

National Oceanic and Atmospheric Administration

National Marine Fisheries Service


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FishWatch - U.S. Seafood Facts

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 Search Species
 Search NMFS

Atlantic Sea Scallop (*Placopecten magellanicus*)

- The Atlantic sea scallop resource is healthy and is harvested at sustainable levels.
- Fishing effort has been reduced in order to keep the sea scallop fishery sustainable. Areas where scallops can be harvested are rotated to maximize scallop yields and protect beds of young scallops as they grow.
- Scallops are a good low-fat source of protein and are high in selenium and B vitamins. For more information, see Nutrition Facts. (USDA)
- The U.S. sea scallop fishery is extremely important to our economy and is the largest wild scallop fishery in the world. In 2009, U.S. fishermen harvested 58 million pounds of sea scallop meats worth over \$382 million. Massachusetts and New Jersey are responsible for the majority of the U.S. harvest.


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Nutrition Facts

Servings 1

Serving Weight 100 g

Amount Per Serving

Calories 88

Total Fat 0.76 g

Total Saturated Fatty Acids 0.079 g

Carbohydrate 2.36 g

Sugars 0 g

Total Dietary Fiber 0 g

Cholesterol 33 mg

Selenium 22.2 mcg

Sodium 161 mg

Protein 16.78 g

Sustainability Status

Biomass: In 2009, biomass was estimated to be 129,700 metric tons meats, above the target biomass level of 125,000 metric tons meats.

Overfishing: No

Overfished: No

Fishing and habitat: Scallop dredges can have long term effects on habitat. In some cases, areas are closed to scallop dredges to protect sensitive habitats and scallop populations.

Bycatch: Most fishermen in the Northeast use dredge gear to harvest scallops; some in the Mid-Atlantic use trawl net gear. Bycatch of finfish (such as yellowtail flounder, skates, and monkfish), sea turtles, and undersized scallops have been identified as concerns in the scallop fishery. Ongoing research and experimentation with different techniques and gears and education efforts have helped to reduce bycatch.

Temporary and seasonal closures in areas where species like yellowtail flounder and sea turtles congregate reduce catch of these untargeted species. In addition, NOAA Fisheries Service, in collaboration with industry, has tested and implemented changes in dredge design to reduce flounder bycatch and minimize injuries and capture of sea turtles. Additional studies are examining the feasibility of turtle excluder devices for scallop trawls. NOAA also recently announced **restrictions** on the number of fishing trips full-time vessels can take in certain areas in order to minimize risk to sea turtles.

Aquaculture: There is currently no commercial aquaculture of sea scallops in the United States.

Science and Management

The **New England Fishery Management Council** manages Atlantic sea scallops in cooperation with the **Mid-Atlantic Fishery Management Council** under the **Atlantic Sea Scallop Fishery Management Plan**, which was implemented in 1982 to restore and stabilize adult scallop stocks. Management of the scallop fishery has evolved since, incorporating new management techniques as scientists learn more about the fishery. In 1994, managers implemented a limited access program for scallop vessels. The program included a moratorium on new scallop permits for the large-scale directed fishery, effort reduction, gear restrictions, and limits on crew

The largest observed scallop was about 9 inches shell height, but sea scallops rarely grow larger than 6.7 inches shell height.



Did you know?

Scallops are sometimes aged like trees by counting the number of annuli (rings) on their shells.

By opening and shutting its top and bottom shells rapidly, a sea scallop can propel itself over 4 feet.

Scallop larvae can get caught in currents and drift great distances. Because of this, when managers close

size. A portion of the fishery was left as an open access fishery to allow a small-scale directed scallop fishery and to allow vessels to retain a small amount of scallops caught incidentally in other fisheries. In 1998, NOAA Fisheries Service and the New England Fishery Management Council determined that sea scallops were overfished and implemented a rebuilding plan with measures to reduce fishing effort. As a result of the effort reductions, gear restrictions, and closed areas established to reduce fishing mortality, the Atlantic sea scallop population has been rebuilt to sustainable levels since 2001.

certain areas to scallop harvesting, it may help boost populations in both the closed and open fished areas.

Life History and Habitat

Life history, including information on the habitat, growth, feeding, and reproduction of a species, is important because it affects how a fishery is managed. Sea scallops have high reproductive potential; because of this, they may respond to management actions more rapidly than species that reproduce slowly and in small numbers.

