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Shellfish Program Newsletter May 2012

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Department of Marine Resources

Public Health Division

Shellfish Program Newsletter



Volume 2, Issue 1

This publication is courtesy of the Department of Marine Resources Public Health Division for the shellfish industry, town municipalities and the general public with the goal of sharing information, providing updates on current PHD staff projects, and communicating current issues that impact coastal communities regarding water quality and the shellfish resource.



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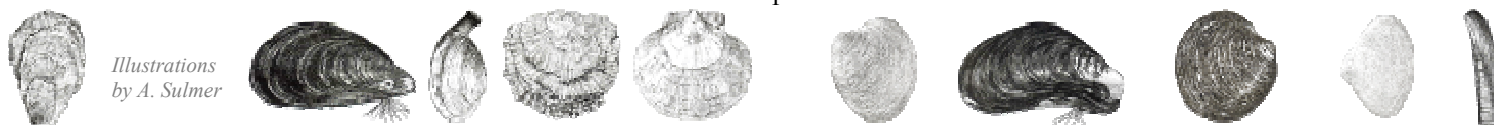
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Illustrations
by A. Sulmer



Non-Point Source Pollution.

Non-point source pollution is a term that refers to contamination that drains into streams, lakes, and coastal bodies of water. During a heavy rain the soil is unable to absorb water as fast as it falls. The water that can't seep into the soil becomes runoff that flows across the surface, following the path of least resistance downward to join streams and other major bodies of water. As runoff travels it can pick up other material and wash potentially harmful substances into waterways. This is non-point source pollution; as opposed to point source pollution which comes from a single identifiable source, such as an overboard discharge, or a leak in a waste disposal pipe.

A major non-point pollution concern is runoff transporting animal waste from pets and livestock, or human waste from malfunctioning septic systems into rivers and

coastal areas. The bacteria that naturally occur in the lower digestive system of all warm blooded animals are harmful if consumed by humans. People who swim in polluted water can pick up "swimmers illness" that can include ear infections, eye infections, and flu like symptoms. Swimming is not the only way people can come into contact with bacterial contamination.

Clams, and other bivalves living in coastal tide flats, are filter feeders. They acquire nutrients from plankton which they absorb from sea water they siphon through their digestive tract. If the water that covers the clam flat at high tide is contaminated with fecal bacterial pollution, clams can accumulate unhealthy levels of bacteria.

Non-point source pollution creates a significant human health risk in populated coastal areas like the coast of Maine. Many people

enjoy the numerous recreational opportunities, as well as the fresh seafood provided by the Maine coast. The shellfish, and other natural resources, provided by the coastal marine habitat off the coast of Maine, are a valuable source of income that provides a livelihood for local shellfish harvesters.

The best way to keep water clean, and shellfish safe to eat, is to keep rainwater from carrying pollution into streams and rivers that lead to the shellfish habitat on the coast. Farmers, and people with livestock or pets, can help prevent pollution by keeping manure and animals away from streams. To prevent contamination from human waste homeowners can make sure their septic systems are functioning properly and not leaching untreated sewage to the surface. To maintain a functioning septic system it is sometimes necessary to have the septic tank pumped out. Planting

grass, shrubs, or trees between potential pollution sources and nearby bodies of water creates a vegetative buffer that can soak up more water than bare ground can. This can help filter pollution out of runoff before it reaches the water.

The impacts of non-point source pollution have a negative effect on the environment, public health, and the local economy. The many people who enjoy the privilege of utilizing the coastal natural resources of Maine have a vested interest in keeping the water clean. Together we can maintain a healthy environment that can be enjoyed by everyone.





Can You Dig It: Recent Upgrades To Shellfish Harvest Areas

Shellfish areas along the coast are annually re-evaluated by DMR staff to identify and assess the impacts of pollution. Because shellfish are filter feeders, they will take up and accumulate pollution from the water in their tissue, leaving them unsafe for consumption. If new water sample results for an area show that water quality has improved to meet higher standards and known pollution sources have been remediated and documented to verify that shellfish are safe to harvest, upgrades to these areas can be completed by staff and harvestable acreage increased for industry.



