



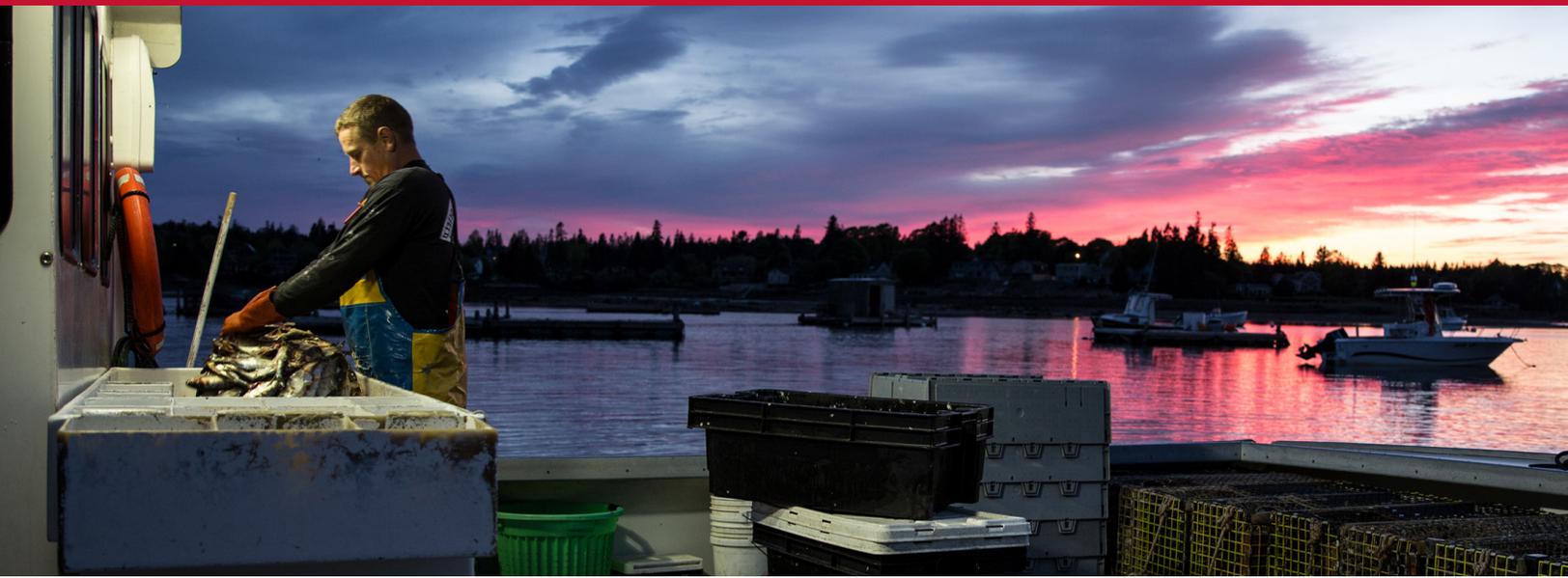
# Fish & Shellfish

PROFITABLE • SUSTAINABLE • DELICIOUS

How the Northeast U.S. Seafood Industry Ensures a Catch for Tomorrow



# WHAT IS SUSTAINABLE SEAFOOD?



Sustainable seafood is fish, shellfish, and seaweed harvested or farmed in a manner that provides for today's needs while allowing species to reproduce, habitats to flourish, and productive ecosystems to be available for future generations.

## WHY U.S. SEAFOOD IS SUSTAINABLE

The United States is recognized globally as a pioneer and leader in sustainably managing marine resources. Accountability and transparency are key elements to how the United States manages fishery resources for sustainability. U.S. seafood production, both wild and farmed, is carefully monitored and managed using science-based conservation methods. Fishery management plans, for wild-capture fisheries, are developed by regional fishery management councils, in an open public process. By law, they must:

- Consider social and economic outcomes for fishing communities
- Prevent overfishing
- Rebuild depleted stocks
- Minimize bycatch and interactions with protected species
- Identify and conserve essential fish habitats

Managing wild stocks sustainably in ever-changing ocean conditions requires continuously collecting scientific information to ensure that fishery management actions and decisions are based on the best science available. U.S. wild-capture fisheries are scientifically monitored, regionally managed, and legally enforced under 10 national standards of sustainability. Research on species, species stock assessments and ecosystem research are undertaken to ensure responsible harvesting and to preserve a complex and dynamic ecosystem.

