

Let's Go Fishing in Narragansett Bay

Grades 3-12

You will need copies of Rhode Island State Maps for this activity.

Introduction:

Thousands of people use Narragansett Bay every day – and many of them are trying to catch dinner. This “dinner” can be almost anything: lobsters, crabs, sea bass, blue fish, quahogs, oysters, mussels, scup, and conch are all part of the harvest. Consumers desire the fish and shellfish resources of the Bay. The fishermen who catch these creatures are a large and varied group. Some are casual weekend enthusiasts, while others run large commercial operations. In general, there are three distinct groups: recreational fishermen (who fish for fun), commercial fishermen (who fish for a living), and a growing number of aquaculturists (who grow fish, shellfish, and even marine plants to sell).

Fishing has a significant impact on Rhode Island's economics. In 1998 there were 124,168,317 pounds of finfish and shellfish landed in Rhode Island. In total, fishermen were paid \$79,228,246 for this catch. But the economics of fishing goes beyond just the catch. Rhode Island recreational anglers spent \$138,737,000 in 1998. Fishermen need to pay for gear, boats, bait, and fuel, providing jobs and economic stimulus far beyond the shores of the Bay.

Rhode Island fishermen sometimes argue among themselves about fishing. The division of fisheries resources between the different fishing groups is at the center of these controversies. Sports fishermen and commercial fishermen argue over resource allocation and environmental impact. Aquaculturists need space in the Bay

Fishing has a significant environmental impact. The populations of many of the species fished today have decreased dramatically, in some cases due to heavy harvesting. Fish populations are decreasing for other reasons as well. Habitat destruction has had a great effect, especially the loss of salt marshes which act as nurseries for many fish species. Pollution, sewage runoff, power plants, and many other human activities have had negative effects as well.

A Fishing Tour of the Bay

Map point #1

Let's head over to the water and see who's catching. A good place to start would be the start of the Bay. So let's go up to Collier Point Park, just south of the Fox Point Hurricane Barrier in Providence. The water is calm here. Behind us are Route 95 highway, oil storage tanks, and the Port of Providence. A huge freighter is docking with the help of two hard-working tugboats. What can we catch here? Would you want to come over to dinner to eat this fish with me?



Map point #2

Let's hop in a boat and head down the Bay. The river widens rapidly into the Bay, and we pass the Conimicut Lighthouse on its lonely sandy spit on our right. We can see a couple of fishermen there, fishing off the shore. They have waders on to stay dry, and are casting into the water, hoping to catch bluefish or striped bass.

Map point #3

Now the Bay is very wide, and we are getting close to one of the Bay's big islands: Prudence Island. We can see a large fleet of small boats scattered across the north end of Prudence, and along the mouth of the Barrington River. Each boat has one man holding the end of a pole that goes down into the water. What are they doing?



As we come closer we can start to see these fishermen working. They are quahogers, digging for *Mercenaria mercenaria*, the hard shell clam that lives in the mud at the bottom of the Bay.



This way of harvesting clams is called “bullraking.” The fisherman puts together a long pole to reach the bottom of the Bay – sometimes over 50 feet long. At the bottom of the pole he has a bull rake.



As he moves the end of the pole, the rake is dragged along the bottom of the Bay. The rake’s teeth scoop clams out of the mud and into the basket, ready to pull to the surface.

If we came down the Bay every day we would see the quahogers in different places. Sometimes they choose to go somewhere different, but sometimes they are forced to change their fishing areas due to Bay fishing closures. When there has been a lot of rain the Fields Point sewage treatment plant overflows into the Bay. When this happens, the upper Bay is closed to taking shellfish for some time. What do you think about swimming here when that happens?

Map point #4

Look at the map of shellfish bed closures.

<http://www.state.ri.us/dem/topics/outdoor.htm#marine>.

Compare this to the map you have at hand. What towns are close to these areas? If we dipped a net in here, what would we see? Fish populations in the bay have changed dramatically, perhaps due to fishing, or perhaps due to habitat destruction or disturbance.