- **Geographic range:** In the Northwest Atlantic Ocean, from Newfoundland to Cape Hatteras, North Carolina. Populations are found on Georges Bank (including the Canadian portion), the Gulf of Maine, and the Mid-Atlantic Bight.
- **Habitat:** Adult scallops live together in dense groups called "beds" on the ocean floor.
- **Life span:** Up to 20 years
- **Food:** Scallops filter small organisms out of water column
- **Growth rate:** Rapid during the first half of their lifespan – between the ages of 3 and 5, sea scallops commonly grow to 50 to 80% of their shell height and may quadruple their meat weight.
- **Maximum size:** Usually not larger than 6.7 inches in shell height; the largest scallops observed have been about 9 inches in shell height.
- **Reaches reproductive maturity:** At age 2, but do not significantly contribute until around age 4
- **Reproduction:** Sea scallops have high reproductive potential – a single sea scallop can produce as many as 270 million eggs during its lifetime.
- **Spawning season:** Most spawn late summer to fall, but timing varies according to latitude.
- **Spawning grounds:** Bottom habitats with a substrate of cobble, shells, coarse/gravelly sand, and sand in the Gulf of Maine, Georges Bank, southern New England, and mid-Atlantic.
- **Migrations:** None, but a scallop can use its adductor muscle to open and shut its top and bottom shells to propel itself in the water column. Scallop larvae also drift in currents.
- **Predators:** Numerous pelagic fish and invertebrates eat scallop larvae; juvenile and adult scallops are preyed upon by cod, wolffish, eel pout, flounder, crabs, lobster, and sea stars.
- **Commercial or recreational interest:** Commercial
- **Distinguishing characteristics:** A bivalve mollusk harvested for the muscle that holds its two shells together



These small scallops (1.7 to 2.1 inches) were found 308 feet below the water's surface. Scallops often form "beds" on the ocean floor, as deep as 1,259 feet below the surface. Currents supply abundant primary production to these bottom areas, enhancing the survival rates of scallops.



Sea scallops are harvested for their adductor muscle, the muscle that holds their shells together. This load of scallops is on the deck waiting to be processed by hand shucking. Only about 12% of the scallop's total weight is landed; the remainder is discarded at sea.

Role in the Ecosystem

Sea scallops are filter feeders - they filter their food out of the water, which can help to improve water clarity by removing suspended materials from the water column. However, water quality is not really an issue where sea scallops occur in large numbers.

Additional Information

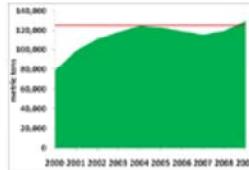
Market name: Scallop

Vernacular name: none

Several other species are also marketed as Scallop.

Biomass

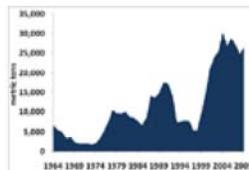
Biomass refers to the amount of Atlantic sea scallops in the ocean. Scientists cannot collect and weigh every single scallop to determine biomass, so they use models to estimate it instead. These biomass estimates can help determine if a stock is being fished too heavily or if it may be able to tolerate more fishing pressure. Managers can then make appropriate changes in the regulations of the fishery. In 1994, 1998, 2004, and 2007, NOAA Fisheries Service closed extensive areas to scallop dredging. These closures, in conjunction with significant reductions in effort and increases in scallop recruitment, have led to a ten-fold increase in scallop biomass since its low point in 1993.



Video and still-camera images are contributing to a better understanding of the scallop resource and have been used to estimate biomass. As these image-based surveys are further refined, they are likely to contribute to estimating overall biomass estimates.

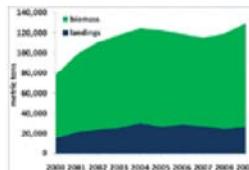
Landings

Landings refer to the amount of catch that is brought to land. Annual landings increased from about 8,000 metric tons meats in the mid-1980s to over 17,000 metric tons meats in 1990-1991. Landings fell to between 5,000 and 8,000 metric tons meats during 1993-1998. Scallops were declared overfished in 1997, and stricter management followed in 1998. Landings increased from 1998 to 2003 and have remained at high and relatively stable levels since. In fact, the scallop fishery now supports the largest amount of landings in its history. U.S. sea scallop landings averaged about 24,000 metric tons meats during 2003-2009, about twice their long-term average.



