



Ask the lobster doc

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This column provides lobster health and handling information.

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Broodstock lobster migrations

This is the first in a series of articles about how lobsters guarantee the survival of their offspring through multiple breeding strategies.

The series will explore the following questions:

- How do local vs. migratory lobsters contribute to larval dispersal?
- What are the consequences of overwintering in warm vs. cold waters?
- How is size related to sexual maturity and the ability to produce large numbers of offspring?
- How is size related to successful mating?
- Is bigger better?

Having a good size range of reproductively active lobsters affords advantages to larval dispersal resulting in a wider distribution of offspring over both space and time.

Recent research sponsored by the Northeast Consortium showed that a mix of small and large broodstock lobsters that spawned near Friendship, ME released their larvae over a broad geographical area (Maine through Massachusetts) and throughout many months of the year (June through November).

The results from The Lobster Conservancy's sonar-tagging project reveal that large broodstock females travel significantly greater distances than smaller egg-bearing lobsters. Temperature data loggers attached to egg-bearing lobsters allowed for comparisons of water temperatures experienced during brooding.

Large lobsters (greater than one molt

above minimum legal size) traveled distances up to approximately 130 nautical miles (240 kilometers). Long-distance travelers released their larvae far from their spawning grounds. Small lobsters (within one molt of minimum legal size) stayed in the immediate vicinity and hatched their eggs locally. Hatching eggs locally and regionally affords many potential advantages to the lobster population.

Spreading offspring over a broad spatial area increases genetic diversity. Genetic diversity is known to strengthen populations by producing individuals that are more robust to environmental changes.

Dispersing larvae over great distances may also be important for reseeding areas where stocks have fallen off. For example, if a local lobster stock is decimated the area can be reseeded naturally as long as large broodstock lobsters are available and migratory routes are not interfered with.

Lobsters that traveled experienced significantly higher temperatures than those that remained within the bay. Those that stayed spent the coldest winter months in waters with temperatures hovering around 32°F while those that migrated were in 40°-45°F waters. This resulted in larvae hatching over extended periods of time because lobster embryos inside the egg develop faster at higher temperatures. Release of lobster larvae over a prolonged period of time assures greater potential survival opportunities for offspring by increasing the probability of



The lobster industry has long debated if it is important to have a healthy size distribution — small, medium, and large lobsters out there reproducing — to maintain a healthy lobster population. Here, a 14-pound male beside a 1.25-pound lobster.

finding good conditions for early juvenile development.

These results add exciting insights into lobster population dynamics and raise important questions about how to maintain strong stocks. What is the relative contribution of local vs. long distance egg

production to local settlement? How will this change if fewer lobsters grow to large sizes?

The next article – Does Size Matter? – discusses how size is related to sexual maturity and lobster ability to produce large numbers of offspring. ■