In addition to creating jobs and food production, shellfish aquaculture also helps to mitigate the effects of climate change. Shellfish aquaculture operations typically have a smaller carbon footprint than land-based farming due to fewer inputs, such as feed and fertilizers. By relying on the natural environment to supply feed, shellfish aquaculture operations are more efficient at converting feed into protein for human consumption than beef, pork, and poultry. Shellfish aquaculture is an ocean-based climate solution. Water quality, continuously monitored by states and local municipalities, safeguards food safety and sustains healthy thriving coastal communities.

# NORTHEAST U.S. SCIENCE-BASED RESOURCE MANAGEMENT



Fisheries of the northeastern U.S. are diverse and abundant due to careful science-based conservation management. Here, we detail three examples. The iconic wild-capture American lobster and Atlantic sea scallop fisheries of the northeast U.S. are globally-recognized examples of how managing a resource for sustainability also leads to sustained profitability. Oyster aquaculture operations throughout the region also provide important economic and environmental benefits to coastal communities. Read on to learn how the northeastern U.S. sustains robust and healthy populations of these three marine resources.



# THE AMERICAN LOBSTER FISHERY

**U.S. American lobsters** (*Homarus americanus*), also known as Maine lobster, are distributed in the Northwest Atlantic from Maine to North Carolina, from near shore to the outer edge of the continental shelf. Lobsters are bottom-dwelling, solitary, and territorial crustaceans that regularly shed their exoskeleton to grow. Lobsters molt 20- 25 times (over 5-8 years) before reaching sexual maturity and legal harvestable size.

Maine is the largest lobster-producing state in the nation. Fishing is conducted using small boats typically carrying a crew of two. Laws to protect the lobster resource, such as requiring a minimum harvestable size and prohibiting the taking of egg-bearing females, were initiated as far back as the early 1870s.

The U.S. offshore fishery is managed under the New England Fishery Management Council, while fisheries within three miles (4.8 km) of shore are managed by the various other states under the Atlantic States Marine Fisheries Commission's Interstate Fishery Management Plan. The U.S. federal government oversees both fishery management organizations.



*Harvesters inspect each lobster by hand.*



# THE AMERICAN LOBSTER FISHERY

**Fishery managers rely on scientific data** to effectively manage the resource and fishing. Since 1963, abundance and distribution studies are conducted every spring and fall throughout the U.S. range of the American lobster. This time series provides fishery managers with detailed information concerning lobster abundance. This survey also constitutes the world's longest and most comprehensive standardized measure of distribution and abundance trends in commercially harvested seafood.

Furthermore, lobster harvesters are required to maintain catch and effort logbooks by fishing trip and fishing area. When harvesters sell lobsters shoreside to a dealer, the dealer is required to document the purchase of that product by state and port of landing, market grade and category, landed weight, and price.

## THE LOBSTER INDUSTRY ENSURES FUTURE HARVESTS BY:



**Minimum & Maximum Sizes:**  
Returning lobsters too small or too large to the sea.



**V-Notching of the Tail of Egg-Bearing Females:** Marking breeding females and returning to the sea.



**Trap Limits:** Limiting the number of traps used by each harvester



**Escape Vents:** Using traps with escape vents for small lobsters and for lobsters in traps lost at sea

# THE U.S. ATLANTIC SEA SCALLOP FISHERY

**The U.S. Atlantic sea scallop** (*Placopecten magellanicus*) fishery is one of the world's best examples of how managing a fishery for sustainability has produced a healthy resource, plus increased landings and greater profitability. Through careful and successful management of this resource, the U.S. Atlantic sea scallop fishery now supports the largest landings in history—and it is the largest and most valuable wild scallop fishery in the world.