Biomass and Landings

Biomass and landings data can sometimes be used to detect trends in a fishery. They may influence each other, and factors such as changes in management measures, fishing effort, market preferences, or environmental conditions may impact landings and biomass as well. Following low biomass and landings in the 1990s, strict management and productive scallop seasons led to the current levels of higher biomass and landings.



Data sources:

Biomass and landings from [Sea Scallop Assessment Summary for 2010](#)

Important Dates

- 1982** – **Atlantic Sea Scallop Fishery Management Plan** implemented, requiring that harvestable scallops meet a minimum weight requirement
- 1994** – NOAA Fisheries Service closes areas on Georges Bank and Nantucket shoals to groundfish and scallop fishing
- 1994** – Moratorium on scallop permits implemented; limits on "days-at-sea" to reduce fishing effort and a limit on crew size are initiated; protocol for collecting commercial fishing data for Northeast U.S. fisheries is changed; increase in dredge ring size from 3.0 to 3.5 inches is required by 1996; open access "general category" scallop permits created to allow small-scale scalloping and incidental catch of scallops in other fisheries
- 1997** – Scallops are declared overfished
- 1998** – More stringent "days-at-sea" limitation and a plan to rebuild stocks within 10 years are established; maximum crew size capped at seven; vessel monitoring systems are required on limited access scallop vessels
- 1998-2001** – Managers close extensive areas in Mid-Atlantic Bight region to scallop fishing
- 1999-2001** – First limited reopenings of closed area on Georges Bank
- 2001** – Mid-Atlantic biomass continues to increase as a result of above-average recruitment coupled with better size selection by the fishery and gear. Mid-Atlantic

areas closed since 1998 reopen to controlled fishing.

2004 – "Area rotation management program" implemented (rotating open and closed areas to maximize scallop yield); a new rotational area (the "Elephant Trunk" area) is closed to fishing for 3 years; dredge ring size is further increased to 4 inches; minimum mesh size for mesh on top of the dredge gear set at 10 inches to reduce flounder bycatch

2004 – Biomass peaks

2004-2006 – Limited portions of Georges Bank closed areas reopen to controlled fishing

2005 – Vessel monitoring systems required on open access general category vessels.

2006 – Chain mats required in sea scallop dredges used in the Mid-Atlantic, May through November, to prevent sea turtles from entering gear

2007 – Industry-funded observer program continued through a total allowable catch and days-at-sea set-aside program to help vessel owners defray the cost of carrying observers (program is necessary to monitor bycatch of finfish and interactions with threatened and endangered species)

2007 – Elephant Trunk area reopens to fishing; a new rotational closure (Delmarva) is implemented

2008 – **Limited access and individual quotas established** for the general category fleet of scallop vessels; other important measures established to control fishing mortality and capacity in the general category scallop fishery

2008 – **Researchers find high number of small seed scallops, or recruits, in the Great South Channel of Georges Bank and in other survey areas**; numbers are highest seen on Georges Bank since 2000 and the second highest in the Mid-Atlantic Bight since 1979, documenting the effectiveness of management rotating commercial fishery access to highly productive sea scallop areas while closing other areas to allow sea scallops to grow; very encouraging news for both the resource and the fishery during the next few years

2008 – New England Fishery Management Council begins developing an amendment to address new annual catch limit and accountability measure requirements of the Magnuson-Stevens Fishery Conservation and Management Act by the 2011 scallop fishing year. New England Fishery Management Council also begins developing a framework to adjust management measures for the 2010 scallop fishing year.

Notes and Links

General Information:

[Sea Scallop, *Placopecten magellanicus*, Life History and Habitat Characteristics, Second Edition \(2004\)](#)

[Estimated bycatch of loggerhead sea turtles \(*Caretta caretta*\) in U.S. Mid-Atlantic scallop trawl gear, 2004-2005, and in sea scallop dredge gear, 2005 \(2007\)](#)

[2008 NOAA Atlantic Sea Scallop Survey Shows Strongest Recruitment on Georges Bank in Seven Years](#)

Fishery Management:

[Sea Scallop Fishery Management Plan, amendments, and information](#)

Stock Assessments:

[Sea Scallop Assessment Summary for 2010](#)

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