

Maine Department of Marine Resources Bureau of Public Health Shellfish Growing Area Classification Program: Water Quality Monitoring Volunteer Guidance Document

The Importance of a DMR Volunteer Program

Volunteer participation benefits the Department of Marine Resources (DMR) in many ways. It provides us with an incredible resource of willing and able workers who donate their time because they are interested in what we are doing and want to actively contribute to the protection of Maine's coastal resources. These relationships also provide us with an excellent opportunity to educate citizens and their communities about the ecological and economic importance of these resources, and to expose them to the wide range of research being conducted by DMR.

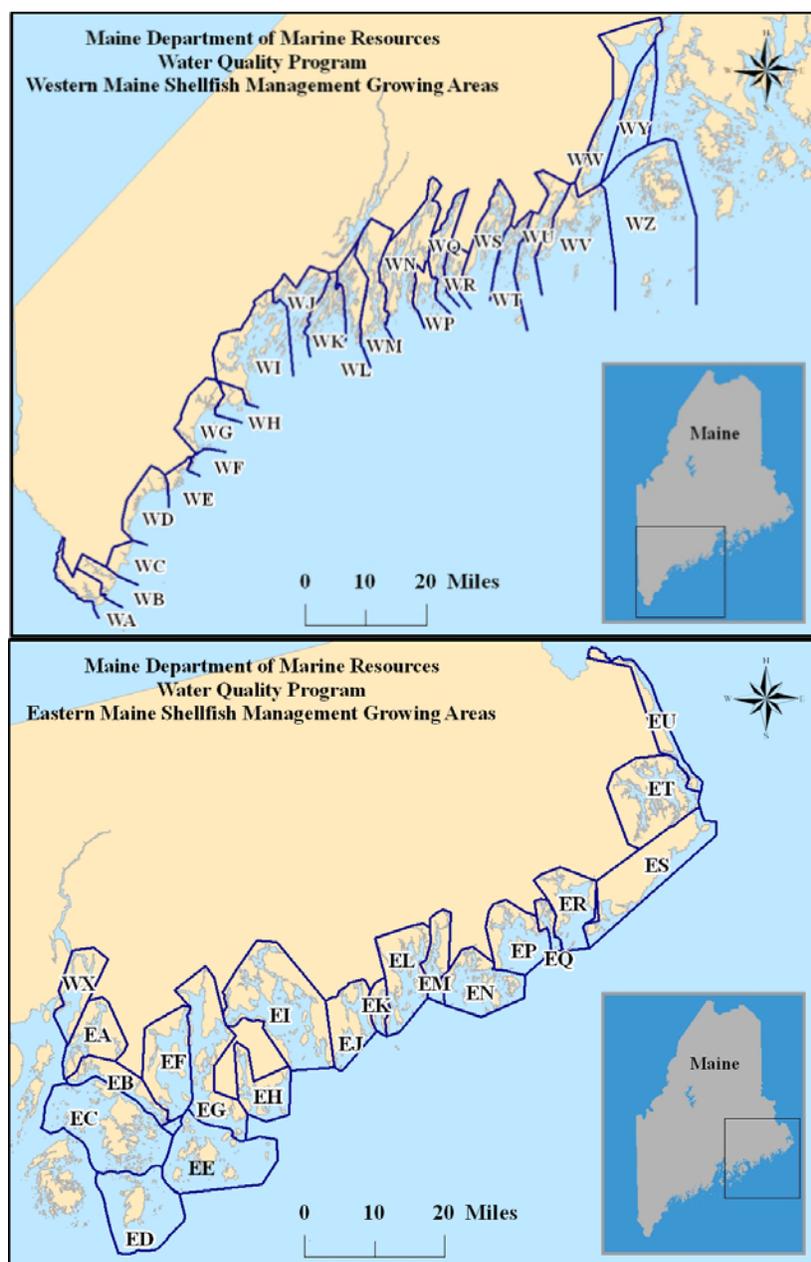
The Shellfish Growing Area Classification Program has relied on volunteers for more than sixteen years to help with its field data collection. In accepting assistance from volunteers, the Department needs to provide adequate support, guidance and training to volunteers so that their participation is mutually beneficial. It is also important to outline the role of volunteers in the program to define their expectations to get the job done efficiently while meeting the program goals.

