



# Ask the lobster doc

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*This column provides lobster health and handling information.*

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## Juvenile Lobster Monitoring Program: *Can it predict future landings?*

Can the number of juvenile lobsters settling to the bottom in a year be used to predict future lobster landings?

After reporting seeing the highest abundance of lobster settlement and young juveniles on record in 2002, 2003, 2004, and 2005 (see CFN January 2006 Ask the Lobster Doc), I was asked if that meant lobstermen would have record high harvests in the early part of the next decade (around 2010-2015).

There isn't a straightforward answer to that question.

The following explains three reasons why landings are difficult to predict from the settlement and juvenile abundance data available.

- **Settlement time series is too short.**

Establishing a relationship between settlement and adult lobster abundance will require data from many generations. Lobster generation time is on the order of a decade, the amount of time it takes to reach harvestable size. The settlement time series consists of less than two generations (decades) of data.

We also have little perspective on this problem. We have virtually no idea what settlement and early juvenile abundance was like *before* the Maine landings started to skyrocket in the late 1980s. Maybe there were three times as many little ones around pre-boom than there are in what we think of as a "high" year now.

In general, it is impossible to establish a repeated pattern if a phenomenon has not had time to repeat itself.

For example, observing the moon going from new to full once and noticing that the extreme tides coincided with the new and full moons would not be enough to establish the relationship between the moon and the tides. In fact, observing a year of moons going from new to full

offers many insights into the ebb and flow of the tides, but tidal influences are complex and the cycle only repeats itself every 21 years!

- **Likelihood of survival to harvest for various size/age classes is unknown.**

Learning how many lobsters are likely to survive from egg to plate is another formidable objective. To predict the future it is not enough to know how many lobsters settle in a year, we also need to know how many of them survive to the next year and the next.

Mark/recapture studies are helping us to establish this relationship. Gathering data on environmental conditions and evidence of predation can also help us determine what makes one year better for survival than another.

These are some of the building blocks that may help us to make accurate predictions in the future.

- **Landings are not an accurate measure of abundance.**

Finally, even if we knew how many lobsters settled and how many survived to harvestable size, it might still be difficult to predict landings because landings are not an accurate measure of abundance.

The number of lobsters harvested is only partly dependent on the number of lobsters available to harvest. Too many variables influence the relationship between how many lobsters are caught vs. how many are available to catch.

Gathering data on abundance of harvestable lobsters via trawl surveys helps to remedy this problem because trawl survey data can be used not only to establish the relationship between settlement, juvenile, and adult abundance, but also allow comparisons to be made between adult abundance and landings. ■

### See the CFN crew "on the road" ...

- Massachusetts Lobstermen's Annual Weekend, Hyannis, MA, Feb. 2-5
- Maine Fishermen's Forum & Trade Show, Rockport, ME, March 2-5
- Fish Expo Atlantic, Providence, RI, April 5-6