

The Lobster Conservancy

Sustaining a thriving lobster fishery through science and community

December 2007

Dear Volunteers and Friends of The Lobster Conservancy,

The Lobster Conservancy's (TLC's) mission is to sustain a thriving lobster fishery through science and community. This newsletter keeps our friends and volunteer research team informed of our activities. Here's what we've been up to over the past few months.

Juvenile Lobster Monitoring Program (JLMP)

Diane's Field Sites

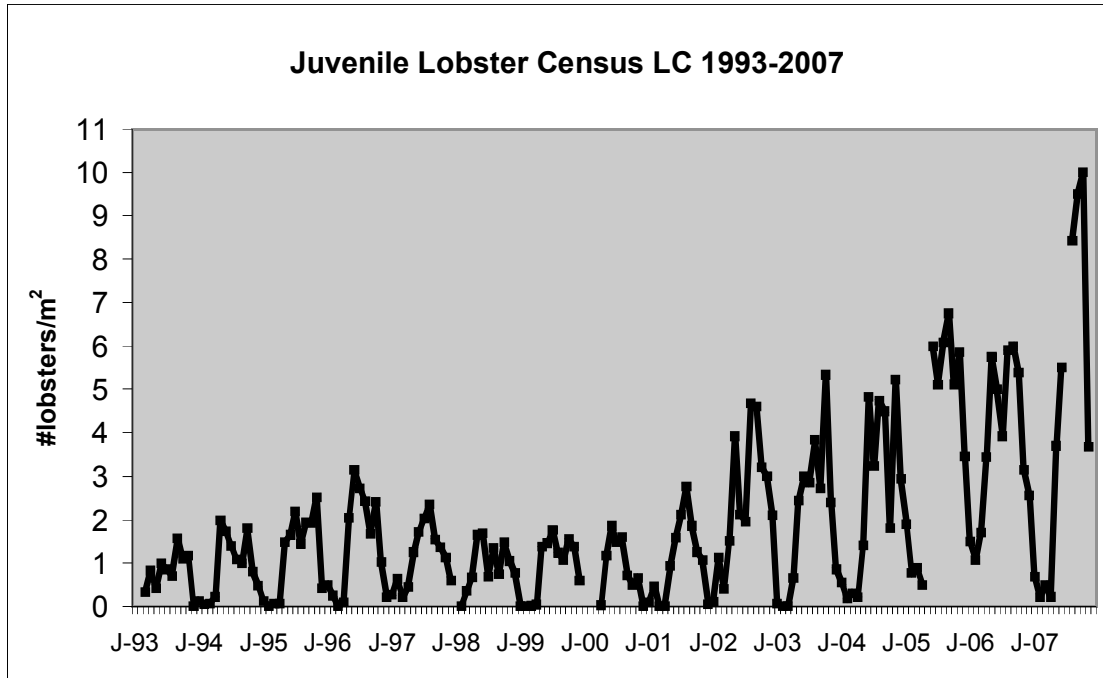
The first time I ever saw a post-larval lobster in the wild, it was swimming on the surface of the waters of Eel Pond in Woods Hole, Massachusetts. That was at least 20 years ago.



Wild post-larval
lobster on
Diane's fingertip

In August of 1992, two young boys growing up on Orr's Island in Maine showed me another way to find "baby" lobsters – by flipping rocks at the water's edge at low tide. I turned their play into a project that gathers reliable, consistent, baseline, time-series data month after month and year after year. Going out to sample each month has not lost its appeal for me – perhaps in part because I still don't know what I might find.

There are 15 annual peaks (during the warm months of the year) and 14 troughs (during winter) in the graph below. The graph plots data as the average number of lobsters counted per square meter each month from March 1993 to November 2007. December 2007 remains a mystery. I don't expect to find many lobsters next week, but they've surprised me before! Or maybe I will go but the tide won't recede far enough to sample – that's what happened in the months where no data show up on the graph – for example, in July 2007 and May 2005.



