The Lobster Conservancy

Striving to sustain a thriving lobster fishery through science, education, and community engagement

Diane F. Cowan
President
dcowan@lobsters.org
207-542-9781

January 11, 2023

Sen. Cameron Reny, Chair
Rep. Allison Hepler, Chair
Joint Standing Committee on Marine Resources
100 State House Station
Augusta, ME 04333

Re: Lobster Fishery Impact of LD 2003

Dear Senator Reny, Representative Hepler, and Members of the Joint Standing Committee on Marine Resources,

The Lobster Conservancy, which conducts science in support of a thriving lobster industry, has followed this issue for 25 years; based on my scientific understanding of the impact on lobster populations, I oppose LD 2003.

A fuller explanation of this position is contained in the enclosed Ask the Lobster Doc column in the January 2024 issue of Commercial Fisheries News: Gimme shelter: the lobster nursery habitat lost & found.

While it appears that no testimony will be taken on this bill, I would be glad to provide further information to the committee if that would be useful.

Sincerely yours,

Diane F. Cowan, Ph.D.
President
Lobster Conservancy

Gimme shelter: the lobster nursery habitat lost & found

ASK THE LOBSTER DOC

by Diane Cowan

Faithful companion Sula proud to be back helping with science at the Rocky Intertidal Lobster Nursery at Deep Cove on Friendship Long Island.

Diane Cowan photo

The first habitat a newborn lobster lives in is open water – no rockweed, no rocks, no sand, no shell hash, no gravel, no boulders, no eelgrass, no mud ... open water.

Scant information exists about lobster life in that particular habitat, however.

First stage juvenile lobsters (post larvae) swim in groups, dive to the sea floor, and ultimately settle on the bottom where they molt into the second ... then third ... then fourth juvenile stage – destined to live the rest of their lives as bottom dwellers.

Throughout life in their natural environment, North American lobsters are social animals that live together and recognize one another as individuals.

Those of you who followed the "Steamy Side of Lobsters" columns know I have studied adult lobster social behavior for 40 years. With the help of fellow scientists, students, interns, and hundreds of volunteers, I have also followed the lives of juvenile lobsters from their swimming stage to adolescence.

Most of the science focuses on settlement and growth of juvenile lobsters in the rocky intertidal. Participants in The Lobster Conservancy's Juvenile Lobster Monitoring Program take census data along fixed transects and follow the progress of tagged individuals over time. Hundreds of volunteers have participated in this endeavor.

From 1993 until 2009, for 14 weeks out of every year, we were able to take the census during the lowest tides of each month. (The two extra weeks fit in during the mediocre tides that occur during the two months when the biggest tides switch from following the new moon to the full moon and back again.) In 2009, we began to lose access to the census sites.

Our census method took advantage of greeting the lowest tides that expose the lowest part of the intertidal for a period of approximately two hours – the time during which we could census, measure, tag, record all kinds of data, put the lobsters back in their homes, etc. Although the water has receded further out, the low rocky intertidal is not high and dry; the lobsters are hiding beneath wet rocks – often in a pool of water – and wet seaweed (*Ascophyllum nodosum* and *Fucus* species).

Let's take a look at a couple of locations that have been lost and found and one that morphed into a nursery habitat in recent years.

Lost and found: Harpswell, ME

At the Harpswell location (censused since 1993), we watched the rocky intertidal disappear along the low tide terrace over the course of a decade or so.

First, it was simply submerged most of the time when we wanted to do the census.

Next, the rocks were buried beneath sand and silt.

After that, the field of sand

Sunrise at Deep Cove, September 1, 2023. I was so happy that day to know the lobsters had returned.

Diane Cowan photo

sprouted an eelgrass bed on the seaward side and stayed sand upland of that. This was not surprising since there had "always" been an eelgrass bed seaward of the location. Farther up the cove, at the tidal height where rocks still existed, there were no lobsters beneath those rocks!

Fortunately (eventually), sand and eelgrass and rocks shifted to new configurations, moving up higher in the low intertidal. In the meantime, the rocks rolled down or became uncovered to meet the sand and eelgrass.

The lobsters at the recovered site in Harpswell (Aug 2023 Lobster Doc "Shifting Sands") were probably there all along, living in the eelgrass bed and perhaps finding some rocky areas in the deeper water or shallow subtidal – until the low rocky intertidal recovered and they used that, as well.

Morphed into nursery habitat: Friendship, ME

Outside of the Long Island lobster pound off Friendship, ME, the cove west of the wharf has changed dramatically in the past three years. For decades, there were few – if any – early-stage juveniles; only a few adolescent lobsters at times.

This year, however, it has joined the ranks of nursery habitat with juveniles settling there, as well.

As sea level rises and the bank erodes at a quicker pace than before, the substrate has changed to a mix of shell hash, boulders, round rocks, flat rocks, and cobble filling the space between rocks and boulders.

While the location hosts plenty of lobsters, the small ones are difficult to detect and capture in such a place. (Maybe juvenile lobsters were always there among the boulders and I didn't see them?)

The location has also changed to receive high-energy wave action and strong currents – probably because ledges and islands that sheltered the area are now underwater, therefore no longer providing cover.

