



**NOAA**  
**FISHERIES**

# 2020 State of the Ecosystem

## *New England*



Total commercial fishery landings were scaled to ecosystem productivity. The proportion of total primary production required to support commercial landings has been declining since 2000 in both the Gulf of Maine and on Georges Bank.



Engagement in commercial fishing has increased since 2004 for moderately engaged New England fishing communities. New England commercial fisheries remain dependent on single species (Gulf of Maine lobster and Georges Bank scallops) for a majority of catch and revenue.



2018 commercial catch and revenue increased in both New England ecosystems, primarily due to lobster and scallops. Presently, 2019 lobster catch is down substantially compared with previous years, so a drop in revenue with potential ripple effects is expected.



Habitat modeling indicates that Atlantic herring, little skate, winter skate, windowpane, and winter flounder are among fish species highly likely to occupy wind energy lease areas. Habitat conditions have become more favorable over time for most of these species within wind lease areas.



There are few apparent trends in aggregate biomass of predators, forage fish, bottom feeders, and shellfish sampled by trawl surveys, but haddock biomass is high. We continue to see a northward shift in aggregate fish distribution along the Northeast US shelf and a tendency towards distribution in deeper waters.



Forage fish energy content is now being measured regularly, revealing both seasonal and annual variation in energy of these important prey species due to changing ecosystem conditions. Notably, Atlantic herring energy content is half what it was in the 1980-90s.



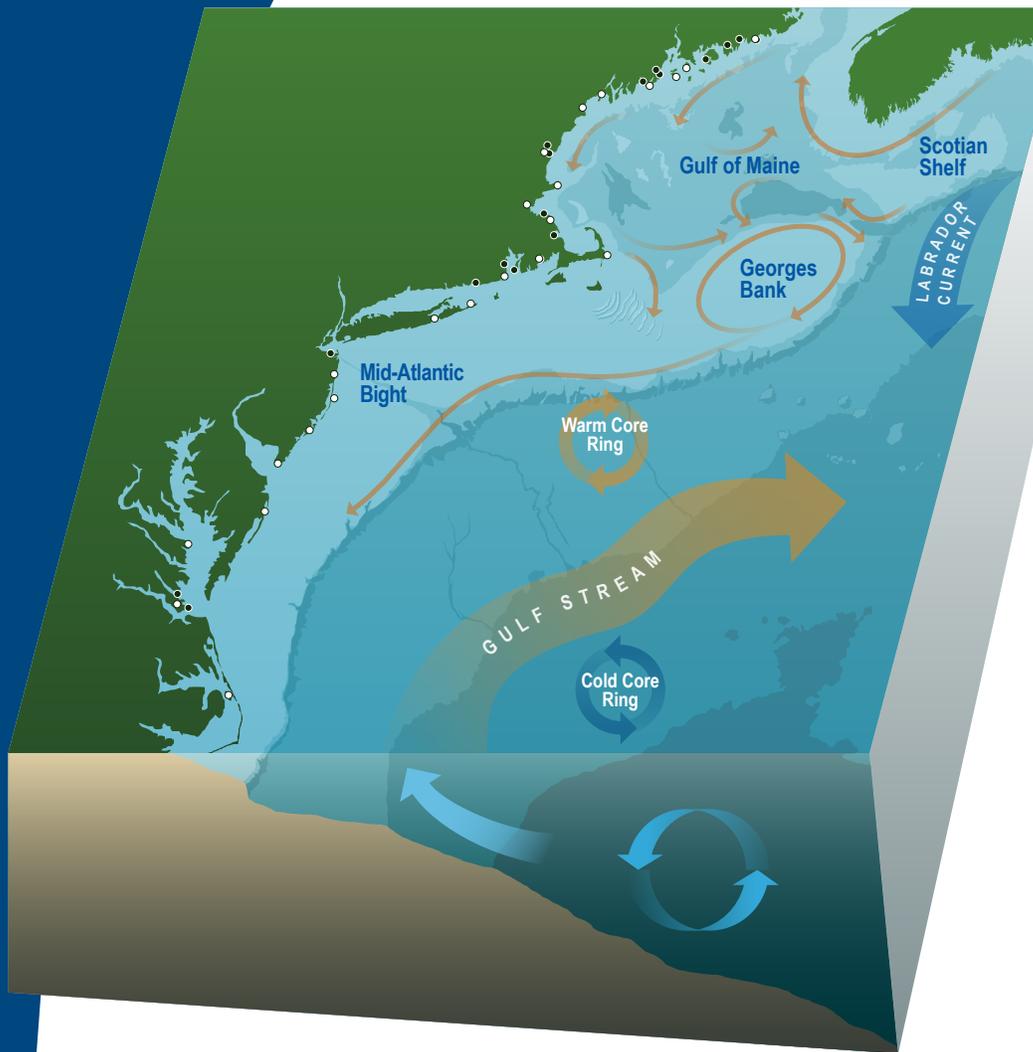
The Northeast US shelf ecosystem continues to experience changes in ocean circulation. The Gulf Stream is increasingly unstable, with more warm core rings resulting in higher likelihood of warm salty water and associated oceanic species coming onto the shelf. Almost no cold Labrador slope water has entered the Gulf of Maine for the past 3 years.



The Gulf of Maine has been markedly different in the past decade than in the 2000s. Deep water and surface temperatures are high, and marine heat waves have been much more common since 2010. Small bodied zooplankton are now more abundant than large fatty zooplankton favored by North Atlantic right whales. Spring blooms have been below average since 2013.



Georges Bank has also experienced warming and marine heat waves over the past decade. In 2019, a number of warm core rings surrounded the Georges Bank in summer, resulting in above average temperatures at the edge of the bank. Georges Bank phytoplankton biomass was average in 2019. Georges has also been dominated by small-bodied zooplankton for the past decade.



The Northeast US Shelf is one of the most productive marine ecosystems in the world. Changes in climate, nearshore, and oceanographic processes as well as human uses affect productivity at all trophic levels and impact fishing communities and regional economies.

## Research Spotlight

Fish condition, “fatness”, is an important driver of population productivity. Condition is affected by changing habitat (e.g. temperature) and ecosystem productivity, and in turn can affect market prices. We are investigating potential factors influencing fish condition to better inform operational fishery management decisions.