The really extraordinary things I saw this year included more lobsters lying beside their molt shells than I'd ever come across previously. That means I caught them just after they shed their old shells. I saw most of those jelly belly lobsters in June. The next big surprise was the sheer number of lobsters. I couldn't get over how many there were. I didn't think that there could possibly be many more lobsters than there had been in recent years on that same old stretch of beach. But there they were. And they were crowded together with up to 14 individual lobsters under the same small rock! My old record for maximum average abundance of juvenile lobsters on Orr's Island was 6.7 lobsters per square meter in September 2005. The new record is an average of 10 lobsters per square meter in October 2007.

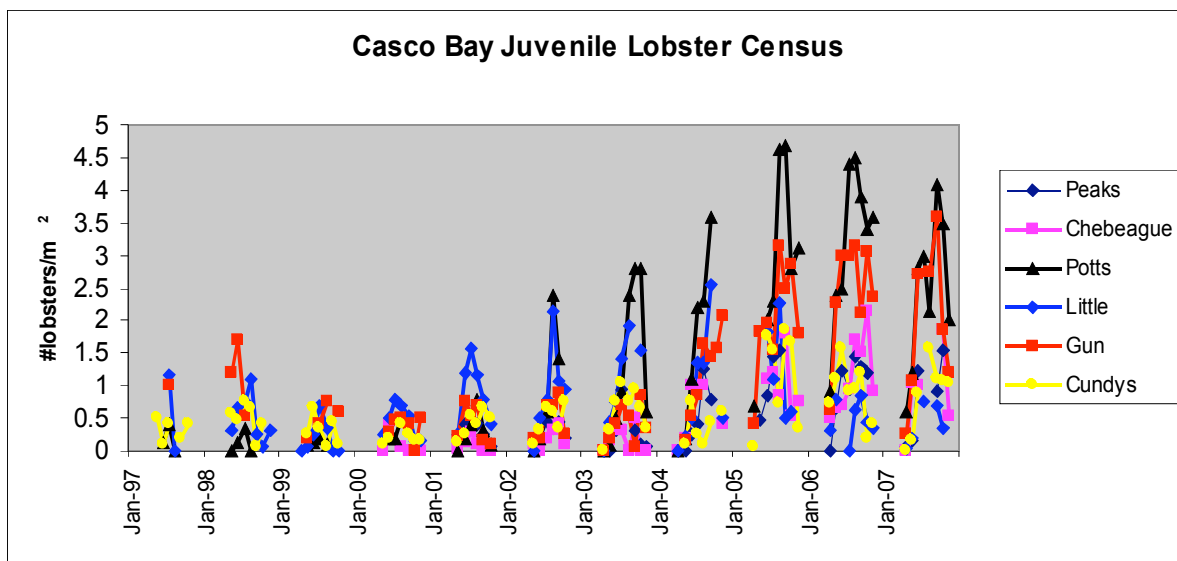
Why? Increased water temperature explains how those little lobsters are getting there. There has been a 5.3°F increase in the sea water temperature that correlates strongly with the increase in lobster abundance. Furthermore, the average annual water temperature hit 50°F in 2002 – for the first time since I began sampling in 1993. I think the warm water translates into more days of the year suitable for lobsters to hatch and settle to the bottom at Orr's Island. Think about this.

Lobsters are poikilotherms (previously known as cold-blooded animals). They cannot regulate their body temperature by generating internal heat the way we can – and so, their bodies are the same temperature as their surroundings. For certain lobster things to happen, the water has to hit a particular temperature (known as a threshold) – sort of like when you plant your garden and you are waiting for the seeds to germinate – they won't do it until the soil reaches a specific temperature. It's the same way for lobsters hatching – the embryos don't break out of the egg membrane until it's sufficiently warm and the post-larvae won't settle to the bottom (where I catch and count them) unless it's warm enough. So with more warm days there is more hatching and more settlement. There is probably also a higher probability that little lobsters survive through warmer winters. Of course, there are limits to how warm a lobster can get – think cooking here! And they require cold temperatures in winter, so there is more to this story. But, for the purposes of the results we are finding here and at our volunteer sites, it looks like warm years have provided an increase in numbers of lobsters settling in their coastal nursery habitats (see *Volunteer Field Sites* below).