Recent Classification Upgrades

Date	Location	Town	Old Classification	New Classification	Why?
3/2/2012	Turkey Cove	St. George	Restricted	Conditionally Approved	Seasonal due to water quality meeting approved standards
3/2/2012	Deep Cove	Eastport	Prohibited	Approved	Updated shoreline survey & water quality meeting approved standards
2/13/2012	Shipwreck Cove	Vinalhaven	Prohibited	Approved	Water quality meeting approved standards
2/13/2012	Seal Bay	Vinalhaven	Restricted	Approved	Reduces size of restricted area due to water quality meeting approved standards
2/9/2012	Mosquito Harbor	St. George	Restricted	Approved	Water quality meeting approved standards
2/9/2012	Hobart Stream	Edmunds Township	Restricted/ Approved	Conditionally Approved	Based on an updated dilution calculation & water quality meeting approved standards for part of the year
2/9/2012	Carlos and Timber Coves	Trescott Township	Restricted	Conditionally Approved	Seasonal based on water quality meeting approved standards during part of the year
1/26/2012	Pemaquid River	Bristol	Prohibited	Conditionally Approved	Seasonal closures due to a marina and intermittent nonpoint source pollution
1/26/2012	Pemaquid River	Bristol	Prohibited	Approved	Water quality meeting approved standards & updated shoreline survey work
1/26/2012	Pemaquid River	Bristol	Prohibited	Restricted	Water quality not meeting approved standards & no known pollution sources
1/18/2012	Parts of Hatchet Cove, Long Island, Morse Island, Friendship Harbor	Friendship	Prohibited	Approved	Pollution abatement & water quality meeting approved standards
12/22/2011	Part of Skillings River	Lamoine/Hancock	Restricted	Approved	Water quality meeting approved standards
12/22/2011	Bobby Creek	Milbridge	Restricted	Approved	Water quality meeting approved standards
12/21/2011	Evergreen Point	Sullivan	Restricted	Approved	Water quality meeting approved standards
12/21/2011	Bucks Harbor	Machiasport	Restricted	Approved	Water quality meeting approved standards
12/14/2011	Upper Harraseeket River	Freeport	Conditionally Restricted	Conditionally Approved	Conditional on 1"/rainfall due to water quality meeting approved standards in open status
11/14/2011	Orrs Island	Harpswell	Prohibited	Approved	Water quality meeting approved standards
11/14/2011	Reed Cove	Harpswell	Prohibited	Conditionally Approved	Seasonal due to seasonal impacts to water quality during summer months





Shoreline Surveys: Determining Priorities for 2012

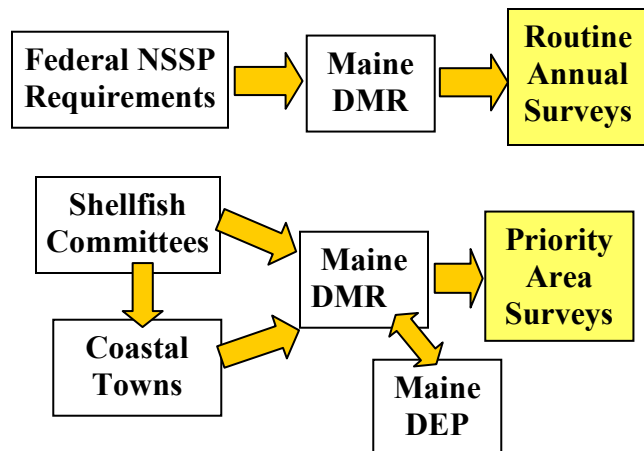
Shoreline surveys are critical in tracking pollution in all shellfish areas. DMR staff do this fieldwork in cooperation with the DEP and coastal town officials during the spring, summer, and fall seasons. These surveys include going door-to-door on all property within 500 feet of the shoreline and identifying any potential or actual pollution sources that could negatively impact shellfish areas. Currently, staff are in the process of writing reports from 2011 and developing plans for what will be surveyed in the 2012 season.



Will DMR Be Surveying In Your Town?

The DMR routinely surveys all areas along the Maine coast on a rotating 12 year cycle. Every year, the DMR will also survey priority areas. To identify priority areas, the DMR sends an annual letter in the fall to all coastal towns with municipal shellfish ordinances asking if there are any areas where staff should focus their fieldwork for the following year, based on local shellfish resource. For towns that reply, the DMR then communicates with the DEP to determine which areas have the most potential to benefit from shoreline surveys based on pollution remediation efforts. Once the snow and ice melt, DMR contacts those towns where shoreline survey work will take place and DMR staff head out into the field.

How are survey areas determined?





Fact Check: Did you Know?

Depuration

In areas with elevated pollution levels, clams and other shellfish can accumulate higher quantities of bacteria than allowed under the approved standard, making them potentially harmful to the health of humans who consume them. However, there are several methods available to restore shellfish to a condition where they are safe to eat. Shellfish from polluted areas can be transplanted to cleaner, uncontaminated habitat. Once they have been introduced into a more pristine natural environment, the shellfish resume siphoning nutrients out of the water. Over time the shellfish will use the uncontaminated water to flush remaining bacterial pollution.

