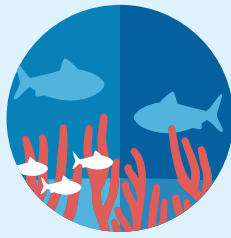


Prey



Bycatch



Habitat



Proceed with caution



Ecosystem

# Big-Picture Fisheries Management

## Adopting an ecosystem approach

The fish caught in the ocean—whether by commercial fishermen or recreational anglers—are part of ecosystems that are threatened by overfishing, habitat destruction, warming ocean waters, and other stressors. These ecosystems are composed of interconnected predators and prey and their habitats, and damage to any of these components can cause ripple effects that jeopardize the health of the ecosystems and harm coastal communities.

The law that governs management of U.S. ocean fish, known today as the Magnuson-Stevens Act, was enacted nearly 40 years ago, when scientists relied mostly on reported catch from fishermen to determine how many fish were in the ocean. Thanks to sophisticated modern technology, we now know much more about fish populations and the ecosystems they inhabit. Policy leaders should make full use of these scientific advances and look at the big picture when deciding how to manage fish populations.

### The solution

The law is due for reauthorization, presenting Congress with a critical opportunity to modernize it and empower the eight regional fishery management councils to incorporate a more comprehensive approach to fish conservation while addressing regional needs and challenges. The reauthorization can ensure that the nation will manage its fisheries for the greatest benefit of all, including future generations.

Congress should amend the Magnuson-Stevens Act so that managers:

- **Conserve forage fish**, the primary food source for many larger fish species that support U.S. fisheries and for countless seabirds and marine mammals.
- **Avoid bycatch**, the catching and discarding of nontarget fish and other marine life, which results in large-scale waste of natural resources and lost economic opportunity for fishermen.

- **Protect fish habitat** from destructive fishing practices and other damaging human activities to ensure that fish have safe places to breed, feed, grow, and take shelter.
- **Proceed with caution** to ensure that new fisheries are sustainable from the start.
- **Create fishery ecosystem plans** that include a description of the ecosystem and the human and other interactions that affect it (such as changing ocean temperatures, acidity, pollution, and fishing), a list of indicators that track environmental and economic health, and measurable goals and objectives for restoring and maintaining it.

## Ecosystem-based fisheries management: A closer look

The current U.S. fisheries management system regulates fishing on individual populations or groups of similar populations. Although improvements to the law have helped to end overfishing on many species and to rebuild a number of depleted populations, they do not address the bigger picture. Each fish is a link in overlapping food chains that form an interconnected food web of places, plants, and animals. Ignoring these connections can lead to serious consequences and cause dramatic shifts in the health of the ocean.

In fact, depletion of important species has resulted in far-reaching negative consequences throughout ecosystems. In the mid-Atlantic, overfishing of big sharks contributed to an increase in cownose rays, whose appetites added to the decline of the North Carolina bay scallop population.<sup>1</sup> Similarly, overfishing in the Caribbean depleted several plant-eating species of parrotfish, resulting in the decline of coral reef communities no longer protected from algal growth. Coral reefs provide countless other species with places to spawn, eat, and live.<sup>2</sup>

Such ripple effects through an ecosystem can be triggered in many ways: destruction of key habitat, overfishing, indiscriminate fishing that kills other nontarget marine life, or ocean changes that affect fish distributions.

We risk disrupting the ecosystems that provide the fish we depend on unless we consider the economic, recreational, and other social benefits that we derive from them. By incorporating a big-picture approach to management in the Magnuson-Stevens Act, Congress can safeguard our ocean resources and coastal communities for the long-term benefit of the nation.

## Endnotes

- 1 Ransom A. Myers et al., "Cascading Effects of the Loss of Apex Predatory Sharks From a Coastal Ocean," *Science* 30 (2007): 1846–1850, doi: 10.1126/science.1138657.
- 2 Jeremy Jackson et al., *Status and Trends of Caribbean Coral Reefs: 1970–2012*, International Union for Conservation of Nature (2014), [https://www.iucn.org/knowledge/publications\\_doc/publications/?uPubsID=5035](https://www.iucn.org/knowledge/publications_doc/publications/?uPubsID=5035).

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