance but it is the experience of the author that failure to respect the demarcation between

political and scientific process of RFMOs is relatively common," writes Polacheck. He goes on to list examples from his two decades of work with six such organizations, including exclusion of respected scientists from meetings, successful attempts to manipulate contents of reports from scientific committee meetings and withholding of data.

Pew is pushing for the five tuna RFMOs at Kobe III to adopt tough measures to control illegal fishing, reduce the catching of sharks by tuna boats and generally take action to reduce overfishing.

Susan Lieberman, deputy director of international policy at the Pew Environment Group, says that by focusing attention on Collette's paper and other assessments of the dire state of tuna fisheries, conservationists and scientists can pressure the RFMOs to make important decisions.

Lieberman admits, however, that she is "not optimistic" that the governments involved in the RFMOs will take the hard decisions, such as actually reducing the overall 'fishing effort' that goes into catching tuna.

"Every government agrees effort should be reduced," she says, "by everyone else."

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