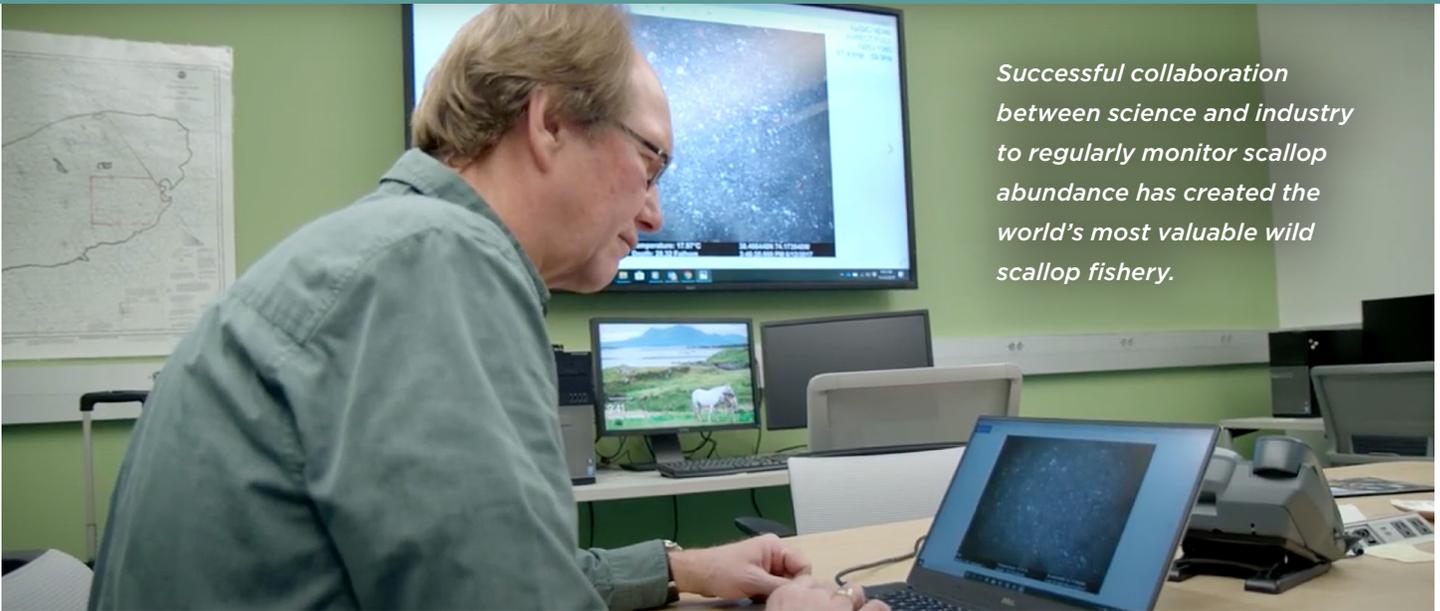
Atlantic sea scallops are distributed in the Northwest Atlantic from Maine to North Carolina. This bivalve mollusk is valued for the meat of the large abductor muscle that holds the top and bottom portions of the shell together. Sea scallops grow rapidly during the first half of their lifespan. Between the ages of 3 and 5, sea scallops commonly grow 50-80% of their shell height and may quadruple their meat weight.

Adult scallops form dense aggregations called “beds” on the ocean floor. They are most abundant on coarse sand, gravel, and cobble. Most fishermen in the Northeast use dredge gear to harvest scallops; some in the Mid-Atlantic use trawl gear. Because scallops cannot close their shells tightly, they die soon after being taken from the water. Scallop vessels fishing in offshore waters therefore shuck scallops at sea to remove the meats. These vessels are capable of shucking, measuring, grading, and icing scallops within an hour after harvest. Sea scallop meats are available fresh, IQF, or block frozen. All scallop production can be traced back to the day and fishing area where it was caught. Each new commercial fishery season begins on April 1 and fishing is conducted on a year-round basis.

In 1997, scallops were declared overfished; stricter management followed in 1998. As a result, the U.S. Atlantic sea scallop population has been considered rebuilt to sustainable levels since 2001.



# THE U.S. ATLANTIC SEA SCALLOP FISHERY



*Successful collaboration between science and industry to regularly monitor scallop abundance has created the world's most valuable wild scallop fishery.*

**Science-Based Management:** The federal New England Fishery Management Council manages Atlantic sea scallops in cooperation with the federal Mid-Atlantic Fishery Management Council under the Atlantic Sea Scallop Fisheries Management Plan (FMP), which was implemented in 1982. The scallop FMP has evolved over the years, incorporating new management techniques as scientists learn more about the fishery.