Definition/Background

The Shellfish Growing Area Classification Program follows federal guidelines in establishing and implementing a shellfish program in Maine. The mission of this program is to protect the public health by properly classifying shellfish growing areas based upon environmental data and other observations according to the standards established by the National Shellfish Sanitation Program Model Ordinance. All shellfish areas in Maine are reviewed under this program and classifications are based upon uniform and consistent criteria. The objective of this classification system is to prevent shellfish from being harvested from areas that show evidence of bacterial or biotoxin contamination, as both types of contamination may cause illness or even death in human consumers.

To properly classify shellfish growing areas, the DMR must collect routine water samples from established sites a minimum of six times a year from the New Hampshire border to the Canadian border. Staff must also conduct shoreline surveys to search for potential sources of pollution to coastal flats and waters, institute special investigatory studies and must use data from all of these to write annual reports of varying lengths for each of the 45 shellfish growing areas (Figures 1 and 2). The DMR administers and provides enforcement for the current classification system for all growing areas.

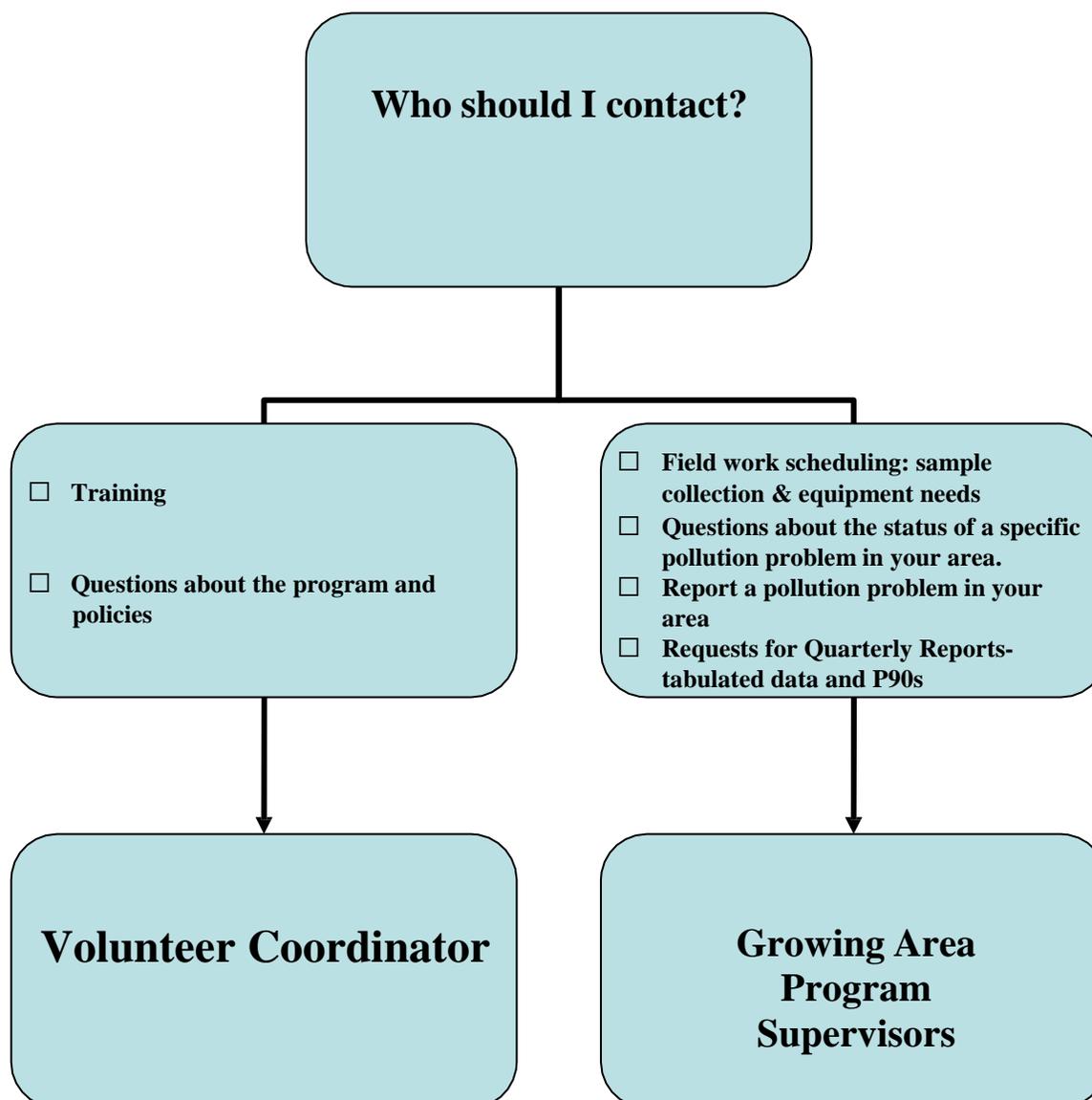
Figures 1 and 2



Project Staff/ Organizational Chart

The primary contact for volunteers is the Volunteer Coordinator. She/he will be responsible for training and all questions regarding policies for the Volunteer program. The Growing Area Program Supervisors are responsible for directing volunteer work assignments or sampling efforts. If a volunteer would like to do additional work related to water sampling i.e. pollution source sampling, assist with shoreline survey work, rainfall data collection or any other special study for an area, the volunteer will need to contact the Growing Area Program Supervisor for their area: Alison Sirois (633-9401) for western Maine (Kittery to Dice Head, Castine) or Meggan Dwyer (667-5654, ext. 2233) for eastern Maine (Dice Head, Castine to Calais).

Most volunteers are interested in sampling to better understand the issues affecting their watershed and shellfish industry. The following chart outlines the pathway for information exchanges between volunteers and the Shellfish Growing Area Classification Program.



Task Description

The Department of Marine Resources will conduct volunteer training for all Shellfish Growing Area Classification Program volunteers. The first part of the training will occur from January through April for any new volunteers, and will cover aseptic technique. Mandatory in-person training will be held every 3 years for all volunteers.. The second part of the training consists of site certification and will be conducted in the field from January through June. Additional QC in the field will occur from July through September and retraining sessions will be implemented throughout the year, if needed.

Based on the systematic random sample schedule, bimonthly (6 times/year) sampling of water and water temperature will occur at each active water quality station. In order to better characterize the data, additional critical information will be taken including observed adversities and wind direction.