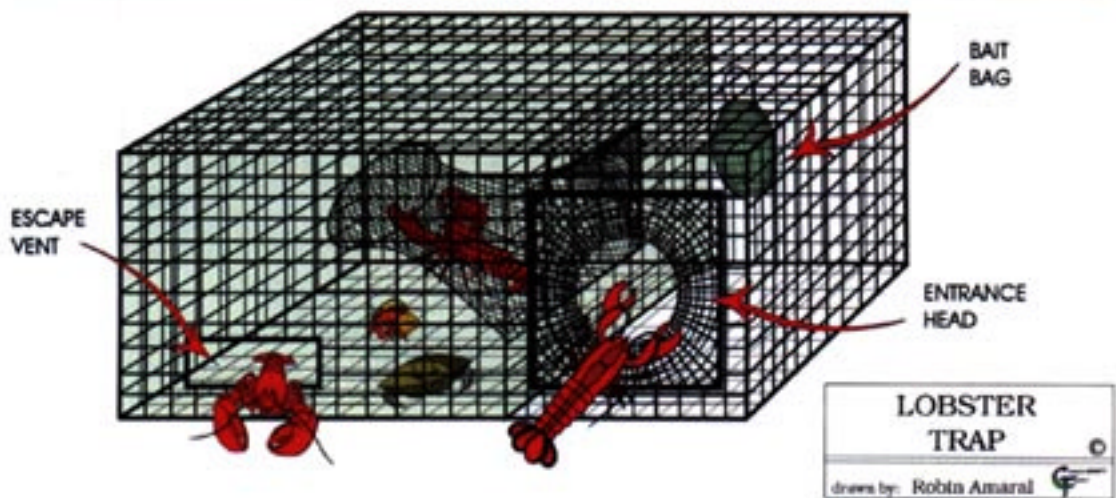
Map point #5

Let's turn the motor on again and head down the main navigation channel along the east side of Prudence Island. We are starting to see more and more lobster buoys along the side of the channel and along the rocky shores.



Lobstermen use the buoys to mark the locations of their lobster traps so they can return to them to check their catch every few days. Each lobsterman has different colors for his buoys so he can identify his own traps easily. Below each buoy is a long rope attaching it to a lobster trap that sits on the bottom of the Bay. A nice smelly piece of bait sits in the “kitchen” of the trap.

**SMOLOWITZ
FIGURE 5
(page 51)
Lobster traps.
Drawing by
Robin Amaral.**



This image is from <http://www.fishingnj.org/dialobs.htm>

Lobsters crawl into the entrance, which gradually narrows so they can't crawl out again. The fisherman hopes for lots of lobsters when he pulls up his trap, but many other creatures take advantage of the free lunch, and there may be fish, crabs, or even seahorses clinging to the trap! Although lobsters are caught all over the Bay, many fishermen travel well outside of the Bay into the ocean to fish as well.

Let's re-bait the trap and throw it back in – maybe there will be more lobsters to catch tomorrow. As our boat turns toward the south again we see more people fishing out of boats. Some people use lures to catch fish, while others use different types of bait. Many, many different types of lures are used, depending on the fish the person wants to catch, the conditions, and maybe some superstition as well!



Some good bait includes munnichogs,



squid



and polychaete “sand” worms. Some of these animals come from the salt marshes that line the Bay. Salt marshes are important as the source for animals like this, as well as nurseries for larger fish.

Map point #6

Now lets motor over to the west passage of Narragansett Bay. We'll pass between Prudence Island on our right and Jamestown on the left. The huge buildings of Quonset Point are a little ahead of us on the west shore

