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New Fisheries Management Strategies Needed to Support a Healthier Gulf of Mexico

Ecosystem-based planning can help decision-makers account for a changing ocean environment

Overview

Gulf of Mexico fishery managers set fishing seasons for red snapper, taking into account various factors such as that red snapper live a long time, can take up to a decade to become fully reproductive, and are a target for many anglers. The decisions that managers make can determine whether any given season will successfully contribute to coastal economies.

But the future of the red snapper fishery—and many others—depends on ensuring that fish populations have the best environment to thrive. For healthier oceans, the people who set policies for fishing must look beyond an

individual species or a few near-term seasons and consider the larger ecosystem. By taking the longer and wider view, managers can account for issues such as whether target species will have enough prey fish and beneficial habitat or whether warming seas will affect annual spawning rates.

One tool that can help managers take this sort of bigger-picture approach is a fishery ecosystem plan (FEP), a guidance document that provides a roadmap for identifying, tracking, and addressing the factors that influence fish populations using the latest science, fishermen's expertise, and other available data to inform management decisions.

By accounting for a dynamic ocean environment, a fishery ecosystem plan can help managers in the Gulf of Mexico make better decisions about the future of red snapper and the other important species that support recreational and commercial fishing in the region.



Dolphins often prey on fish species that also are popular with fishermen in the Gulf. A fishery ecosystem plan can consider these interactions.

Why does the Gulf need a fishery ecosystem plan?

The Gulf of Mexico has an abundance of natural resources, including seafood, mineral deposits, and oil and gas reserves. Human extraction activities such as drilling, fishing, and mining put pressure on those resources even as the Gulf faces other ongoing threats, including water pollution, droughts, storms, a growing dead zone, land loss, and warming waters. An FEP can help fishery managers use the latest scientific data and analyses to make more informed decisions about a range of issues, from when to open and close fishing seasons to which measures will best protect critical breeding and feeding grounds. By monitoring indicators of ecosystem health such as water temperatures and considering a range of scenarios, including impacts on spawning seasons or species' seasonal movement patterns, the Gulf of Mexico Fishery Management Council could forecast trends, determine research and data needs, and identify risks before they become problems.

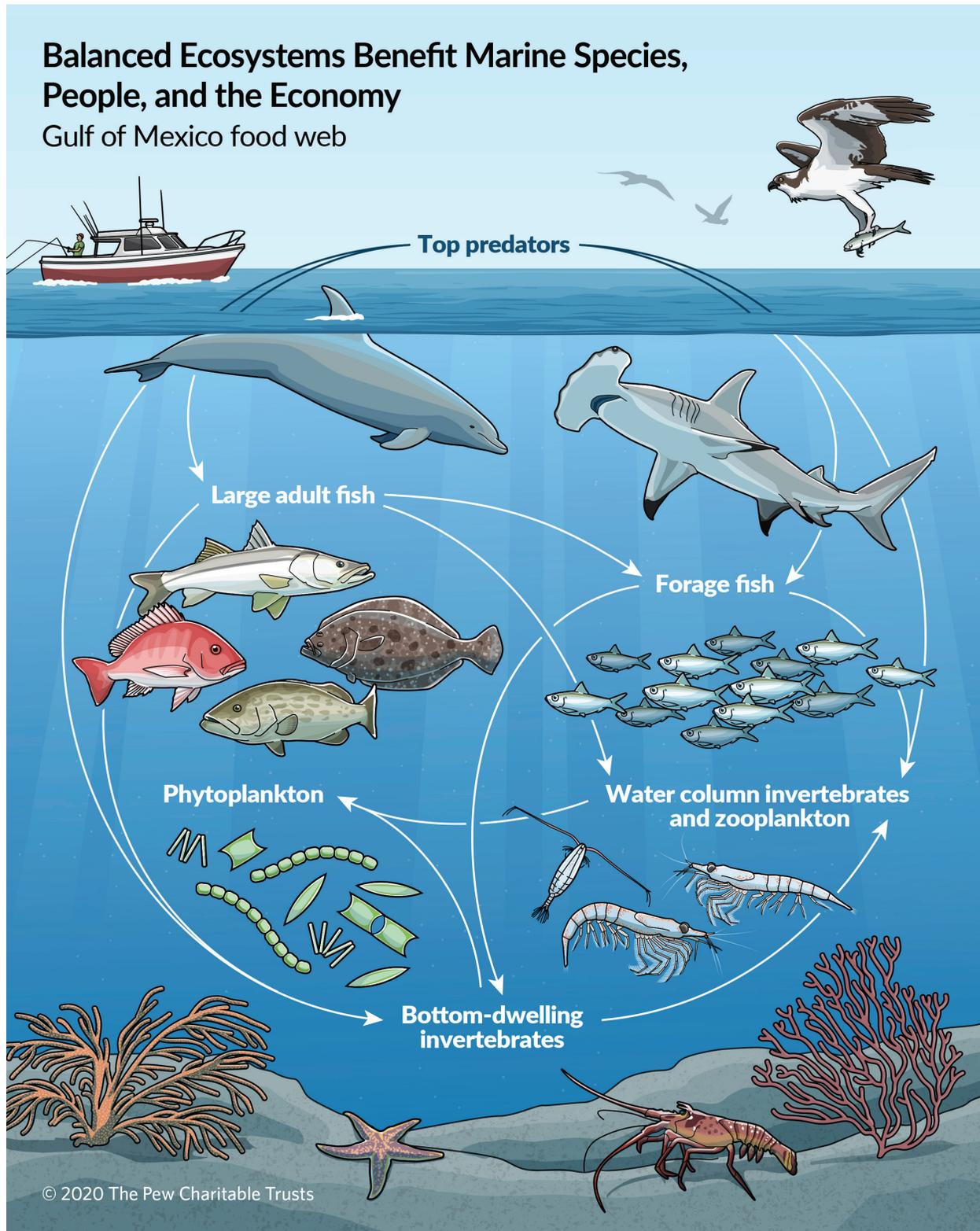
Additionally, an FEP would give managers options for addressing important ecosystem-related issues. For instance, it could include guidance requiring managers to incorporate effects from a lethal algal bloom (i.e., “red tides”) or major oil spill into management decisions, such as catch limits and fishing season changes.



