



Summer 2013

"News, research updates, and information on lobsters and the lobster industry."

Published by the Lobster Institute

"Protecting and conserving the lobster resource, and enhancing lobstering as an industry...and a way of life."

Lobster Institute & Atlantic Lobster Sustainability Foundation Building a Working Relationship

With sustainability of the lobster resource and the lobster fishery as a common goal, the Lobster Institute and the Atlantic Lobster Sustainability Foundation (ALSF) leadership have agreed to work more together.

The Lobster Institute, based at the University of Maine, has a 25 year history of working with all regions of the lobster fishery throughout New England and the Canadian Maritimes. It facilitates research, outreach communication, and educational programming in support of the lobster industry. The ALSF is based in New Brunswick, Canada and sponsors and promotes scientific research and its application on lobster stock and habitat enhancement.



Dr. Bob Bayer (l), Executive Director of the Lobster Institute and Rick Doucet (r), Executive Director of the ALSF welcome guest to the 2013 Lobster Science Workshop.

According to ALSF Executive Director Rick Doucet, both organizations agreed that they have many commonalities, especially in promoting research, and that joining forces would eliminate overlap. He noted that if Canada has an issue within the species that inevitably the US would too, and vice versa.

As a first step toward forging a closer relationship, each organization will now be co-hosting the other's signature event. This began in July when the ALSF invited the Institute to co-host the third annual Lobster Science Workshop in Moncton, New Brunswick (see related articles on page 4, in Research Report on page 3). "The Lobster Institute was very honored to co-host this year's Science Workshop," says Dr. Bob Bayer,

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Representatives of the Belize Fishermen's Federation tour lab facilities at the University of Maine while visiting the Lobster Institute.

Belize Fishermen Visit Maine

Four representatives of the Belize Fishermen's Federation visit Maine in May as the guest of the Reverend Ted Hoskins from Blue Hill. Hoskins is a long time advocate for Maine fisheries. He has traveled to Belize, a small country just south of Mexico, for the past 12 years to facilitate community driven development. Currently his work there is focusing on engaging fishermen more actively in resource management.

One of the visiting fishermen's stop was a visit with the Lobster Institute for a tour of facilities and a discussion drawing on the Institute's 25 year history of uniting fishermen and scientists to work toward a common goal of resource sustainability. ☘

The **Lobster Bulletin**
published by the



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**Made possible through an endowed gift by
Helene & Frank Crohn.**

Editorial –More Questions than Answers

Water temperature creep – it's just a degree or two so no real problems, right?

The lobster catch is off the charts – must mean everything in their environment is great, right?

Let's rethink those questions. Researchers from both Canada and the U.S. are raising the caution flag when it comes to warmer water temperatures and the apparent increase in the lobster population in the Gulf of Maine. Is there a relationship? Are warmer temperatures, even at seemingly low increments, causing a northward movement of lobsters from south of Cape Cod to the Gulf of Maine? Is the increase in water temperature enough to cause larval lobsters to molt that much more quickly so that more reach the benthic stage, thus causing population increases? Climate change is causing global warming which is contributing to ocean acidification, which means exactly what for the American lobster?

Only two things seem truly clear: 1) We have more questions than answers right now – but at least we are asking the right questions, and 2) More research is needed to protect the lobster resource, which is the centerpiece of an industry that is a multi-billion dollar driver of the economies of New England and the Canadian Maritimes.

A July 2, 2013 web posting by Mike De Souza on o.canada.com reports that a 2012 study by Canada's Fisheries and Oceans scientists Kristian Curran and Kumiko Azetsu-Scott indicates that "the North Atlantic is a 'global hotspot' for carbon dioxide absorption, accounting for 23 percent of the ocean's total uptake of the gas between 1800 and 1994, even though it only constitutes 15 percent of the global ocean's surface area." De Souza further noted that "some shellfish – including scallop, lobster and crab – worth hundreds of millions of dollars and responsible for thousands of jobs, may be 'particularly vulnerable'. The study also noted that there was limited research about potential biological effects, but that many of these 'could be severe' in the North Atlantic Scotian Shelf, due to its 'exceptional capacity to uptake atmospheric carbon dioxide.'"

