Fishermen's Health Insurance Coverage and Safety Trainings

The three-month period for signing up for health coverage under the federal Affordable Care Act is now open -- and will remain open through January 31, 2017. The Fishing Partnership Support Services (FPHP) has a certified health care navigator available to provide direct enrollment and re-enrollment assistance to fishermen and their family members. The navigator helps fishermen understand their health coverage choices and re-enrollment assistance to fishermen and their family members.

The FPHP also provides free safety trainings for commercial fishermen. The organization's schedule of trainings for the Spring of 2017 has not yet been finalized, but it will include trainings in Maine. Interested fishermen should watch for news announcements, beginning late this winter, and also visit www.maineclammers.org.

MESSAGE FROM THE PRESIDENT

Our Changing Climate and Hope for the Future

It is easy to become pessimistic about the future of Maine's shellfish industry. In recent decades, Maine's shellfish industry and traditional coastal culture has been shrinking and quietly disappearing. As clammers, we are battling many challenges: warming ocean temperatures, increasing predation, rapidly developing shorelines and associated runoff, increasingly restricted shoreline access, and people who do not support, understand, or appreciate working waterfronts. The problems are great and many, but for perhaps the first time we have the power to address them and make the flats great again!

Information is power. What is the key component to making informed or successful shellfish management decisions? Accurate, updated and credible information. That is why I'm excited to deliver to you the Maine Clammers Association's Maine Shellfish Fact Sheet & Glossary of Terms.

Best Wishes and Happy Clamming,

Chad Coffin
President

Dr. Brian Beal, Professor of Marine Ecology at the University of Maine at Machias and Director of Research at the Downeast Institute for Applied Marine Research & Education (DEI), has conducted extensive research on soft-shell clam populations and clam mortality. His research sheds significant light on the cause of declining shellfish stocks. Understanding the primary cause of shellfish mortality allows both harvesters and managers to develop effective solutions.

The research demonstrates that large numbers of clams are continuing to settle on most flats, including those in the low and mid intertidal gradient, but the vast majority are not surviving to commercial sizes due to predation. Most areas that are thought to be "dead" or "unproductive," i.e. no clams exist in them, are more than likely suffering from very high levels of predation. In other words, predators are feeding on settled juvenile clams before they can reach commercially harvestable sizes. The increasingly high rates of predation are caused by rising seawater temperatures, which increases the metabolic rates of invertebrate predators (including green crabs).

Consequently, the "green" economic opportunity supported by this research is the need for the development and immediate implementation of projects that protect clams from predators, and state and municipal shellfish management plans that require the deployment of clam stewardship methods.
Warming Seawater Temperatures Increases Predation on Clams

Scientists have found that seawater temperatures in the Gulf of Maine are rising at a rate that is one of the fastest of any ocean or sea in the world. Average Maine winter seawater temperatures have risen steadily over the past 25 years. Scientists expect that seawater temperatures will only continue to rise, resulting in higher rates of shellfish mortality associated with predation. Invasive green crabs, Carcinus maenas, thrive in our warmer waters, and are now a major predator in most parts of the Maine coast.

The Landings Chart (below left) shows that wintertime seawater temperatures rose and then fell dramatically in the 1950’s. That rise in seawater temperatures occurred at the same time that green crab populations exploded, and this is when clams landings throughout the state crashed. Wintertime seawater temperatures continued to fall throughout the 1960’s and into the 1970’s when clam landings rebounded. These trends suggest that the relative impact of green crabs, and other predators, on clam populations is temperature-dependent. That is, during periods of warm and warming seawater temperatures, clam populations tend to decline as predator numbers increase, and, conversely, when seawater temperatures decrease, clam populations tend to increase more rapidly.

Concern Over Clammer - Wormer Conflict is Misplaced

Clammers should be concerned about juvenile shellfish mortality, and it makes sense for clammers to worry when baitworm diggers are working the same flats where clam seed settles. However, science shows that trying to improve shellfish harvests by closing flats to clammers is unlikely to produce the results clammers up-and-down the coast desire. In fact, the negative impact of digging baitworms or clams (yes, even clamming has a negative effect) on juvenile soft-shell clams is far less than the impact predators (e.g. green crabs, milky ribbon worms) have on juvenile shellfish. Like other challenges such as ocean acidification, overfishing, and disease, the impact of digging baitworms is largely irrelevant when it comes to shellfish mortality. Similarly, closing flats to shellfish harvesting does little to protect juvenile shellfish and materially improves survival rates.

