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Study: 90% of the ocean's edible species may be gone by 2048

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By Elizabeth Weise, USA TODAY

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Ninety percent of the fish and shellfish species that are hauled from the ocean to feed people worldwide may be gone by 2048, according to a report in Friday's edition of the journal *Science*.

Even now, 29% of those species have "collapsed," meaning a 90% decline in the amount being fished from the sea, says Boris Worm, lead author and a professor of marine conservation biology at Dalhousie University in Halifax, Canada.

"It is a very clear trend, and it is accelerating," Worm says. The paper represents four years of work by an international team of researchers at various universities who analyzed oceans species diversity over the past 1,000 years.

Overfishing is a big part of the problem. "Every year it's estimated that human beings remove 150 million metric tons of life from the seas," says Joshua Reichert, environment-program director at Pew Charitable Trusts in Philadelphia.

But fishing isn't the only problem, the report states. Destruction of coastal areas, estuaries and reefs by dredging, building and pollution destroys nursery habitats for young fish. Global warming and the changes in water temperature and salinity are thought to play a role.

As marine species disappear, the ability of others to survive is further harmed by the drop in the ocean's overall productivity and stability, the researchers found.

"Through this research, it became clear to me that we hardly appreciate living on a blue planet," Worm says. "The oceans define our planet, and their fate may to a large extent determine our fate, now and in the future."

Fish and seafood are key protein sources for a world that's expected to add another 3 billion people by 2050. But it's also problem for people who don't eat fish. Sixty percent of Americans live within 60 miles of a coast. Declines in marine biodiversity can:

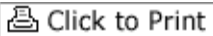
- Increase coastal flooding because of loss of floodplains and erosion control provided by the wetlands, reefs and underwater vegetation that have a symbiotic relationship with marine life.
- Reduce water quality by destroying the plankton, plants and shellfish that are the ocean's biological filtering ability. A single oyster, for example, can filter 50 gallons of water a day.
- Increase beach closure because of harmful algae blooms, such as red tide, facilitated by the diminished filtering.

The good news is that it's not too late to turn this around, Worm says. When marine ecosystems are protected, the trend can be reversed, he says. Scientists studied 48 areas worldwide that have been safeguarded and report dramatic recoveries in the variety of species and stability of the ecosystem.

"We know how to do this. But it must be done soon," he says. "With each species that is lost, the opportunity for the system to repair itself is diminished."

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