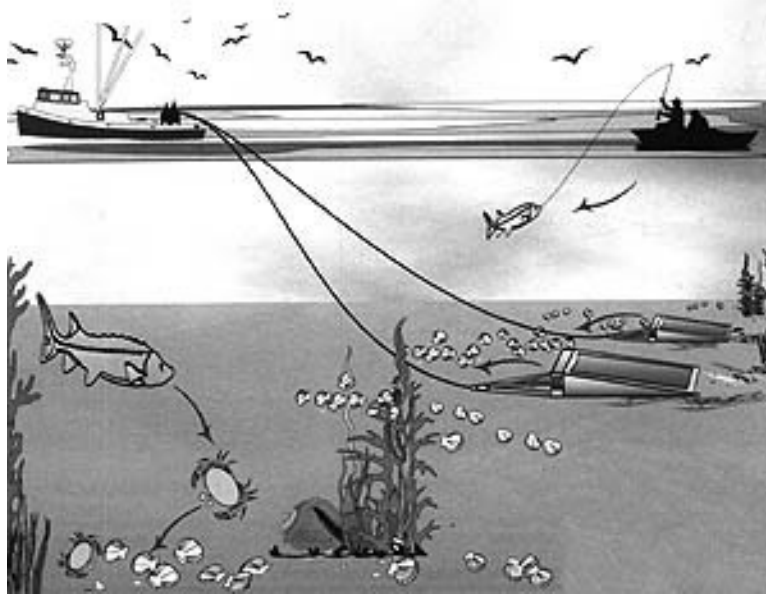
Map point # 7

Now we turn south again. The waves are getting bigger as we get near the southern end of the Bay - these are big ocean waves coming in here! Here we go - under the two Jamestown bridges - the one old one that they don't use any more, and the new one. I think the old one is just falling apart - let's hope that nothing falls off on us as we go under!

Map point #8

Now we are starting to see many bigger fishing boats, with nets coiled up in the back and long mechanical arms reaching out to the sides.





These are called “draggers” because they travel through the water dragging the net behind them in order to catch fish. Some come into the Bay to fish, while others head out to sea. When they are not out fishing they are fixing their gear, or getting new nets, such as these made on the west side of the Bay.



Map point #9

Now we are really out of the Bay, and the waves are getting a bit big for our little boat. However, we can get shelter by stopping in at one of the busiest harbors of the area. This is Galilee. Many of the fish harvested from the Bay are sold to dealers around this harbor. It is a busy port, full of fishing boats and charter boats. The charter boats take people into the Bay to fish for bass, scup, bluefish, and tautog [go to the DOEE Virtual Field Trip or the DOEE Biota Gallery to see pictures of these fish - <http://omp.gso.uri.edu/doee.htm>]. But, you don't need to get that fancy to fish!



Map point #10

There is one more place we could go to look at marine products from Rhode Island, but not in the boats of fishermen catching wild fish. We would have to look for the fish farmers: aquaculturists. But they farm a lot more than fish: oysters, clams, scallops, and seaweed are aquaculture products as well as fin fish. Currently, oysters and clams are the primary aquaculture products from Rhode Island. Let's visit one of these "fish farms" – Moonstone Oysters in Point Judith Pond, one of the salt ponds near the Bay.

The oysters come to the pond as spat. At this stage each oyster is the size of a pinhead, 1.5 million fit in a gallon sized jug. Watch out, though – if you walk onto the main dock of the marina you are actually standing on top of their nursery! Open up the dock and look inside.



This is called a “floating upwelling system” where the oysters grow up, washed with water pumped from the pond and protected from predators such as gulls, crabs, and fish. Once they grow large, they are transferred to cages in the pond to grow to harvest size.



While they are growing the oysters play an important role in the health of the pond. Look around, the pond is surrounded by homes, all of which have septic tanks for sewage disposal. An element called nitrogen leaches from these tanks into the pond. Nitrogen isn't poisonous – it's not like the “bad” bacteria in the septic systems. However, it acts like a fertilizer and if there is too much nitrogen, you get an overgrowth of plants. That's why garden companies use it to make nice green lawns. When too much nitrogen gets into the Bay it causes the tiny phytoplankton (microscopic plants) to grow. This causes chemical changes in the water that might eventually get so bad that it kills everything in the area. Oysters take a lot of the nitrogen out – Moonstone Oysters has 2.5 million oysters in the pond which filter 50 to 100 million gallons of water a day. That means they can get a lot of nitrogen out – very good for the health of the Bay. Getting the nitrogen out of there is a good thing! The oyster farm plays another important role in the life of the pond and Bay: the oyster cages form an artificial reef where baby fish and lobsters hide from predators and grow, increasing the productivity and diversity of the Bay.

Well it's been a long day and it's time to head home!