Shellfish managers should refer to a 1996 study conducted by Dr. Brian Beal in Maquoit Bay in Brunswick, Maine for guidance. Maquoit Bay is once again a hotbed of controversy between wormers and clammers. In particular, the 1996 study found that:

“Compared to the fate of cultured clams in protected controls, wormers had no effect, but clamming contributed to an additional 15% loss [of juvenile clams]. Both types of commercial harvesting reduced wild clam numbers significantly compared to controls, but effects due to worming were more benign than effects due to clamming probably because wormers excavate less volume of sediments than clammers do, as commercial size bloodworms are shallow burrowers compared to commercial size soft-shell clams. Unless managers actively take steps to deter predators by using netting or other means, blood worms should continue to harvest commercially from areas closed to shellfishing without reprisal or fear that they are causing damage to populations of juvenile soft-shell clams.”

Some clammers have argued that the scientific study by Beal and Vencile (2001) did not mimic the repeated digging in one area that has been seen recently in Maquoit Bay and other places. This is not the case. Dr. Beal’s experimental design included repeated digging in seeded plots by both a professional wormer (D. Caton of Wiscasset) and clammer (P. Holman of Brunswick) over the 4-month study.

Instead, managers concerned about declining clam populations should protect juvenile shellfish through targeted measures. Maine’s shellfish programs already have the ability to regulate all types of digging and other activities in active shellfish management areas (eg. protected/netted areas or leases). However, the science is clear that predation has a much greater impact on juvenile shellfish survival than either worm or shellfish digging.

Consequently, managers should focus on addressing predation, and if no attempts are made to protect small clams from predation, there should be no restrictions on where and when baitworming or clamming takes place.

Please Consider Donating to the Maine Clammers Association

Your generosity allows the MCA to reach out and brighten the lives of Mainers all year round. Your support of the Santa Fund also allows the MCA to continue building broad-based community support needed to continue our mission of protecting Maine’s marine resources and safeguarding the clammers and clamming profession. We need your help to continue to advocate for clammers and the marine environment our profession depends on. Renew your membership today by donating to the Maine Clammers Association. Please use the enclosed envelope or go online to: https://www.yourcaucas.com/mainefamilies/leslides-698874 to donate.
Shifting Baseline Syndrome: “Shifting baseline syndrome” refers to how changes in a system are measured. Changes are usually measured against previous reference points, i.e. baselines. But reference points/baselines may change significantly over time, and when they do, the changes measured in a system will vary depending on the baseline selected.

According to one definition (ActionBioScience, 2002):

“Shifting baselines are the chronic, slow, hard-to-notice changes in things, from the disappearance of birds and frogs in the countryside to the increased drive time from Los Angeles to San Diego. If your ideal weight used to be 150 pounds and now it’s 160, your baseline — as well as your waistline — has shifted.”

Applying the concept of shifting baseline syndrome to soft-shell clams in Maine, from the 1960’s to the 1980’s Washington County clammers landed approximately 12.5 million pounds of soft-shell clams annually. However, by 1992 landings had dropped nearly 90% to 1.5 million pounds annually. That is where Washington County landings have remained for the last 24 years. Regardless, it is common to hear clammers, legislators and Department of Marine Resources biologists claim that clamming is good in their town or that there is “more seed now than ever before.” Shifting baseline syndrome means that we do not remember that our mudflats once supported thousands of clammers and seafood business because we compare current landings to those of ten and twenty years ago, rather than landings from fifty or sixty years ago. We are inclined to compare our current experience to our own past experience rather than compare our experience to the experience of harvesters from the last generation.

Cycle: “Cycle” typically refers to something that is predictable, like tides, sunrise and sunset, and other astronomical phenomenon. Clam landings are not cyclical because we cannot predict with much confidence or certainty what landings will be in three or five years. The word is commonly used by climate change deniers and fishermen who are hoping for the best and a return to “normal” climate. In fact, commercial shellfish populations are not cyclical. They rise and fall based on juvenile mortality rates associated with water temperatures. Unfortunately, temperatures are consistently increasing and do not appear to be returning to historically “normal” temperatures.