Volunteer samples will be picked up from secure locations determined by the DMR, or brought to the lab, and then analyzed by DMR lab staff using membrane filtration method. Results will be entered into a DMR database. Reports are prepared by the Water Quality staff and go through an internal review process. Below is the annual timeline of when major tasks are accomplished in association with volunteers and the Shellfish Growing Area Classification Program.

Major Tasks in the Calendar Year

	J	F	M	A	M	J	J	A	S	O	N	D
Volunteer Training: Aseptic Technique	X	X	X	X	X							
Volunteer Training: Site Certification	X	X	X	X	X	X	X	X	X	X		
QC Checks							X	X	X			
Maps and Directions Sent Out for Sampling Season for Volunteers (still correct?)	X	X	X									

Volunteer Training Requirements

Training Part I: Program Overview and Aseptic Technique: New volunteers: If a new volunteer is put into place before the in-person training is held (which is every three years), the volunteer will be trained by the Growing Area Scientist who is responsible for their sample area. They will also have to submit the online volunteer test to the Shellfish Program Coordinator, who will grade the test and let the volunteer know if they passed. The new volunteer will have to pass the online test every year until the in-person training is held. Once the new volunteer has attended, and passed, the in-person training they will be considered an “existing” volunteer. **Existing volunteers:** Every three years, Maine DMR water quality volunteers will participate in a mandatory ½ day classroom retraining, including aseptic technique water sample practice. Topics covered will include the DMR Water Quality SOP, field techniques, QA/QC, filling out datasheets, and interpreting report results. At the end of this training day, volunteers will take a proficiency test to evaluate their understanding of expectations and tasks to be performed as part of participating in the program. Volunteers will also be expected to update any and all contact information for the DMR, which will include a volunteer application and agreement to be completed at the training. Existing volunteers will not need to complete the online test.

Training Part II: Site Certification: The second part of training will take place every year in the field at, or before, the volunteer’s first sample date is scheduled. Annual site certifications are mandatory for all volunteers. Volunteers are not allowed to train other volunteers. An evaluation of each volunteer will be completed by staff at the time of the site certification and reviewed after the site certification is completed. DMR staff will make the effort to do these site certifications as early in the year as possible. Because of this, winter sampling protocols will be in place and will need to be adhered to when in the field.

Volunteers should expect to be out for the full day during a site certification and will be required to visit every station in the run. During this training staff will identify any and all stations where there might be issues to note during the sample year. Prior to each site certification date, staff will be responsible for meeting briefly with the Growing Area Program Supervisor and discuss any specific sites issues that will be covered that day with the volunteer.