Since the beginning of the 20th century, scientists have collected annual landings data for sea scallops and have conducted a sea scallop survey each year since 1979. Relative sea scallop abundance from year to year is estimated by weight of scallops per tow during these annual surveys (e.g., kilograms per tow). Such indirect measures often serve as a good proxy for total biomass. Video and still-camera images are also contributing to a better understanding of the scallop resource and have brought a new level of accuracy and precision to abundance estimates for scallops. Working together with the commercial sea scallop industry, scientists video-survey the entire scallop resource (approximately 60,000 km<sup>2</sup> of the ocean bottom), the world's largest video survey of the sea floor.

**Sustainable Biomass:** Constant monitoring of sea scallop beds enables fishery managers to develop biomass projections that account for natural cyclical population swings. Good management of the sea scallop resource minimizes wide fluctuations in biomass, ensuring sustainable supplies and a sustainable harvest.

**Sustainable Practices:** Ongoing research and experimentation with different techniques and gear, plus education efforts, have helped to maximize sustainable scallop harvests while minimizing bycatch. Gear is lighter to mitigate bottom damage, escape routes for fish are now enlarged and scallopers allow nets to lay fallow for several minutes at the end of a tow to facilitate escape of groundfish. Furthermore, bycatch quotas are in place to prevent the undue harvest of finfish. Once a bycatch quota is reached, a fishing area must close. Fishing grounds are also closed during turtle migrations and turtle chain extruders have been added to dredge gear.

**Sustainable Profitability:** Good resource management practices have led to a dramatic increase in scallop abundance and the development of a highly profitable commercial sea scallop fishery. The U.S. Atlantic sea scallop fishery now supports the largest landings in its history, and it is the largest and most valuable wild scallop fishery in the world.

Successful management of the sea scallop resource has led to more profitable fishing, reducing the average length of an individual fishing trip and enabling vessels to reach their per trip catch quota faster. Gear changes to expand selection tendencies toward larger scallops have helped to improve yields, and decrease discards, which, together with closed areas, may help protect against recruitment overfishing.

Learn more about the U.S. Atlantic Sea Scallop [here](#).

# FARMING THE AMERICAN EASTERN OYSTER

## RESPONSIBLE SHELLFISH AQUACULTURE



Improves food security & nutrition



Increases food production



Boosts economic growth in  
coastal & rural areas



Helps to keep waterways clean



Preserves ecosystems and  
biodiversity



**Responsible shellfish aquaculture** fits the 17 Sustainable Development Goals set by the United Nations. Aquaculture can improve food security and nutrition by increasing the amount of seafood available for people to eat. If done correctly, aquaculture increases food production, boosts economic growth in coastal and rural areas, and can help keep waterways clean. Preserving ecosystems, safeguarding biodiversity, and reversing land degradation are significant components of sustainable aquaculture.

The American Eastern oyster (*Crassostrea virginica*) is sustainably farmed throughout the northeastern U.S. oysters are considered a keystone species because they have a disproportionately large impact on the natural environment and other species in an ecosystem. As filter feeders, they remove particles and nutrients from the water column through their natural feeding process. A market-size oyster can filter nearly 50 gallons of water daily. Because oysters filter food from the water, and do not require any input of feed from farmers, oyster farming has a very small human impact on the environment.

**Oysters purify the water they live in** by sequestering nitrogen and carbon dioxide from the atmosphere and incorporating these elements into their shells and tissues as they grow. As filter feeders, oysters accumulate marine biotoxins; chemical contaminants; and pathogenic microorganisms, such as bacteria and viruses, by effectively removing them from the water column before they accumulate to harmful levels. Excessive nutrient loading caused by human shoreline development can result in eutrophication, which can deplete areas of oxygen or cause harmful algal blooms. Shellfish naturally

remove nitrogen from the environment thereby helping to mitigate the effects of climate change and helps to improve area water quality.

Improved water quality invigorates shoreline vegetation and strengthens the entire ecosystem. Eelgrass proliferates providing essential habitat for invertebrates and juvenile finfish. Good vegetation coverage also protects against shoreline erosion. Sustainable aquaculture helps to reduce harvesting pressure, and can even reduce disease impacts, on wild populations.





## ABOUT US

Food Export USA-Northeast is a nonprofit organization composed of ten northeastern state agricultural promotion agencies that use federal, state and industry resources to help companies increase product sales overseas. Food Export USA-Northeast administers many services through Market Access Program (MAP) funding from the Foreign Agricultural Service (FAS) of the USDA.

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