I had thought that places with high-energy wave action couldn't house young juvenile lobsters because the rocks would roll. Storms come and go; some storms rearrange the bottom

See LOBSTER DOC, next page

Lobster doc

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Brian Robbins photo

Lobsterman Eugene Harrington of Friendship: a good friend and inspiration. It was a conversation with Eugene that led to the return to Deep Cove – a place I'd given up on.

and displace lobsters; but the bottom recovers and the lobsters come back.

It's fascinating to watch these changes and wonderful to see the settlers, young-of-the-year and all the rest.

Restored itself: Friendship, ME

On the other side of Long Island (not far from lobsterman Eugene Harrington's wharf) there once was a site called Deep Cove that had higher settlement than any other.

Then, for whatever reasons, the site changed – and there were no juvenile lobsters to be found.

Several years later, I ran into Eugene and we shared a long and serious conversation about the sad state of affairs assaulting the lobster industry.

He asked me how the lobsters were doing in Deep Cove. I told him I would find out, as I was headed there soon.

The day before the big tide I was looking forward to, I walked across the island with my faithful companion Sula to take a look at the site before sundown. I wanted to see if it was even worth going back before sunrise the following morning. Why carry all the sampling gear if there was nothing to sample?

What I found made my heart glad: the places where I used to do the census were underwater, but that didn't matter, as there were so many juvenile lobsters everywhere I looked! Lobsters hiding under *Ascophyllum*; lobsters hiding under rocks; one lobster wandering around in the shallow water.

I took photos and measured and took data on all of the lobsters I could. I returned the following day to take the lobster census.

I rigged a makeshift quadrat and went to work, returning the next day for more data.

Thank you, Eugene!

More hiding places = more lobsters

We continue to build habitat for *Homarus*. Adding hiding places to the pound serves a useful purpose: the more hiding places, the more lobsters.

As water level rises, low intertidal habitat deployed to enhance settlement and survival of young lobsters becomes shallow subtidal habitat suitable to (and occupied by) larger lobsters, as well. The result is that the pound has become a nursery habitat where lobsters grow up on a natural diet of plenty of food and live in safe hiding places.

Gradually, lobsters that settle in the pound grow up, coming and going inside and outside the pound – until one day when they get big enough to go outside, climb into a trap, and go to market.

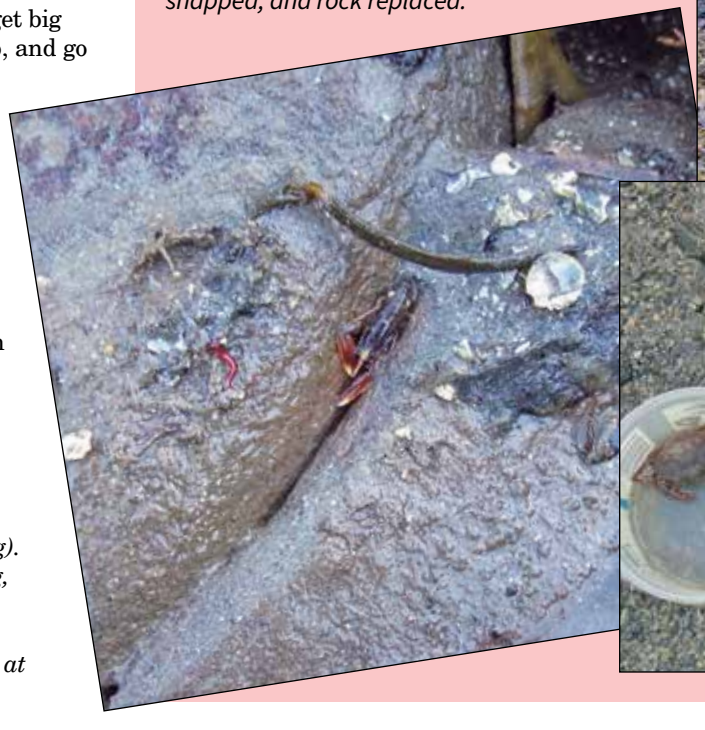
Long may lobsters settle and grow to marketable size in the pound, then leave and support the fishery!

Lobstering is a way of life laced with seaman wisdom that allows our beloved lobster towns to thrive as close-knit communities, the likes of which you just don't come across much anymore – not even in Maine.

Long live small towns, lobstermen, and the lobster fishery.

Diane Cowan, PhD is executive director and senior scientist at The Lobster Conservancy (www.lobsters.org). This column provides health, handling, and habitat information. If you have questions or concerns, please contact Cowan at (207) 542-9781 or via e-mail at <dcowan@lobsters.org>.

Clockwise from top right: Quadrat 3 sampled in census along transect at Deep Cove. In addition to lobster data, the census includes data on "other" species, physical, meteorological, habitat, and so much more; buckets of samples found beneath one rock in quadrat 3: four lobsters, one rock gunnel, one rock crab. Data was recorded, then everyone was returned to where they were found and the shelter put back in place; look closely and you'll see a juvenile lobster resting in the crack in the ledge – exposed when I removed the rock covering his space. Data was recorded, photo snapped, and rock replaced.



Diane Cowan photos