Documentation and Records

Each time a volunteer takes a sample, a datasheet must be completed onsite for that sample. It is important that the original datasheet be the only record for that day: for example, do not use a scrap to write down sample information and then transcribe the data: this is considered a quality assurance problem. An example of how to fill out a datasheet can be found in Appendix I. Below is a table of the datasheets volunteers will use for different sampling events.

Random/Adverse/Accelerated Water and Shellfish Samples	Appendix I: Form A
Pollution Source/Stream Samples	Appendix I: Form B

If possible, before handing in your datasheet for the day, make a copy of each field sheet and keep a copy for your records. The original is returned to the Maine DMR office along with all samples. Field sheets are archived with the DMR field staff supervisor for at least five years. Hard copies of all data, as well as computer generated copies, are maintained by the DMR.

Sampling Design

All samples collected by volunteers will be considered random (except when notified) and will consist of active stations along the coast within each growing area. All stations are grouped into “runs” and each run is numbered geographically from most western to most eastern stations along the coast. Each DMR Water Quality lab has a similarly named run numbering system distinguishable by an E for east (Lamoine Lab) or W for west (Boothbay Lab) in front of each station number, and should be designated as such on datasheets and sample bags.

Random Run Collection Criteria

A sample run can consist of 20 to 32 sample stations. The DMR has determined that breaking runs down into smaller groupings puts an undue burden on the WQ program. The Department has created the current sample runs in order to be most effective and efficient with resources.

Volunteers coming into the growing area program must be prepared to commit to doing a full sampling run as determined by the Department, which can consist of up to 32 stations spanning numerous towns. A volunteer or volunteer group who are assigned a complete run for the season can expect to spend a minimum of two hours, and up to eight hours, in the field on a scheduled random run sample day.

Consistency in sampling technique is critical for the data. Along with committing to sampling annually, volunteers will be required to commit to a minimum of 4 dates during the year (see Table 1).

Each volunteer/volunteer group will start sampling when they know there will be a minimum of 18” of water at each site. This means that on a given sample day, a volunteer(s) will need to time their run when they know they will be able to get the most number of stations. However some stations will still be missed and, on days when low tide sampling takes place, it is expected that for those stations missed volunteers will do their best to go back to those stations on that same day within the eight hour window allotted for sampling; and collect those stations at another tide stage. This will reduce the amount of time DMR staff must spend collecting missed stations.

Criteria for sampling conditional area, boat runs and other sample scenarios

The DMR is also required to sample conditional areas in the open status, which can mean additional

sampling dates in the calendar year for some stations/areas. If a volunteer's random run contains ≥ 8 conditional stations, then volunteers will be asked to sample those additional sample dates. Volunteers will be asked to sample a smaller number of stations than the required criteria for random runs under the following scenarios: **a.** when a station can only be collected by boat, **b.** because staff is under constraint from a flood closure or **c.** to reopen a conditional area.

The table below outlines sample collection scenarios a trained volunteer could be asked to complete for the DMR Shellfish Growing Area Classification Program.

Table 1

Random Run Samples	12 to 32 stations
Random Conditional Run Samples	≥ 6 stations
Make Up Samples	no minimum
Flood Samples/Reopening Samples	no minimum
Adverse Samples/Stream Samples	no minimum, approval needed from DMR staff
Accelerated Samples	no minimum, approval needed from DMR staff
Shellfish Samples	Permit needed, additional training and approval needed from DMR staff

Winter Sampling

When sampling in the winter, all attempts should be made to use safe practices. It is recommended that crampons be used if it is icy, snowshoes if it is necessary to walk long distances in deep snow, carry a cell phone for emergency calling, and use 4-wheel drive vehicles if sampling runs are in remote areas or on back roads. Walking out on ice-covered coves is discouraged. Sampling runs will be cancelled when state offices are closed due to inclement weather, and otherwise on a case-by-case basis. In the event of a missed run due to hazardous conditions, the missed run will be made up.

