

MARINE LIFE CRUISE

The Marine Life Cruises are a terrific way for students to closely examine and even touch organisms found in Cape Cod Bay. We'll cruise out of Wellfleet Harbor into Cape Cod Bay aboard the *Naviator*, a commercial fishing vessel. Naturalists will haul up a fish trap and demonstrate the use of three nets: otter trawl, bay scallop drag, and plankton tow. These tows often bring up organisms like spider crabs, flounder, oyster drills, scallops, horseshoe crabs, skates, and squid. Depending on the time of year, participants may even have a chance to observe gray and harbor seals hauled out on the beaches around Wellfleet Harbor. Each cruise is 2½ hours long and is limited to 42 participants.

This program is recommended primarily for middle and high school students.

EQUIPMENT USED

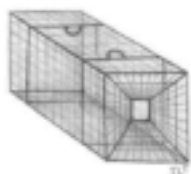
The Otter Trawl is a long net used in commercial fishing (ours is a smaller version) that is towed behind the boat to catch bottom dwelling (benthic) organisms. The idea is to tow it long enough that organisms will tire out from the chase and be caught in the net. Our catch usually consists of benthic fish like flounders, skates, sea robins, and sometimes dogfish (shark), but it is not uncommon to find other organisms as well.

The Scallop Drag is a medium sized “basket-like” net used in commercial fishing. The scallop drag is dragged along the bottom to “kick up” sediment and anything living in it. Our catch usually consists of mollusks, crustaceans, and small fish, but it is not uncommon to find other organisms as well.

The Plankton Tow



is a large, fine meshed net used for catching small “drifting” plants and animals known as plankton. Not all plankton is microscopic. We usually find crab zoea and crab megalops, copepods, comb jellies, and hydromedusa.



The Fish Trap or Fish Pot

remains in the harbor throughout the spring and summer season. In it, we often find tautog (a.k.a. blackfish), black sea bass, scup, and very large spider crabs.

WELLFLEET HARBOR

In addition to being home for a wide variety of marine wildlife, Wellfleet Harbor has a unique cultural and geologic history. It is separated from Cape Cod Bay by tombolos, glacially formed islands connected by thin strips of beach, the largest of which is Great Island. An old whaler's tavern used to exist on Great Island in the 1700s, but now the Cape Cod National Seashore owns the tavern site and the surrounding land. Off the tip of Great Island lies Billingsgate Shoal, now visible only at low tide. It was formerly the site of an old fishing village. Wellfleet Harbor has a 10-foot tidal range and, as a result, miles of rich tidal flats are exposed every 12 hours. These tidal flats, where aquaculturists and "wild pickers" gather quahogs (clams) and oysters at low tide, are the basis for Wellfleet's shellfish industry. During high tide Wellfleet's "mosquito fleet" of small boats can be seen setting out to drag for shellfish. All of these points of interest will be pointed out on the Marine Life Cruise.

SPECIES FOUND/FUN FACTS

INVERTEBRATES

Spider Crab



This crab decorates itself with algae, barnacles, and shells for camouflage. Females could be carrying bright orange eggs in the spring and early summer.

Long-clawed Hermit Crab



This is the most common hermit crab in Atlantic waters. It is very choosy about which shell it chooses to live in.

Flat-clawed Hermit Crab



This crab lives in deeper waters and is also called "Shield Hermit Crab" because of its large, flat, shield-like claws.

Black-tipped Mud Crab are small crabs often found hiding inside old oyster shells. These crabs are small, but their black-tipped claws are very large.

Bay Scallop: This swimming bivalve has 40 to 50 blue/silver eyes and only lives to be two to three years old.

Eastern Oyster: The Wellfleet oyster is world renowned for its taste. Many oyster eaters may not know that an oyster can change sex at any time during its life.

Chiton: This ancient mollusk has **INVERTEBRATES** eight overlapping shells instead of one.

Red-beard Sponge: This sponge is bright red when out of water, but looks brown underwater. It is made up of cells that carry out all the life functions almost independently of each other.

Blood Ark: Unlike other mollusks, the blood ark has hemoglobin, which makes it look like it has blood.

Long-finned Squid: This mollusk is one of the most intelligent invertebrates in the ocean; it can communicate and remember, and its eyes can form color images.

Calico Crab



Its hind legs have been modified into large paddles that enable it to swim through the water column. It also has large pinching claws used to catch prey.

Horseshoe Crab



It is not a true crab, but it has copper-based blood like true crabs. Horseshoe crab blood is used to produce lysate, which is used in hospitals and bio-labs worldwide

Channeled Whelk



This large snail is a predator on shellfish. It can pry open the two shells of a clam, for example, using the edge of its shell and its muscular foot. After opening the shell, it scrapes out the insides with its radula (tongue with "teeth").

FISH

Tautog: This fish has front teeth that grip prey and teeth lining its throat to crush crab exoskeletons.

Black Sea Bass: This fish can change sex and is born with both gonads, but it is not hermaphroditic.

Flounder: This flat fish is born with both eyes on one side of its head, but one eye migrates over to the other side early on in the flounder's development.

Skate: This fish looks a lot like a stingray. Both have spiracles (holes) on top of the head that bring water in and over the gills.

Pipefish: This small fish is similar to its relative the sea horse in that males have a pouch to carry the eggs.

Scup: Sometimes called porgies, these small silver fish display black stripes when stressed.

Spiny Dogfish: This small shark travels in very large schools and is a voracious feeder. Its spine can be painful to anyone who is pierced by it. People often refer to it as a "Sand Shark."

Smooth Dogfish: This small shark has small, low, flat teeth. People often refer to it as a "Sand Shark."

PLANKTON

Crab Zoea: This is the second stage of the crab life cycle. It has a spike on top of its head for protection.

Crab Megalops: This is the third stage of the crab life cycle. It will soon turn into an adult and will no longer be considered plankton.

Copepod: This is the most abundant type of plankton in New England waters. It can propel itself up to 500 times its body length in less than a second and is the main food for many larger animals in the sea.

Hydromedusa: This jellyfish-like animal is not a jellyfish. It is the reproductive stage of the hydroid, which spends its adult life attached to a rock or shell. This is a prime example of *alternation of generations*.

Comb Jelly



This is often mistaken for a jellyfish, but a comb jelly cannot sting (except one species). Its sticky tentacles are used like flypaper to catch plankton.

MAMMALS

Gray and Harbor Seals: These true seals wiggle on their bellies, pulling themselves along with their front flippers. Both species are protected by the Marine Mammal Protection Act.

BIRDS

Double-crested Cormorant: Large, long-necked, black waterbird that dives (up to 60 feet!) below the surface to catch fish.

Common Tern: White bird with black cap that dives from the air to catch fish. It has the longest migration route of any bird—almost pole to pole!

Great Black-backed Gull: Largest gull in the world with a 5–6 foot wingspan. It lives on Cape Cod year-round.

Brant: A small sea goose that depends on eelgrass for its survival and almost disappeared when eelgrass died off many years ago. Both are plentiful now.

Laughing Gull: A smaller, black-headed gull that comes here to nest and is named for its “ha-ha” call.

Herring Gull: A large gray and white gull with a yellow bill that lives on Cape Cod year-round. These gulls will eat almost anything.

Northern Gannet: A very large pelagic seabird with long pointed wings that plunge dives for fish from high in the sky. Adults have white wings with black tips. Gannets rarely come on shore because they can’t take off from land.