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Seafood species face extinction

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The rate of marine biodiversity loss is accelerating and, at current rates, there will be little sustainable fish or seafood available by mid-century, scientists say.

Researchers warn in the journal *Science* that 90 per cent of present-day marine fish, crustaceans, shellfish and other currently eaten species of seafood could vanish in 50 years.

But the study's lead author, Canadian fisheries researcher Boris Worm, thinks countries will correct the present overfishing, economic mismanagement and environmental degradation before that happens.

"I personally don't think the current trend of depleting fish species will continue. I think we're smart enough to realize where we're heading, and avoid it," Worm said in an interview.

To avoid this catastrophe, the scientists say countries must manage entire marine ecosystems and not just individual fish species as today. They also urge the creation of extensive "no-fish" zones, the aquatic version of national parks.

To reach their conclusions, researchers from across the globe, including Canada and the U.S., did a "meta-analysis" of existing studies to quantify how the loss of marine diversity locally, regionally and globally has affected the marine ecosystem and services provided to humans.

TORONTO STAR FILE
Fish are seen offered for sale in this file image.

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The scientists' report concludes that 29 per cent of the fish and seafood species now being caught have already collapsed to less than one-tenth of their historical maximum catch.

"This isn't based on models or assumptions. This is a very clear trend and it's speeding up," said Worm.

Many scientific studies have demonstrated the importance of biodiversity at the local level. But this study shows for the first time that every species matters at the global level as well.

Even the disappearance of one species reduces the biodiversity of an ecosystem. In turn, reduced biodiversity means the oceans produce less food, have lower resistance to disease and pollution and can't rebound as well from stresses like climate change, according to the report's comprehensive review of scientific studies.

The scientists analyzed 32 small-scale biodiversity experiments, larger studies of 48 locales where fishing was banned and global fish catch records from 1950 to 2003.

They also took a special look at ecosystem changes over the past 1,000 years in 12 coastal areas, including the Bay of Fundy and the Gulf of St. Lawrence, using archives, sediment cores and archeological findings.

"If we don't change how we manage ocean species, then this is going to be the last century for the recognizable seafood we eat now. We'll be eating sea squid soup and jellyfish pie instead," said co-author Steve Palumbi, a marine biologist at California's Stanford University.

Palumbi rejected criticisms by other experts that "no-fish" zones — marine protected areas — amount to an admission of defeat in fisheries management.

"Even if you don't have severe overfishing, you need marine protected areas so you know how the ecosystem operates without fishing," Palumbi said. The protected areas also let a few fish grow old and big, which can be important in the long-term health of species, he said.

The study found that restoring biodiversity in protected areas spilled over to the surrounding waters, where fishermen caught four times as many fish with the same effort as before. As well, the protected ecosystems were 21 per cent less susceptible to swings from environmental or human pressures.

"These results suggest that at this point it is still possible to recover lost biodiversity, at least on local to regional scales," the *Science* paper states.

The crucial question is whether governments in Canada and elsewhere will heed this wake-up call, said fisheries conservation advocate Bob Rangeley.

A former scientist with the federal fisheries department, Rangeley now directs marine programs in Atlantic Canada for the World Wildlife Fund.

"The good news story here is that there's important potential wealth to be gained from our oceans that we're currently squandering," Rangeley said.

The new study comes only a week after three scientists shared the $240,000 Volvo Environment Prize for their research on global fisheries and ocean ecosystems. Two of the scientists are Canadians: Daniel Pauly and Carl Walters from the University of British Columbia; the third, Ray Hilborn, worked in Canada for a decade.

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