



Changes in Ocean Conditions and Human Activities Impacted the U.S. Northeast Shelf Marine Ecosystem in 2020

The U.S. Northeast Shelf is one of the world’s most productive marine ecosystem. Seafood production, commercial and recreational fishin, ocean-dependent jobs, and other services provided by the ecosystem are all being affected by a changing climate.

Two new reports provide an updated picture of conditions supporting fisheries in the U.S. Northeast Shelf marine ecosystems. **One report focuses on Georges Bank and the Gulf of Maine**, two ocean regions off New England, and the other report focuses on the Mid-Atlantic Bight. These are the three major regions within the U.S. Northeast Continental Shelf Large Marine Ecosystem.



New England Fishery Management Councils as part of a larger, ongoing NOAA-wide initiative to advance ecosystem-based management. NOAA scientists use the [Integrated Ecosystem Assessment approach](#) to advance this type of management. They incorporate all components of an ecosystem, including human needs and activities, into the decision-making process. This approach helps managers balance trade-offs and determine what is more

likely to achieve their desired goals.

For the first time, the reports focus directly on how well we have achieved fishery management goals and the risks to achieving those goals posed by ecosystem changes and other human activities. Linkages between environmental conditions and managed species are also highlighted throughout the report. This focus ensures that scientists are providing ecosystem information in a form that the regional fishery management councils can use effectively.

Major findings in this year’s report include:

- Seafood production trends downward
- Recreational fishing effort is steady, but fewer anglers are taking for-hire trips
- Waters continue to warm and marine heat waves continue
- Less cold, fresh water is entering the Gulf of Maine
- The Gulf Stream is further north
- Chesapeake Bay’s warmer winter and cooler spring affected blue crab and striped bass
- More fish species are moving to the north and east of their historic distribution, some into deeper water

The reports also cover new and rising factors, including offshore wind energy development and COVID-19 effects on fishery harvests and scientific data collection.

There are more than 20 offshore wind development projects proposed for construction over the next decade in the Northeast. They have the potential to impact many parts of the ecosystem. With sufficient data, subsequent reports will further address these factors.

Supporting An Ecosystem Approach for Fishery Management

Our State of the Ecosystem reports are produced annually by scientists at the Northeast Fisheries Science Center. They collaborate with other NOAA researchers and collaborators from academia, non-profit organizations, and state agencies.

The reports are presented annually to the Mid-Atlantic and

2021 Report Results

Seafood Production Trends Downward

In the Mid-Atlantic, the amount of seafood landed continues to trend downward. This is likely driven by the market for seafood, rather than fewer fish available for harvest because of overfishing or other factors. Surfclams and ocean quahogs account for most of the decline in landings and revenue. They are some of the most important seafood species caught in the Mid-Atlantic.

In New England, the amount of seafood caught also continues a 30-year downward trend. Gulf of Maine lobster and Georges Bank sea scallops account for a majority of catch and revenue. Both of these species are vulnerable to decline in a warming ocean; relying exclusively on them can be a risk to fishing communities.

Continuing forward it will be important for scientists to monitor climate change, species shifting distributions, and other ecosystem changes.

Recreational Fishing Effort Steady, More Anglers Fish From Shore

Recreational fishing draws hundreds of thousands of anglers to coastal waters off New England and the Mid-Atlantic. Summer flounder, striped bass, and many other species are sought after by shoreside anglers, boaters, charter and party boats, and fishing tournaments.

In the Mid-Atlantic, recreational fishing opportunities are near a long-term average. Recreational fishing diversity is measured by the number of trips from shore, on private vessels, or for-hire vessels. It is decreasing due to a shift away from trips on party/charter boats to shore-based fishing, decreasing the range of recreational fishing opportunities. Shore-based anglers have access to different species and sizes of fish than vessel-based anglers. **(to page 38)**