Aside from safety issues, there are water sample integrity issues with cold weather sampling. Samples with ice or ice slurry cannot be analyzed for fecal coliform. Bacterial cells tend to burst when subjected to freezing; any freezing that occurs once the sample has been collected will alter the original concentration of fecal coliform in that sample. If the sample is collected where ice is present, every effort should be made to exclude ice from the sample collection. If ice slurry is present, the slurry must be expelled before closing the bag. The sample must be protected from freezing and ice formation from the sample collection site to the eventual delivery to the laboratory. This may mean carrying the sample in a pocket from the sample site to the cooler in the vehicle. It may mean keeping the cooler inside the vehicle during the sample collection trip and transport to the laboratory; the coolers are not designed to protect from freezing if they are subjected to freezing temperatures and wind chill conditions. Freezing wind chill conditions can develop on a cold day in the bed of an open pickup truck during transport.

Sample Scheduling,-Materials and Drop-Off Locations

By the end of February, all volunteers will receive via email and/or hard copy an updated map of the volunteer run they will be collecting; with all active stations, current directions with latitude/longitude coordinates, and the dates that each run should be completed for the year. If a volunteer(s) will be doing conditional area sampling, those additional dates will be noted and an additional list of conditional stations outlined. Because of the dynamic nature of the Shellfish Growing Area Classification Program, stations can be activated, deactivated and/or made inactivate throughout the year; which can change the number of stations in a run. If this occurs after the annual trainings, the DMR Scientist for that area will send updated information to that volunteer, and field staff will be required to fulfill any field training obligations to

ensure quality samples are collected.

Sampling does occur year-round for staff. Like staff, volunteers that are paid by the towns (i.e. shellfish wardens or other public safety officers) will be expected to collect from January through December. Other volunteers will have a choice, based on comfort level and boat availability, whether to sample in December, January, February and March; but will be expected to collect samples from April through November.

Staff will make efforts to notify volunteers at least a week, and up to a month, in advance of each sample date to confirm their scheduled date. However volunteers are expected to check in and make sure nothing has changed in the schedule. Volunteer(s) will need to confirm with staff a meeting time and place for the sample day if they are not dropping at a known drop-off location with a refrigerator (see Appendix II). If a volunteer is unable to collect on a specific sample date, they are responsible for notifying the Growing Area Scientist no later than 48 hours prior to that date. The date will not be rescheduled but will be collected on that sample date by staff.

All volunteers who sample by boat will be required to carry a DMR-issued GPS unit with them, which they will use to document all stations where samples were collected. Specific instruction on how to use the units will be covered during the triennial training session for volunteers. If a volunteer has boat problems or bad boating weather occurs on their sample date, the volunteer is expected to collect all samples by land. The exception to this rule is if the stations are not on the coastal mainland or if they are designated by the DMR as “boat stations” and cannot be reasonably accessed by land.

On days when both DMR staff and volunteers are scheduled to collect samples in the same geographic location (example: same town or same growing area), DMR staff may be able to meet with the volunteer in person to pick up samples. A meeting place and time **MUST** be arranged in advance through verbal communication between the volunteer and DMR staff. In these instances, the volunteer **MUST** be present in person to relinquish the samples. If a mutually convenient place and time cannot be worked out between the DMR staff and volunteer, the samples must be dropped off at a designated drop-off location (see Appendix II).

Alternatively, if volunteers do not wish to use these drop-off locations, they may bring the samples directly to the DMR lab in Boothbay Harbor. The lab working hours are Monday through Friday, 8 am to 4:30 pm. All samples delivered directly to the DMR lab must be received within these normal operating hours on the same day the samples were collected. Volunteers must sign in at the front desk and wait for a DMR lab staff person to come and get them and escort them to the lab.

Accelerated Sampling

Volunteers can also sample if their town/municipality has been accepted by the DMR for accelerated sampling. These volunteers will receive dates and maps to collect samples outside the normal random run schedule dates. These volunteers will be required to fulfill all of the commitments of regular volunteer training and criteria for sampling. Volunteers that have made the commitment to sample on an accelerated schedule will be required to sample on all sample dates and if they miss a sample date it will not be rescheduled. Additionally if a volunteer cancels or continually misses an accelerated sample date without just cause, DMR can decide to drop that volunteer out of the program.

Equipment Inspection and Acceptance Requirements, Maintenance and Calibration

DMR will provide all necessary sampling equipment to collect quality samples. Each volunteer will be assigned their own cooler for the season. If anything breaks, a cooler needs to be replaced, or any equipment in the cooler needs to be replaced, it will be the **volunteer's responsibility** to notify the DMR Scientist or GA Supervisor for a replacement and they should not sample until the equipment is replaced. It is expected that all volunteers will use only DMR-issued equipment for QA/QC purposes and in the ways that they are trained. Volunteers will need to supply their own above-the-knee waterproof boots, transportation (vehicle or boat), first aid kit and a clock. If a volunteer does not have one of the required pieces of equipment listed above, please get in touch with the Volunteer Coordinator.