Next question: if there are so many lobsters out there, why do the landings appear to be “off” this year? I don’t know. But, the numbers of lobsters we were counting at nurseries like this one were lower in the 1990’s, 2000 and 2001. Maybe we have to wait for the new crop to grow up! It takes an estimated 7 – 11 years to reach market size. We’ll keep watching and start matching these data up with landings and keep you posted! Meanwhile, these results bode well for the future.

Volunteer’s Field Sites

The first volunteers started taking the lobster census in Casco Bay in 1997. Two of those – Amy Watson Saxton at Cundy’s Harbor and Corie Bibber at Little Harbor are still counting their lobsters from April – November each year. Amy’s lobsters have increased in abundance like the ones on Orr’s Island, but not by as much. Corie’s field site started on the same path as Orr’s, but has fallen off – while Potts Point and Gun Point show the highest increases of the volunteer sites. It’s interesting to note that Little Harbor is the closest site to Orr’s Island. Why are we not seeing the same thing? I don’t know for sure, but we will work on trying to figure it out.



Over the years at the 25 sites (19 in Maine, 2 in New Hampshire, and 4 in Massachusetts), 22 have shown increased abundance, 2 no change, and one has shown decreased abundance of juvenile lobsters.

Congratulations to Gun Pt (Harpwell, ME) for finding the most lobsters at a volunteer site in one sampling tide-76 lobsters ranging in size from 7-46 mm CL in September. Quite a feat for a 3 person team – one of whom was the flashlight holder – to capture, measure, and record all those lobsters with darkness descending! Plum Cove in Gloucester, MA was close behind finding 71 lobsters (5-52 mm CL) in October, Gerry Island in Marblehead, MA found 66 (8-57 mm CL) in September, and Goose Rocks Beach in Biddeford, ME found 61 (7-60 mm CL) in October. All sites found small yearling lobsters in 2007. Another highpoint this year was the whopping 10 lobsters Cundy’s Harbor in Harpswell, ME found in November in one quadrat—with 9 of those lobsters in the first year size class.

Welcome aboard to new volunteers Kate Leavitt and Michelle Wensman in New Hampshire (Fort Stark and Odiorne Pt.), Jamie Rodell, Hamish Haddow, Max Ritchie, and Anna Edwards at Kettle

Cove, Hank Swartz and Judith Redwine at Gun Pt., Jennifer Braff and Jonathan Braff at Lowells Cove, Gail Richter, Campbell DeMallie, and Mikell and Frank Perry at Pratt Island, and Meg Lyons at Lane’s Island.



Potts Point (Casco Bay) team sampling in November (Sandy Meyer, Jocelyn Hubbell, Carole Lord. Photo by Meg Warren)

A sincere thanks to all TLC volunteers for their dedication and hard work despite challenging sampling conditions this year.

Outreach and Education

We’ve been busy as ever doing Outreach and Education. Events and media coverage since our last newsletter are listed in the table below.

The Lobster Conservancy				
2007 Outreach and Education Activity				
Organization	Location	Date	Title	Presenters
New Castle Select Board	New Castle, NH	Jul 16	Juvenile Lobster Census	John Payzant
Winter Harbor Select Board	Winter Harbor, ME	Jul 23	Juvenile Lobster Census	Jeanie Wilson, Tom Mayer
St George Select Board	St George, ME	Jul 23	Juvenile Lobster Census	Joanne Sharpe, Jane Roundy
Beals Select Board	Beals, ME	Jul 24	Juvenile Lobster Census	Lynn Alley, Blane Beal, Blake Beal, Kendra Crowley, Alexis Priestley
Friendship Day	Friendship, ME	Jul 28	Touch Tank	Diane Cowan, Sarah Lash, Kari Lavalli
The Lobster Conservancy	Friendship, ME	Jul 31	Hurricane Island Outward Bound School, Service Learning	Diane Cowan, Bob Cowan
Chebeague Island Lobster Camp	Chebeague, ME	Aug 8	Lobster Life Cycle talk and field trip	Diane Cowan, Carol White
The Lobster Conservancy	Friendship, ME	Aug 11	Hurricane Island Outward Bound School, Service Learning	Diane Cowan, Jane Wallace
The Lobster Conservancy	Friendship, ME	Sep 5	Hurricane Island Outward Bound School, Service Learning	Diane Cowan
So Thomaston Comprehensive Plan Board	So Thomaston, ME	Sep 18	Juvenile Lobster Census	Leslie Fuller, Annette Naegel, Alfred Petterson