This summer, a group of Maine scientists, businesses and environmentalists held a press conference to raise awareness of growing concern over the effects of climate change in the Gulf of Maine. According to Rick Wahle of the University of Maine's Darling Marine Center, lobsters have shown a negative reaction to warming water temperatures and ocean acidification as evidenced by early shedding and migration to colder waters. Wahle raised the additional concern, shared by many scientists, that disease and parasites could become a problem if climate change is not slowed. Another member of the coalition, Emmie Theberge from the Natural Resource Council of Maine, stated, "Lobster is tied to Maine's very identity [but] Maine can't solve this problem alone."

The Lobster Institute couldn't agree more with Curran and Azetsu-Scott from Canada, and Wahle and Theberge from Maine. There is not enough research being funded to discover answers to all of the questions – and no one scientist or organization can do it alone. Governments, private foundations, and industry need to work together with scientists and fishermen from both countries to keep our marine environment and our lobster stocks in the mix when it comes to discussions on climate change policy and funding for ocean acidification research. ¶

Lobster Institute & ALSF Working Together

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Director of the Lobster Institute. "Our missions are very similar. Both focus on sustaining the lobster resource that is the centerpiece of an economically significant cross-border industry. The annual Science Workshop helps ensure the most up-to-date information scientists can bring to the table is shared with everyone involved in the lobster industry, and that the important connection between fishermen and scientists remains solid."

In turn, the Lobster Institute has invited the ALSF to co-host the next Canadian/U.S. Lobstermen's Town Meeting, which will be held in March, 2014 in Portland, Maine. "Working together this way just makes sense on many levels...economically, philosophically, and simple for the good of the lobster industry." said Bayer. ¶

Editor's Notes on Shell Diseased Lobsters

This summer there has been a significant amount of media coverage on the elevation of the shell disease rate in Maine lobsters. While true, it is important to be clear that it still occurs in only about 1% of the population. That is enough, however, to warrant investment in added research on this disease. Also, meat from a shell diseased lobster is safe for human consumption.



As a Non-profit, the Lobster Institute relies on industry and private support to continue its work for and with the lobster fishery. Please consider donating as a Friend of the Lobster Institute today.

Call 207-581-2751 or visit www.lobsterinstitute.org



RESEARCH REPORT

Readers may contact the Lobster Institute for more detailed information on any of these projects.

➤ **Scientists Share Research Plans and Results at Lobster Science Symposium**

The Atlantic Lobster Sustainability Foundation (ALSF) and the Lobster Institute hosted the third annual Science Workshop on Sustainable Growth of the Atlantic Lobster at the Crowne Plaza Hotel in Moncton, New Brunswick. Included in the day-and-a-half symposium was an update on Canada and U.S. lobster research as relayed at the conference, Lobsters in a Changing Ecosystem held in Portland, Maine in November 2012 presented by Dr. Rick Wahle of the University of Maine. He noted the conference centered on research in four major areas:

- Anthropogenic and environmental stressors
- Food web systems
- Metapopulation dynamics and connectivity:
- Coupling human natural system and ecosystem-based management

Abstracts from the November conference can be found at <http://www.seagrant.umaine.edu/files/LobsterSymposiumProgram.pdf>.

Also covered at the symposium was a presentation on current work on lobster genomics, delivered by Dr. Spencer Greenwood of the University of Prince Edward Island. Dr. Greenwood discussed current studies on reproductive status, immune response, chain of custody, larval development and the impact of pesticides on larvae. He indicated that 14,592 lobster genes have been assayed and about 75% of genomes covered. He stressed the importance of gene expression to the definition of biomarkers for management decisions. He indicated their usefulness in health issues as markers for infection and disease; and in future studies on metabolism, stress and immunity, larval development and immunity as well as research on pesticides and environmental influences.

