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FACT SHEET

IN HOT WATER:
WE NEED CLIMATE-READY FISHERIES POLICIES TO PROTECT THE U.S. SEAFOOD INDUSTRY

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Marine fisheries—the world's last major wild food system—hold enormous value to our nation. Commercial and recreational fishing industries support 1.7 million American jobs.[1] U.S. fishermen haul in some nine billion pounds of seafood each year, netting $5.6 billion in sales. Sport fishermen catch an additional one billion pounds of fish.[2] And working waterfronts enrich the cultural identity of our coastal communities.

The Magnuson–Stevens Fishery Conservation and Management Act (MSA) has helped to safeguard these valuable resources. The MSA's requirements for science-based catch limits and fish population recovery plans have rewarded us with dozens of sustainable fisheries over the decades.[3]

But in the 21st century, as fisheries are feeling the impacts of climate change, the decades-old law cannot keep up with the unprecedented transformation of our oceans. Marine waters are warmer, more acidic, lower in oxygen, and prone to deadly algae blooms. And ocean ecosystems are changing in response. To protect fisheries and the jobs they sustain, we need to update our fisheries policy so that it can guide our management of these valuable resources through the effects of climate change.

FISH ARE MOVING TO COOLER WATERS

Over the past half century, about two-thirds of fish stocks along the east coast have shifted north or to deeper waters as fish seek cooler temperatures.[4] For example, in North Carolina, families that for decades caught tons of summer flounder in their nets are dismayed as the fish vanish from their waters, threatening to unravel local economies and traditional livelihoods.[5] Indeed, scientists have found

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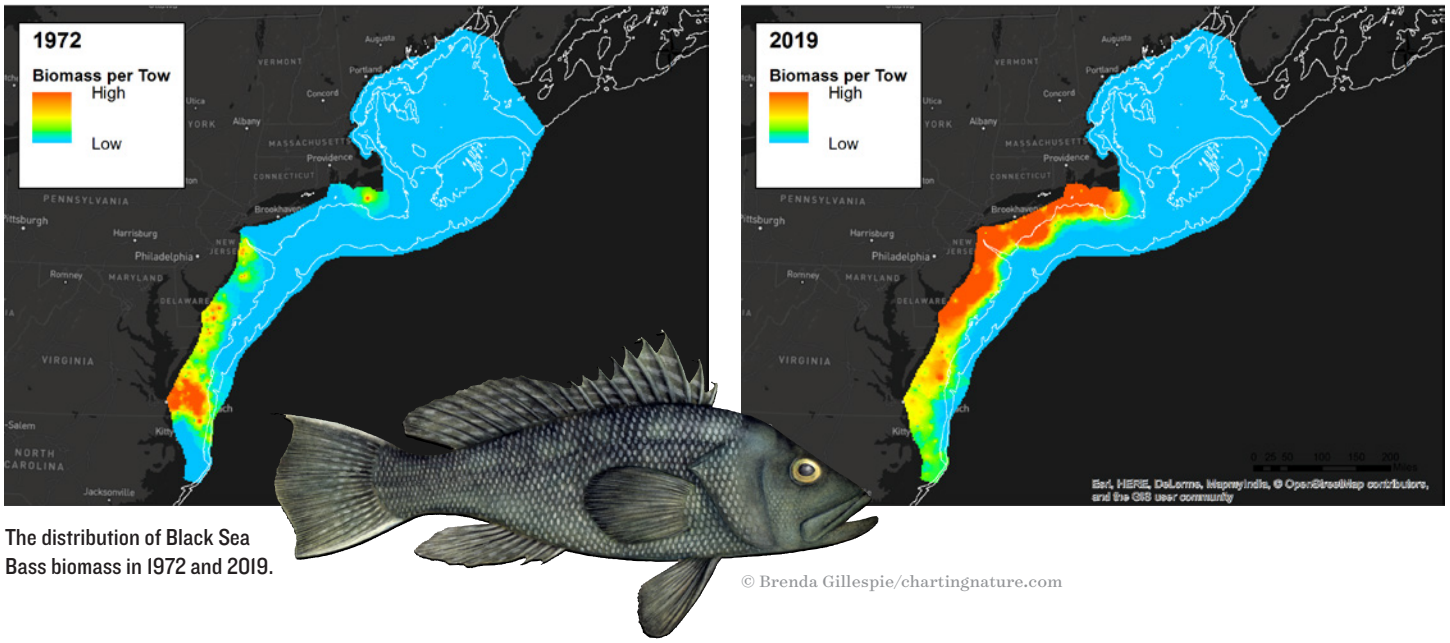


The distribution of Black Sea Bass biomass in 1972 and 2019.

that the center of the summer flounder fishery—its most productive region—is shifting to the waters off Rhode Island, New York, and Massachusetts.[6]

Shifting fish stocks can create problems for fishermen because they must travel farther to target their traditional species and because regulations may not keep pace with the changes. For example, some North Carolina fishing vessels still chase summer flounder but now have to steam three days to and from productive fishing grounds.[7] And fishermen in other regions may be prohibited from catching the new arrivals because of allocations based on historic data that no longer reflect where the seafood is caught.