Memorial University Newfoundland	St. John's, Canada	Oct 12	Community-Based Lobster Science	Diane Cowan
Waterman's Community Center	North Haven, Maine	Oct 22	Community-Based Lobster Science	Diane Cowan
Estuarine Research Federation	Providence, Rhode Island	Nov 8	Mapping Lobster Nursery Habitat	Diane Cowan
Muscongus Bay Science Workshop	Waldoboro, Maine	Dec 5	Community-Based Lobster Science in Muscongus Bay	Diane Cowan
University of Massachusetts Dartmouth	New Bedford, Massachusetts	Dec 11	Community-Based Lobster Science	Diane Cowan
New England Aquarium	Boston, Massachusetts	Dec 18	Enhancement needs from a juvenile lobster's perspective	Diane Cowan

The Lobster Conservancy			
2007 Media Coverage and Publications			
Publication/Media	Date	Title	Author / Interviewer
National Geographic: Wild Chronicles	Jul 6	Lobster Chronicles	Nick Caloyianis Productions, Inc.
Wall Street Journal	Jul 7	How to Kill a Lobster http://online.wsj.com/public/article/SB118375568129659493.html?mod=blog	Raquel Pelzel
Associated Press; assorted papers nationwide, Canada, Scotland, Australia	Jul 14-17	Lobsters Life Work for Maine Scientist http://bangordailynews.com/news/?a=152060&z=500	Clarke Canfield, photos by Robert F. Bukaty
Associated Press online Audio Slide Show	July	Dr. Lobster http://hosted.ap.org/specials/interactives/national/lobster_doc/	Robert F. Bukaty
WBZ Radio 1030 Boston	Jul 15	Juvenile Lobster Census	Jim Mitchell
Courier Gazette	Jul 21	Lobstermen Gamble with Mother Nature	Rebekah Rhodes
Ocean Futures Society	Aug	America's Underwater Treasures (book)	Cousteau, Jean-Michel
Down East Magazine	Aug	From Trap to Table: How a Maine Lobster gets to Texas	Rob Sneddon
Christian Science Monitor	Aug	US lobstermen embrace catch limits http://www.csmonitor.com/2007/0725/p03s03-usec.html	Bina Venkataraman
Associated Press, Fosters.com	Sep 8	Fall lobster catch on the increase for lobstermen http://www.fosters.com/apps/pbcs.dll/article?AID=/20070908/NEWS0104/709080032	Clarke Canfield

2007 has been extremely productive for The Lobster Conservancy. We have continued to conduct top notch scientific research on lobster behavior and ecology and have expanded our education and outreach programs to reach a wide variety of schools, communities, fishing industry members, and the general public. We have been especially successful with dissemination of information this year – including distribution of maps showing the locations of important lobster nursery habitats, publications in peer -reviewed scientific journals, participation at scientific meetings, and public presentations at local, regional and national levels.

The Lobster Conservancy fills a niche that is not covered by traditional academic or research institutions by directly involving community and industry members in all of our research and education projects. We have sustained and expanded this community-based approach to marine science and education for more than a decade. None of our work would be possible without the help and commitment of dedicated stewards of the “Lobster Coast.” The Lobster Conservancy also enjoys the support and commitment of partners at government, academic, and fellow non-profit organizations. We are funded by a wide variety of sources including community foundations, private foundations, state and federal government agencies, as well as individuals and businesses.

We extend a special thanks to those who have already renewed their TLC membership. Your membership is important to us and your tax-deductible donation is a fantastic investment in sustaining the lobster fishery in the Gulf of Maine. If you or someone you know is interested in supporting TLC, please visit our membership page at <http://lobsters.org/misc/membshp.html>, or email or call Diane or Jane.

Have a wonderful Holiday Season!

Yours in TLC,

Diane Cowan, Jane Roundy, and Sarah Lash