Tools for Sustainable Fisheries: EcoCast and Dynamic Ocean Management

Overview

Traditional approaches to sustainable fisheries management can put ecological goals in conflict with economic needs. How can fishers continue to catch the same amount of fish while decreasing the amount of protected or threatened species they catch? This conflict eases when fisheries managers use a new tool that integrates multiple sources of data—collected by satellites, remote sensors and people—to improve fishing operations. Called “EcoCast,” this ecosystem forecast tool was developed by researchers with NOAA, Stanford and other research institutions. It allows fisheries managers to predict daily relative catch and bycatch probabilities in near real-time.

Key Points for Policymakers

- These types of ocean management tools can be used to reduce the frequency of fisheries closures (fishing bans). By implementing dynamic management approaches, the area of existing closures could be reduced by 2 to 10 times while maintaining conservation goals.

Background

Preventing overfishing is integral to achieving the UN Sustainable Development Goals of zero hunger (SDG2) and protecting life below water (SDG14). Maintaining global fish populations is also critical in order to feed the 3 billion people worldwide for whom seafood is
an essential source of protein. Fishing efficiently and sustainably will only become increasingly difficult as the ocean reacts to the changing climate and other human impacts. For example, fish populations will shift as temperature and chemical changes in the ocean alter habitat conditions.

While U.S. fisheries have made significant progress in balancing conservation with fishing industry needs—primarily due to the historic Magnuson-Stevens Fishery Conservation and Management Act of 1976—transitioning from static, single species management approaches to dynamic, multispecies approaches can help sustainably manage fisheries and reduce bycatch in the future.

With the advent of tools like EcoCast and sufficient available data, bycatch can be dramatically reduced. This will help protect endangered species, keep our fisheries sustainable and support fishing communities. While EcoCast was designed for a specific fishery that had ample accessible data, evidence suggests that in the future, dynamic methods—with real-time monitoring tools that allow fisheries managers to rapidly adapt to changing conditions—will improve our ability to fish sustainably.

The above map uses environmental data to predict where species are likely to be each day, minimizing bycatch and maximizing target catch for fishers.

About the Authors

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