Measureable Impact: A “measurable impact” is an impact that is capable of quantification. In the context of shellfish management, measuring the impact of shellfish conservation projects should be the standard operating procedure for shellfish managers. The measureable impact of a shellfish conservation project should be used to decide which projects to move forward. For example, communities should not devote extensive resources to re-seeding clam flats without protection for the seed if these conservation projects are not shown to produce “measurable impacts” that are positive.
**Fact #1:** Non-human predation is the number one source of shellfish mortality in Maine!

**Fact #2:** In the Gulf of Maine, ocean currents flow from east to west. Shellfish spend several weeks or more in the planktonic stage flowing with ocean currents before the seed settles. This means that clams do not repopulate the flats they are in. Instead, seed will populate flats towards the west, but not the flats in which they originated.

**Fact #3:** Ocean acidification is not a significant or relevant source of shellfish mortality and should be dismissed by shellfish managers when planning how to enhance juvenile shellfish populations.

**Fact #4:** Neoplasia is “the formation or presence of a new, abnormal growth of tissue.” Neoplasia may be considered to be a clam disease, but importantly, it is not a death sentence for clams, as all shellfish have neoplastic cells. Research has shown that clams continue to grow, spawn, and survive for years after being diagnosed with Stage 4 neoplasia. Neoplasia is not a significant source of mortality at this time and should be dismissed by shellfish managers when planning how to enhance juvenile shellfish survival.

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**Water Quality Actions for Municipal Shellfish Programs**

Our shellfish industry depends on clean water to survive. Flats closed due to pollution are a source of frustration for Maine’s clammers. Pollution has a direct impact on our ability to work. Because clammers are directly impacted by pollution, the MCA works to assist clammers to step into their modern role as stewards of the ocean.

There are some proactive steps that Municipal Shellfish Programs can take to ensure accurate testing and improve water quality. For example, recently the town of Waldoboro addressed the problem of pet waste polluting the Medomak River by banning dogs from three town parks. Here are some actions the Maine Clammers Association recommends to improve or maintain water quality:

**Water Quality Sampling by Boat**

- Require town staff to work with ME DMR to ensure that all water samples are collected properly from a boat and stay on top of pollution problems.

Remember that it is the responsibility of the town to provide the personnel and transportation for water quality sampling!

**Outreach to Citizens**

Require town staff to develop and implement outreach programs to:

- Educate pet owners on the importance of picking up after their pet.
- Inform citizens about the improper or unnecessary use of fertilizers and pesticides.
Warming Seawater Temperatures Increases Predation on Clams

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The Landings Chart (below left) shows that wintertime seawater temperatures rose and then fell dramatically in the 1950’s. That rise in seawater temperatures occurred at the same time that green crab populations exploded, and this is when clam landings throughout the state crashed. Wintertime seawater temperatures continued to fall throughout the 1960’s and into the 1970’s when clam landings rebounded. These trends suggest that the relative impact of green crabs, and other predators, on clam populations is temperature-dependent. That is, during periods of warm and warming seawater temperatures, clam populations tend to decline as predator numbers increase, and, conversely, when seawater temperatures are declining, predator numbers decline, and the result is more abundant clam populations. The Landings Chart also shows that average winter temperatures have been trending warmer since the early 1980’s. A recent paper published in the Journal of Shellfish Research by Dr. Beal along with colleagues at the Maine Department of Marine Resources showed that using landings data from 1951 to 2009, as winter seawater temperatures increased, clam landings at least three years later were negatively impacted.