At each annual site certification volunteers will be required to bring all their sampling equipment in for inspection. At that time the DMR staff will look at, and confirm by checklist, the quality of the equipment and replace anything that does not meet minimum requirements. Also at this time volunteers will receive a set of new thermometers for that sampling year, and will turn in old thermometers.

Quality Control Requirements, Assessment and Response Actions

A quality control check in the field will be completed during the months from the end of July through September for all volunteers. Each group will either receive a GPS unit and instructions to take coordinates at the place they collect water sample on that day; or will be accompanied by the DMR Scientist for part of their run. If GPS units are used, they will be left with the coolers for pick-up and checked by the WQ Staff responsible for that area to confirm sampling precision.

A quality control check will also occur anytime samples are left for pick-up. All samples that are picked up by staff at remote locations will be checked by DMR staff to make sure all equipment requirements are met for storing those samples. Equipment checklists will be given to all DMR staff completing pickups and will be filled out at that time. Deficiencies such as: not enough ice packs, non-DMR cooler, if bags are not sitting upright or are sitting in pools of water, etc. will be documented.

Lab quality control will occur in the form of a problems list when lab staff process sample bags. This will then be given to the DMR Scientist or GA Supervisor on a monthly basis so volunteers can be notified and corrective action enforced.

If there is a QA/QC issue with a volunteer(s) performance, the DMR Scientist or GA Supervisor will contact that individual/group leader, address the problem and figure out a course of action before they collect samples again. If the problem is due to unfamiliarity with sample locations or a misunderstanding of DMR water sampling protocol, a site certification and/or sample collection training must be done before the volunteer(s) collect on their own again.

THANK YOU FOR YOUR HELP!

**Appendix I: Field Datasheet Form (A),
Code sheet, and Form (B)**

(Next three pages)

Codes for Datasheet

The letter in the **ADVERSITIES** column represents an adverse condition observed at the time the sample was collected i.e., if it rained any time during the 2 days prior to collecting the sample the condition would be “**P**” (P for precipitation). If there are 5 or more boats near the station that may adversely affect the water quality, the condition column would read “**B**” for boats.

B - Boats: Minimum 5 enclosed boats (i.e., not open skiffs) that might have a head

F - Flood: Use **only** during an officially declared statewide flood closure

H - Habitation: Seasonal occupation of homes that might have an impact on water quality

M - Marinas: Open business with 10 or more enclosed boats in the water

N - Nonpoint: Flowing streams, stormwater pipes, or overland runoff

P - Precipitation: Rain or mixed precipitation anytime within past 2 days (i.e., thunderstorms, rainfall more than a drizzle)

T - Thaw: Snow and ice melt

S - Sewage Treatment Plant: during treatment plant malfunction or bypass events

W - Wildlife: Waterfowl (10 or more), domestic or wild animals (i.e., at the station or in close enough proximity to have a possible impact) - Put details in “**REMARKS**” on front

Missed Station Field Code

T= Tide: tide was too low to sample station

A= Access: the station was not accessible due to trespass issues or natural obstructions

S= Safety: The station could not be sampled due to safety issues

I= Ice: The station was iced over and water was not available

O= Other: Please note what the other is in comments for that station

Chain of Custody

Relinquishing person **sign** and note:

- Date, time and temperature when relinquished
- Number of samples
- Relinquished to: such as “receiving person”, “cooler at drop off”, “Lab Refrig.”

Receiving person must **sign** and note:

- Date, time and temperature when received
- Number of samples

Revised:12/04

Revision 2:9/05

Revision 3.3/06 Revision 5/26/06

APPENDIX II: Volunteer Sample Drop-off Locations

- A sample consists of one species of at least 12 animals from a specific location and should yield 100-150 grams of shellfish tissue. Depending on the size of the shellfish we typically need more than 12 animals.
- Bring your sample(s) to your desired drop off point in a cooler with ice the samples should be kept under 10°C. It would be ideal to bring your samples directly to drop off point after collection. They must be dropped off within 12 hours of collection time.
- Samples must be clearly marked with location, date, time of collection, species, and your contact information. You can do this putting the sample in a sealed plastic bag and label with permanent marker – or- a closed onion bag with your dealer tag inside.
- We should have the sample results within 24 – 48 hours of collection time.

