Maine Concern

Scientists try to understand the shifting sea life populations in the state's waters

When you think of Maine, a few things may come to mind: rocky coastlines, pine forests, and lobster. Lots of lobster. The crustacean is the state's unofficial mascot and a popular food that's exported around the world. In 2013, a record 128 million pounds of lobster were harvested from Maine's waters. That's more than six times the haul in 1984.

"We're in a period of historic abundance," says Jeff Nichols, who works at the Maine Department of Marine Resources in Augusta. The organization manages commercial fishing throughout the state for many ocean species.

Though lobster catches have exploded over the years, other local fisheries are in steep decline. Cod is one example. Scientists estimate that only 2,500 tons of the fish are left off the coast of Maine. That's almost one twentieth of what the population should be to keep fishing at a level that is healthy for cod.

Why is Maine's cod population so low? Overfishing is one reason. Warming ocean temperatures is another—more serious—concern. In the past 10 years, the Gulf of Maine has warmed faster than 99 percent of the rest of the world's oceans. The warming waters are causing fewer fish to survive to adulthood. Those that do may be moving farther off the coast into colder, deeper waters.

Andrew Pershing—a scientist at the Gulf of Maine Research Institute in Portland—led a study comparing the declining cod catches with the warming ocean temperatures. He hopes to compare the temperatures with lobster numbers this summer.

One theory for the lobster abundance is that there are fewer predators, like cod. The lobster might be adjusting better to climate change as well. "The boom times are not going to last forever," says Pershing.

Many people in Maine make their living by fishing. So understanding these issues matters both to the environment and to the people who depend on healthy seafood populations. It's "part of our coastal heritage," says Nichols.

— Alexa C. Kurzius

WATCH A VIDEO

DETERMINING TRENDS IN DATA

CLICK FOR BONUS SKILLS SHEETS

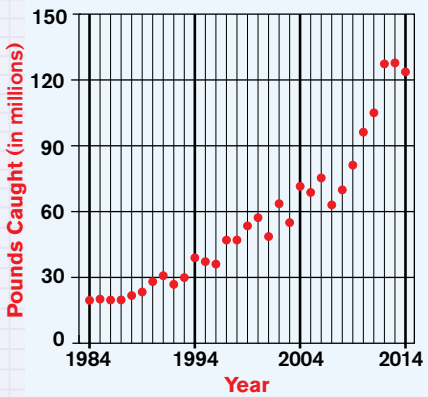
For decades, Maine has kept records of the seafood caught off its coasts. Scientists and government officials use this data to create fishing guidelines for a variety of species. When comparing long-term data like this, you should look for the following:

Upward trend: Data sets that show a net increase over time
Downward trend: Data sets that show a net decrease over time
No trend: Data sets that show no particular trend
Outlier: Data point that lies far outside the overall distribution of the data set

YOUR TURN

Use the scatter plots below to compare populations of select seafood species caught in the Gulf of Maine over the past 30 years.

Lobster

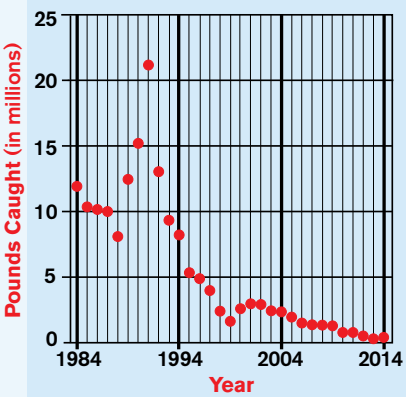


1 What is the overall trend in the lobster graph above?

2 Are there outliers in the data? If so, which year(s)?

3 Look at the dark lines that mark the years 1984, 1994, 2004, and 2014. During which 10-year period did the lobster harvest experience the most growth? By about how much?

Cod

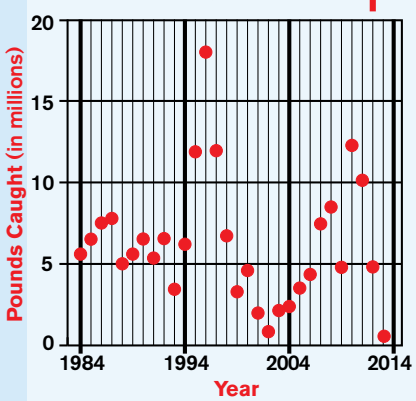


4 What is the overall trend in the cod graph above?

5 Are there outliers in the data? If so, which year(s)?

6 Between 2004 and 2013, temperatures off the coast of Maine warmed faster than 99% of the rest of the ocean. What is the overall trend in the pounds of cod harvested during that time period?

Shrimp



Source: Maine Department of Marine Resources

7 What is the overall trend in the shrimp graph above?

8 Are there outliers in the data? If so, which year(s)?

9 Sea life populations depend in part on their life cycles. Cod start to reproduce around 4 years of age and shrimp at 2 years. Which do you think will recover more quickly, if water temperatures stay the same?

MICHAEL S. YAMASHITA/CORBIS (LOBSTERED); ISTOCKPHOTO.COM (ALL OTHER PHOTOS)