Results of and plans for research funded by the ALSF were also presented. Topics included: The effect of sedimentation on the settlement behavior of the American lobster, by Benoit

Bruneau; The effect of pyrethroids on lobster post-larvae, by Dr. Dounia Daoud; Seasonal migrations and thermal histories of large ovigerous lobsters, by Bryan Morse; Evaluating the American lobster Settlement Index in Fishery Forecasting, by Rick Wahle; and Green Crab as Lobster Bait by Russell Wyeth.

These presentations are on the ALSF Website at www.lobstersustainability.ca/News-events.php?wc_display=37739#article_37739.

➤ **Lobster Grip Study:** Students at the University of Maine have been working with the Lobster Institute to develop a novel method for measuring lobster viability for shipping. The greater the serum protein value the longer the distance the lobster can be shipped. Currently, a blood sample is drawn and a serum protein measurement is made with a refractometer (Leavitt and Bayer, 1977) to help determine viability. In this experiment, a load cell was constructed by a student Tom McKay and University of Maine Professor of Mechanical Engineering Michael Peterson to measure the closing force of lobster claws. The assumption was that muscle mass, as indicated by closing strength, would correlate to serum protein. The technique showed high correlation to serum protein. Students in a UMaine Animal Veterinary Sciences class, Zoe Kreitzer and Matt Hodgkin, also tested the device and validated results. A closing strength of over 70 pounds has been recorded. Results will be presented at a scientific meeting to be determined and a journal article is in preparation. ☞

Heard at the 2013 Lobster Science Workshop:

"It is critical that [governments] fund science ... ongoing research for critical components of lobster sustainability."

Comment by Honorable Michael Olscamp during the policy-makers' roundtable.



LOBSTER INSTITUTE

Lobster Bulletin, Summer 2013

Policy Makers Meet and Share Thoughts on Sustainability of the Lobster Fishery

Maine and Canadian lobster fisheries management leaders addressed a gathering of scientist, lobstermen and other lobster industry members on July 23 at the 2013 Lobster Science Workshop hosted by the Atlantic Lobster Sustainability Foundation and the Lobster Institute in Moncton, New Brunswick.

Patrick Keliher, Commissioner of the Maine Department of Marine Resources; Honorable Michael Olscamp, Minister of Agriculture, Aquaculture and Fisheries from New Brunswick; and Honorable Ron MacKinley, Minister of Fisheries Aquaculture and Rural Development from Prince Edward Island had the chance to meet one another and the speak at the Workshop about the sustainability of the signature fishery both Maine and the Maritimes – the lobster fishery.



Minister Michael Olscamp

As noted by Minister MacKinley, all “share a common resource and a common goal of sustainability,” and that sustainable fishing has a broader meaning than in the past. “Lobster fishers are the motor of the industry, and other sectors are the cogs...

but all must be well-oiled,” he added.

Commissioner Keliher agreed, noting that “sustainability is much, much more than biological... the sociological and economic factors must also fit



Maine Commissioner of Marine Resources, Patrick Keliher (l) and Honorable Ron MacKinley, Minister Fisheries, Aquaculture and Rural Development in Prince Edward Island listen to remarks by Honorable Ron MacKinley (opposite column) at the 2013 Lobster Science Workshop in Moncton,

It was acknowledged that even though Canada and the U.S. will always be competitors in the lobster market, they will also always have a great reliance on one another. Keliher stated that it would be wise to better understand each other’s approach to the industry and how they can complement one another.

This theme of striking a balance between competition on commonality was echoed in comments shared later in the Workshop by the top marketing executives from both countries: Marianne LaCroix, Interim Executive Director of the Maine Lobster Promotion Council; and Geoff Irvine, Executive Director of the Lobster Council of Canada. They noted that branding will remain important to each lobstering area, yet it will not be at the expense of one another. They stated they would continue to look for common approaches to shared issues such as education, media relations and trade missions. ☼