These changes are pitting East Coast ports and fishermen against one another. New York, for example, has sued the federal government for a bigger slice of the summer flounder catch, arguing that 80 percent of these bottom fish are caught off Long Island, while the state has only 7 percent of the annual quota.[8]

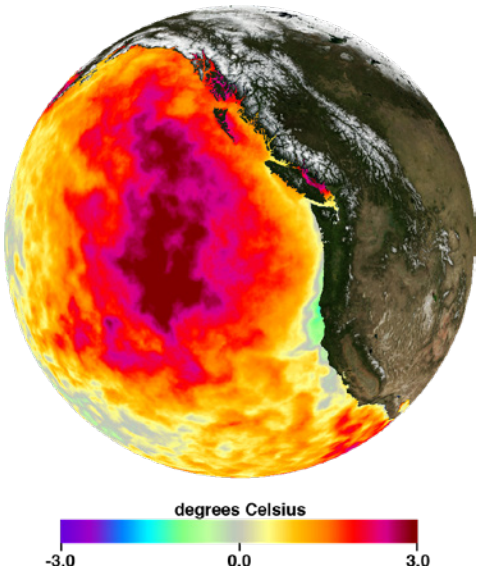
SOME FISHERIES ARE DWINDLING

Warming waters along the Atlantic coast are also affecting the productivity of certain fisheries. Twenty years ago, a prosperous lobster industry stretched all along New England's coastline. Today only the region's northernmost states have a sizable harvest, while the fishery has collapsed off Connecticut and Rhode Island—in large part due to warming conditions in southern New England.[9]

New England's populations of Atlantic cod, the region's most iconic fish, have thoroughly collapsed. While this collapse was driven by decades of overfishing, cod populations may be struggling to recover—despite quota reductions—because of the additional stress of warming waters. Scientists report that the remaining cod are underweight and speculate that juvenile fish may be venturing into cooler, deeper waters where more predators lurk.[10]

EXTREME EVENTS ARE DISRUPTING FISHERIES

Pacific cod were until recently, thriving in the Gulf of Alaska, supporting a fishery worth $100 million annually.[11] Then, in 2017, scientists aboard research trawlers made a shocking discovery: More than 100 million cod had vanished from the Northeast Pacific.[12] The culprit was a marine heat wave dubbed "the Blob," which between 2014 and 2016 pushed water temperatures up by 4-5 degrees Fahrenheit over a vast expanse of the Northeast Pacific.[13] The warm waters unraveled the food web that feeds the Pacific cod, producing fewer microscopic plants and in turn fewer krill and forage fish. As food grew scarce for Pacific cod, the warmer waters also boosted their metabolism, so they burned more energy and needed more food. In 2020 the federal cod fishery was closed in the Gulf of Alaska for the first time, and the Commerce Department allocated $24 million in fisheries disaster relief for the region.[14]



The May 2015 monthly average sea surface temperature anomaly showing 'the Blob' of record warm temperatures in the Pacific Ocean. Along the US West Coast, warm temperatures were present from 2014-2016.[15]

FIVE IMPORTANT ACTIONS TO ADVANCE CLIMATE-READY FISHERIES

Fishing communities are the engines of our coastal economies. In this time of climate upheaval, the challenge is to quickly understand and respond to the impacts of climate change, providing resilience to both fish stocks and the communities that rely on them. Climate-ready fisheries policies can serve as the foundation for weathering the storms to come. We recommend the following five measures: keep Magnuson-Stevens Act strong, integrate climate change into fisheries management, enhance the resilience of our fisheries and fishing communities, address the challenges of shifting stocks, and invest more resources in fisheries science.

1. Keep the Magnuson–Stevens Act strong.

The U.S. fisheries management system is regarded as among the world's best. The conservation mandates in the MSA have helped reduce overfishing and rebuild depleted fisheries to healthy levels.[16] These gains were hard-earned, requiring several rounds of amendments to strengthen the law and years of work by managers and fishermen to implement its conservation requirements. The MSA now provides the foundation upon which climate-ready fisheries can be built. Weakening the conservation provisions of the law would send us backwards and would be a serious mistake in this period of unprecedented environmental change.

2. Integrate climate change into fisheries management.

Fisheries managers rarely incorporate climate change directly into their decision making. The MSA does not mention climate change, and there is limited agency guidance on how best to consider climate impacts while managing fisheries. Policymakers can take steps to support the development of climate-ready fisheries by requiring fisheries scientists and managers to routinely examine whether fisheries and coastal communities are being affected by climate change and to evaluate how best to respond to these changes.

3. Enhance the resilience of our fish populations and fishing communities.

The dual stressors of fishing and climate change interact and compound each other in our nation's wild fish populations. Scientists are starting to understand that one stressor can erode a fish population's resilience to the other.[17] In some cases, this can lead to unexpected population declines.[18] Policymakers should require measures in climate-impacted fisheries to promote the resilience of fish populations and should require scientists to provide advice in implementing these measures.

Fishing communities also struggle under climate change, with shifting stocks, changing allocations, and unexpected fluctuations in productivity. Policymakers should consider steps to enhance the resilience of our fishing communities, such as improved fisheries disaster relief, to ensure they stay viable in the face of climate change.

4. Address shifting-stock problems.

The shift of fish populations into new geographic regions has a ripple effect throughout the management system: Scientists struggle to track the fish, fishery managers in neighboring regions are slow to coordinate with each other, and fishermen increasingly dispute historic fishing allocations. These problems can be addressed by setting out processes for coordination across jurisdictions, requiring new fisheries to be well managed from their inception, and defining tools and mechanisms for revising allocations.

5. Modernize fisheries science and data collection.

Many of our nation's struggling fisheries recovered over the past 20 years with the help of sound science. But these gains are in jeopardy if the science fails to keep pace. Much of fisheries science relies on the assumption that the past predicts the future, but with climate-induced changes to productivity and geographic distributions, this assumption is less and less accurate. Scientific uncertainty can dramatically increase in the face of this trend, raising the risk of misestimating safe catch levels and fueling skepticism among stakeholders. These challenges can be overcome with enhanced monitoring, targeted research on highly impacted fisheries, and the modernization of the National Oceanic and Atmospheric Administration's data infrastructure.

ENDNOTES

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