The practice of moving shellfish from restricted areas to cleaner waters is known as relaying. Relaying first began in the early 1900s in response to numerous outbreaks of typhoid caused by contaminated shellfish. In Maine, relaying is usually only used for aquaculture for both market product

and seed or reseeded efforts by municipalities.

Another method for decontaminating shellfish from a polluted location is depuration. While relaying involves transferring shellfish from a polluted natural environment to a cleaner natural environment, depuration completely removes the shellfish from the natural environment and places them into a controlled artificial environment. The process of depuration consists of placing live contaminated shellfish into a tank that is continually flushed out with clean sterilized water. After about 48 hours of depuration the shellfish have purged any bacterial contamination to acceptable levels.

There are several methods commonly used to sanitize the water used for depuration. The first option is to use chlorine to kill the microbes in the water. Cl_2 Once this water is sterilized it then has to be dechlorinated. If left in the water, the chlorine will disrupt the normal

functioning of the shellfish and prevent them from flushing out contamination. Even after the water has been dechlorinated it can still have a noticeable impact on the taste of the meat. Chlorination was the first method used to sterilize water when depuration was first developed in the early 20th century.

The second method is ozonation. Using ozone instead of chlorine to sterilize the water is a good way to avoid the residual chemical taste that can be picked up from chlorine. Another advantage is that ozone will naturally dissipate from the water faster than chlorine. The major drawback to ozonation is the higher cost of the equipment required.

The final method is to use ultraviolet (UV) light to kill the microorganisms in the water. The advantage of UV sterilization is the elimination of the toxic chemicals used in the

other two methods. Unlike chemical water treatment, UV light has no residual effects. The disruptive effect UV radiation has at the molecular level is what causes sunburn. Ultraviolet light can be used to kill bacteria, viruses, and some microscopic parasites. It is even sometimes used to break down the chemical bonds of chlorine and ozone in the final stages of the chemical water treatment methods.

Currently there is only one shellfish depuration facility in Maine. Future population growth may lead to increased demand for edible seafood, as well as greater pollution potential from residential and agricultural land uses. If too much strain is put on coastal water quality, depuration may take a more prominent roll in the shellfish industry in the years to come. Both wild harvest from approved areas and depurated product from mildly polluted areas allows people to continue to safely enjoy fresh Maine shellfish.





Town Resources: Grants Available, Deadlines Coming Up!

Fixing pollution sources to clean up water quality and increase harvestable shellfish areas can be an expensive process for individuals and towns. The good news is that there are grants and loans available from a variety of state and federal sources that can be used to fund projects. Information about a few programs can be found below.

Funding for:	Who Can Apply:	Type:	Agency:	Name:	Date Due:	Contact:
Septic Systems	Individual	Grant	USDA Rural Development	503 Repair & Rehabilitation Grant Program	Year Round	Your Local USDA Rural Development Office
	Individual	Loan	USDA Rural Development	503 Repair & Rehabilitation Loan Program	Year Round	Your Local USDA Rural Development Office
	Individual	Loan	Maine State Housing	Septic Loan Program	Year Round	Monica Buck 624-5745
	Municipalities and Sewer Districts	Loan	ME State Planning Office	Great American Neighborhood Sewer Extension Loan Program	Year Round	Bill Brown 287-2111
OBDs	Individuals, Local and Regional Government	Grant	Maine DEP	Overboard Discharge Replacement Grant Program	Year Round	Tim MacMillen 287-7765
Nonpoint Source Pollution	Government and Nonprofit Organizations	Grant	Maine DEP	319 DEP Nonpoint Source Water Pollution Control Grant Program	Apply 2012	Norm Marcotte 207-287-3901
Education, Outreach, and Conservation		Grant	Maine Sea Grant	Program Development Funds	2/1, 6/1, 10/1 Annually	Dr. Jim McKenna 581-1435
	State Natural Resource Agencies	Grant	Maine Outdoor Heritage Fund	Maine Outdoor Heritage Fund Grants	Feb. 1, Aug. 1 Annually	Carol Gay 458-8421



Maine's 45 shellfish growing areas.



About The Shellfish Growing Area Classification Program:

Also known as the Water Quality Program, is part of the Public Health Division of the Department of Marine Resources. The program monitors water quality and completes shoreline surveys to identify pollution sources that impact shellfish areas coastwide. Using fecal coliform as an indicator, water is tested year round throughout the entire coast and pollution sources are identified. Following federal guidelines used to maintain that shellfish harvested are safe to eat, staff classify shellfish resource areas as approved, conditionally approved, conditionally restricted, restricted, or prohibited based on public health.



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