Concern Over Clammer - Wormer Conflict is Misplaced

Clammers should be concerned about juvenile shellfish mortality, and it makes sense for clammers to worry when baitworm diggers are working the same flats where clam seed settle. However, science shows that trying to improve shellfish harvests by closing flats to clammers is unlikely to produce the results clammers up-and-down the coast desire. In fact, the negative impact of digging baitworms or clams (yes, even clamping has a negative effect) on juvenile clam mortality is far less than the impact predators (e.g. green crabs and milky ribbon worms) have on juvenile shellfish. Like other challenges such as ocean acidification, overfishing, and disease, the impact of digging baitworms is largely irrelevant when one considers the fate of cultured clams in protected controls. Compared to the fate of cultured clams in protected controls, wormers and clammers. In particular, the 1996 study found that:

- Compared to the fate of cultured clams in protected controls, worming had no effect, but clamming contributed to an additional 15% loss of juvenile clams. Both types of commercial harvesting reduced wild clam numbers significantly compared to controls, but effects due to worming were more benign than effects due to clamming probably because wormers excavate less volume of sediments than clammers do, as commercial size bloodworms are shallow burrowers compared to commercial size soft-shell clams. Unless managers actively take steps to deter predators by using netting or other means, blood wormers should continue to harvest commercially from areas closed to shellfishing without reprisal or fear that they are causing damage to populations of juvenile soft-shell clams.

Some clammers have argued that the scientific study by Beal and Vencile (2001) did not mimic the repeated digging in one area that has been seen recently in Maquoit Bay and other places. This is not the case. Dr. Beal’s experimental design included repeated digging in seeded plots by both a professional wormer (D. Caton of Wiscasset) and clammer (P. Holman of Brunswick) over the 4-month study.

Instead, managers concerned about declining clam populations should protect juvenile shellfish through targeted measures. Maine’s shellfish programs already have the ability to regulate all types of digging and other activities in active shellfish management areas (e.g. protected/netted areas or leases). However, the science is clear that predation has a much greater impact on juvenile shellfish survival than either worm or shellfish digging. Consequently, managers should focus on addressing predation, and if no attempts are made to protect small clams from predation, there should be no restrictions on where and when baitworming or clamming takes place.
Clam Whistler
Newsletter of the Maine Clammers Association
WINTER 2016

Using Science to Ensure the Continued Viability of Clamming

Dr. Brian Beal, Professor of Marine Ecology at the University of Maine at Machias and Director of Research at the Downeast Institute for Applied Marine Research & Education (DEI), has conducted extensive research on soft-shell clam populations and clam mortality. His research sheds significant light on the cause of declining shellfish stocks. Understanding the primary cause of shellfish mortality allows both harvesters and managers to develop effective solutions.

Results from Dr. Beal’s decades worth of experimental research, combined with the groundbreaking findings from the ongoing Soft-Shell Clam Field Experiments, reveal an entirely new understanding of our coastal ecosystem as well as enormous “green” economic opportunity for Mainer’s. The research, conducted in towns such as Stockton Springs, Lubec, Jonesboro, Boothbay, Freeport, Portland, and Wells, shows that it is not “overfishing” or lack of settlement, or ocean acidification that are to blame for declines in commercial soft-shell clam populations and “unproductive” intertidal areas. Instead, the research demonstrates that large numbers of clams are continuing to settle on most flats, including those in the low and mid intertidal gradient, but the vast majority are not surviving to commercial sizes due to predation. Most areas that are thought to be “dead” or “unproductive,” i.e. no clams exist in them, are more than likely suffering from very high levels of predation. In other words, predators are feeding on settled juvenile clams before they can reach commercially harvestable sizes. The increasingly high rates of predation are caused by rising seawater temperatures, which increases the metabolic rates of invertebrate predators (including green crabs).

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President

Calendar

Ongoing until Dec. 24, 2016 - MCA Santa Fund Toy Drive & Delivery. Bring new unwrapped toys or clothing to 26 Litchfield Rd. Freeport, ME 04032
https://www.facebook.com/michaelexcellenceforkids
February 9, 2017 - ME State Shellfish Advisory Council (ShAC) 10 am - 1 pm
DMR Offices, 32 Blossom Lane, Augusta.
http://www.maine.gov/dmr/about/councils/shellfish/index.html

Friends of the Clammers Update

We now have a clammer in the state legislature. Abden “Ace” Simmons, a clammer from Waldoboro, recently won election to House District 91. Congratulations Ace!

TAKING ACTION ON THE ISSUES VITAL TO THE PROFESSION OF CLAMMING AND MAINTAINING HEALTHY AND VAILABLE SHELLFISH RESOURCES

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OSTER 2016

Glossary of Terms

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