A Gulf of Mexico fishery ecosystem plan could consider the effects of human activities, such as offshore drilling, on the region's marine environment.

Balanced Ecosystems Benefit Marine Species, People, and the Economy

Gulf of Mexico food web



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How do managers create a fishery ecosystem plan?

The process of developing an FEP begins with a meeting between fishery managers and stakeholders to craft a vision for the future of the Gulf of Mexico. Together, they develop goals and priorities, as well as identify strategies and risks. The plan helps managers align their decisions with that shared vision while trying to meet competing objectives.

A well-designed FEP includes an inventory of important ocean components and how they connect, with input from fishermen, managers, scientists, and other stakeholders. Fishermen often serve as “eyes and ears” on the water and have firsthand knowledge of species interactions and behaviors, quality of habitat, where fish are typically caught, and other salient facts. And scientists can collect and analyze information such as prevailing currents, sea temperatures, and the impacts of climate change and habitat degradation to help regional fishery management councils recognize what may be helping or hurting the subject fishery.

In the Gulf of Mexico, a tool called the Ecosystem Status Report, published by the National Marine Fisheries Service in 2013 and updated in 2017, identifies and periodically analyzes indicators of ocean and fisheries health such as sea surface temperatures, prey fish abundance, and the economic values of dockside landings.¹ The report lays the groundwork for which variables could be incorporated into a Gulf fishery ecosystem plan to address potential threats that can come from changing environmental or economic conditions.



Ecosystem-based fisheries management considers whether targeted waters contain enough prey for predators like this osprey to thrive.

How would Gulf managers use a fishery ecosystem plan?

An FEP can be part descriptive and part prescriptive. In the case of a red tide, a plan could call for managers to use data from past outbreaks to rapidly assess the event's severity and take appropriate actions to mitigate the harm. For example, if an algae bloom is killing large numbers of fish, the ecosystem plan could direct managers to temporarily limit or halt fishing of vulnerable species in the most affected areas. Such measures would help prevent the removal from the ocean of an excessive amount of those species and may shorten the time needed for them to recover to sustainable levels.

A fishery ecosystem plan also can help managers boost fishing production, such as by providing scientific justification for increasing catch limits or extending fishing seasons, when fish populations are abundant or other conditions are favorable.

The council would not be bound by an FEP but instead would use it to help set goals and objectives and provide success metrics. A plan could be updated as new issues and science emerge, but regulatory adjustments would typically continue to be made through the normal fishery management process.



Human activities such as fishing, eating seafood, recreational boating, or just relaxing on beaches like the one in Fort Myers Beach, Florida, are all part of the ocean ecosystem.



Scuba divers survey the coral reef at the Gulf of Mexico's Flower Garden Banks National Marine Sanctuary off the Texas coast.

Conclusion

Long-range ecosystem-based planning can help decision-makers incorporate a variety of data about the marine environment, including interactions among predators and prey, ocean habitats, and the effects of human activities, into their decisions. With that information, fishery managers can more precisely forecast trends, anticipate potential risks to fisheries, and take appropriate action to protect the health of ocean ecosystems and the local economies that depend on them.

As ocean conditions change and coastal populations increase, a fishery ecosystem plan can help policymakers lead the way toward a healthier future for the Gulf of Mexico.

Endnote

- 1 M. Karnauskas et al., "Gulf of Mexico Ecosystem Status Report" (NOAA Southeast Fisheries Center, 2017), http://www.aoml.noaa.gov/ocd/ocdweb/ESR_GOMIEA/report/GoMEcosystemStatusReport2017_NMFS-SEFSC-706_FINAL.pdf.

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