



## Ask the lobster doc

by Diane Cowan, PhD

Senior Scientist, The Lobster Conservancy, <[www.lobsters.org](http://www.lobsters.org)>

*This column provides lobster health and handling information.*

*If you have questions or concerns, contact Cowan at (207) 832-8224 or e-mail <[dcowan@lobsters.org](mailto:dcowan@lobsters.org)>.*

### Lobster landings and fishing pressure

The “Ask the Lobster Doc” column in last month’s CFN (August 2004), discussed the magnitude of lobster landings by Maine counties from 1964-2003. A marked increase in the numbers of lobsters landed by Maine harvesters began in the late 1980s. Assuming that the landings indicate more than changes in reporting, numerous theories have been put forth to explain the record-high harvests, including changes in environmental conditions, ecosystem dynamics, and fishing pressure.

This column will explore changes in fishing pressure. Since quantitative data are lacking, this discussion is based largely on observation and talking to people. It is presented as something to think about.

Fishing pressure is a measure of the amount of fishing. Fishing effort is defined as the total amount of fishing gear in use for a specified period of time.

Changes in lobster fishing pressure since the late 80s include:

- Increased number of traps;
- Improved trap design;
- Improved vessel efficiency and increased diesel engine horsepower;
- Use of sophisticated electronics;
- Increased area fished; and recently
- Use of artificial bait.

Maine Department of Marine Resources statistics indicate a three-fold increase in the number of traps over the past 40 years. Although the apparent increase in the number of traps corresponds to increased landings during the 1990s, a similar trap increase in the 1970s did not seem to influence landings. Therefore the change in magnitude of landings cannot be explained solely based on the increased number of traps.

However, in addition to becoming more numerous, lobster traps have become easier and faster to handle as a result of the switch from wood to wire and mandatory use of escape vents. They’ve also gotten larger, with double parlor four-footers replacing single parlor

three-footers. Double parlor traps hold more lobsters per trap. By allowing the escape of undersized lobsters, vents reduce the amount of time it takes to clean out the trap as well as provide more room for legal-sized lobsters.

The number of traps being fished increased in the 1990s, during a time when catches were increasing rapidly. Trap limits went into effect, starting at 1,200 traps statewide in 1996 and reduced to 800 in 2000, which caused some who had fished fewer to build up to the maximum.

Putting more traps in the water is an increase in fishing effort that leads to catching more lobsters provided that the area is not already saturated with traps. Apparently some Maine waters were nowhere near that saturation point, so when more traps went into the water – in Knox County for example – more lobsters were harvested.

Traps also become saturated. Only so many lobsters fit inside each trap. Win Watson’s Lobster TV has shown that an element of trap saturation involves lobster behavior around traps. Lobsters will defend traps and try to prevent other lobsters from entering. Traps may be relatively inefficient, but the more traps,

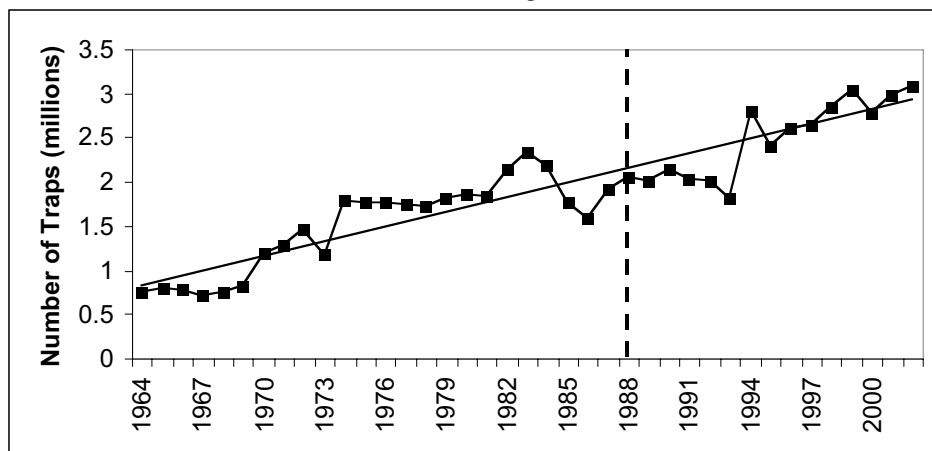
the more places for subordinate lobsters to get caught.

Larger, faster boats with improved electronics including depth sounders and chart plotters led to an ability to (1) shift and set out more traps at one time, (2) haul more traps in a fishing day, (3) increase area fished, (4) find suitable bottom type for optimal trap placement, and (5) fish rougher weather.

The use of artificial bait such as hide products has potential to increase fishing pressure. Hide providers say a big advantage of their product is that it stays “on” for up to three weeks. Even traps untended for many days may continue to fish.

Taken together, increased fishing pressure has led to more fully exploited lobster stocks in places where the stock wasn’t already fully exploited. The question is: are these levels of exploitation sustainable? That depends on whether additions to the lobster stocks via lobster reproduction and survival can keep up with subtractions from fishing and other forms of mortality.

The next article will explore how favorable environmental conditions may influence lobster survival and abundance that in turn may influence the magnitude of landings. ■



*Data show a three-fold increase in the number of Maine lobster traps over the past four decades. Dashed vertical line demarcates beginning of increase in landings. Solid line is trend line. Data source: <[www.maine.gov/dmr/rm/lobster/lobdata.htm](http://www.maine.gov/dmr/rm/lobster/lobdata.htm)>.*