

# GAO Highlights

Highlights of [GAO-16-827](#), a report to congressional requesters

## Why GAO Did This Study

NMFS and the Councils manage commercial and recreational marine fisheries that are critical to the nation's economy. The effects of climate change may pose risks to these fisheries that could have economic consequences for the fishing industry and coastal communities, according to the 2014 Third National Climate Assessment.

GAO was asked to review federal efforts to address the effects of climate change on federal fisheries. This report examines (1) information NMFS and the Councils have about the existing and anticipated effects of climate change on federally managed fish stocks and challenges to better understand these effects and (2) efforts NMFS has taken to help it and the Councils incorporate climate information into fisheries management. GAO analyzed responses to its questionnaire from all NMFS regions and the Councils, analyzed seven nongeneralizable fish species selected to reflect variation in the potential effects of climate change, reviewed relevant documentation, and interviewed NMFS and Council officials.

## What GAO Recommends

GAO recommends that NMFS (1) develop guidance on incorporating climate information into the fisheries management process and (2) incorporate key attributes of successful performance measures in the regional action plans and assess whether agency-wide measures for the climate science strategy may be needed. The agency agreed with GAO's recommendations.

View [GAO-16-827](#). For more information, contact Anne-Marie Fennell at (202) 512-3841 or [fennella@gao.gov](mailto:fennella@gao.gov).

September 2016

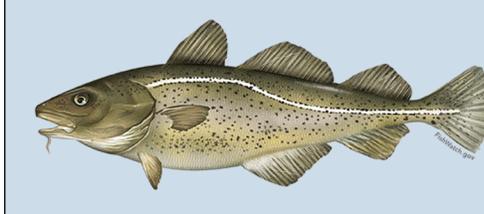
## FEDERAL FISHERIES MANAGEMENT

# Additional Actions Could Advance Efforts to Incorporate Climate Information into Management Decisions

## What GAO Found

The Department of Commerce's National Marine Fisheries Service (NMFS) and eight Regional Fishery Management Councils (Council) have general information on the types of effects climate change is likely to have on federally managed fish stocks but limited information on the magnitude and timing of effects for specific stocks. They also face several challenges to better understand these effects, based on GAO's analysis of NMFS and Council questionnaire responses, NMFS and Council documentation, and interviews with NMFS and Council officials. For example, NMFS officials said that northern rock sole may adapt to warming ocean temperatures more easily than other fish species, but it is unknown how such temperatures may affect the timing of the fish's life cycle events, such as spawning. NMFS and Council officials identified several challenges to better understand potential climate change effects on fish stocks, including determining whether a change in a stock's abundance or distribution is the result of climate change or other factors, such as overfishing in the case of Atlantic cod.

### Atlantic Cod



Atlantic cod have experienced a decline in abundance in recent decades, and warming ocean temperatures may have contributed to this decline, according to NMFS and Council officials. However, the officials said the extent to which changing temperatures played a role in the decline is unclear because it is difficult to isolate this factor from other contributing factors, such as overfishing.

Sources: National Marine Fisheries Service (NMFS) and Regional Fishery Management Council (Council) officials (text); <http://www.fishwatch.gov/> (image). | GAO-16-827

NMFS developed a climate science strategy in 2015 to help increase the use of climate information in fisheries management. The strategy lays out a national framework to be implemented by NMFS' regions but does not provide specific guidance on how climate information should be incorporated into the fisheries management process. An NMFS official said that developing such guidance has not been an agency priority, but as knowledge on climate change progresses there is a more pressing need to incorporate climate information into fisheries management decision making. Developing such guidance would align with federal standards for internal control and may help NMFS ensure consistency in how its regions and the Councils factor climate-related risks into fisheries management. In addition, NMFS has not developed agency-wide performance measures to track progress toward the strategy's overall objectives, a leading practice. NMFS officials said they are waiting to finalize regional action plans for implementing the strategy before determining whether such measures may be necessary. GAO reviewed the proposed measures in NMFS' draft regional action plans and found that they aligned with some key attributes of successful performance measures. But, most of the measures did not contain other key attributes, such as measurable targets. By incorporating key attributes when developing performance measures and assessing whether agency-wide measures may also be needed, NMFS may be in a better position to determine the extent to which the objectives of its strategy overall are being achieved.