~ In emergency situations we can arrange to pick up the sample from other locations ~

Western Maine Locations

1. **Waldoboro Town Office:** 1600 Atlantic Highway, Waldoboro Maine
2. **DMR Laboratory:** 194 McKown Point Road, West Boothbay Harbor
3. **Sagadahoc Communications Center:** 752 High Street, Bath
4. **Freeport Police Department:** 16 Main St, Freeport
5. **Scarborough Police Department:** 246 US Route 1, Scarborough

Waldoboro Town Office- Fire Station - 1600 Atlantic Highway, Waldoboro
Samples can be dropped here 24 hours a day

*Go into town office, they will let you in after hours. Go to the left and the ambulance attendants will let you in. If ambulance is out, call Bill Bragg. Refrigerator is in first bay on the right.

From the South: Take Route 1 North, past Boothbay and Newcastle, into Waldoboro. The Town Office is located to the left on Rt. 1 after the intersection for Jefferson St.

From the North: Take Route 1 South, into Waldoboro. The Town Office will be located on the right after passing by CarQuest Auto Parts.

DMR Lab – 194 McKown Point Road, West Boothbay Harbor
Samples can only be dropped here between the hours of 7:30 am and 5:00 pm

- Entrance is through the front glass doors. Let the front desk know who you are and that you are dropping off samples for the PSP lab. They will direct you where to go.

From the South:

- Take Route 1 North, through Wiscasset to Edgecomb.
- Turn right onto Route 27 South, to the Boothbay Harbor Region

From the North:

- Take Route 1 South, through Damariscotta and Newcastle to Edgecomb.
- Turn left onto Route 27 South, to the Boothbay Harbor Region.

- Once on Route 27: Travel to Boothbay Center (about 9 miles). Landmarks on right are Chamber of Commerce and Clipper Mart gas station/Subway sandwich shop.
- After Clipper Mart and just before Soldier Monument, turn right off Route 27. Go straight at the 4-way stop that immediately follows. This puts you on Corey Lane, also known as Lakeside Drive
- Follow this road to the stop sign at its southern end (about 2 miles; 2nd junction with Route 27).
- Continue straight across onto McKown Point Road and follow to its end (about 1 mile). We are the last facility, at the end of the road.

Sagadahoc Communications Center - 752 High Street, Bath
Samples can be dropped here 24 hours a day

- Entrance is located through the glass doors in the back. During normal hours you can just walk right in though both sets of doors and walk straight to the end of the hallway. The door is the last one on the left with the sign “Superior Court 3rd floor” pointing towards it. Go through door and the fridge is behind it. This is a fridge shared with water quality. The combination is 1021.

From Route 1 North:

- “To 209 – Phippsburg” exit on your right
- Left onto High Street for short distance
- Left into the Sagadahoc County Communications Center

From Route 1 South:

- Get off on the right exit “To 209 – Bath / Phippsburg” (when going over bridge)
- Go straight at stop sign onto Vine Street and drive for 0.1 mile
- Right to yield onto Washington Street for a short distance
- Left at lights onto Center Street for 0.1 mile
- Left into the Sagadahoc County Communications Center

Freeport Police Department: 16 Main St, Freeport
Samples can be dropped 8 am -4 pm: doors are unlocked, after hours pick up phone next to door for dispatch, tell them you are DMR and they will send someone to let you in.

From 2-95 North:

- Take exit 20 for Desert Rd. into Freeport.
- Take a right off the highway, and straight through both lights by Shaws Supermarket.
- Continue onto Lower Main St.
- The Fire Station and the Police Department will be on your right before the stop lights for West St.

From 2-95 South:

- Take exit 22 for Mallet Drive.
- Yield to the right off the highway and continue to the stop lights.
- Right onto Main St.

- Pass through downtown Freeport.
- Left at the stop lights onto West St.
- Police Department and Fire Station will be your first right on West St.

Scarborough Police Department - 246 US Route 1, Scarborough
Samples can be dropped here 24 hours a day

- Entrance is located at the front parking lot entrance. When you get inside you pick up the phone to talk to an attendant. Tell them you are here to drop off DMR shellfish samples. They will unlock the door behind you where you will see a DMR refrigerator. This is a shared fridge with Water Quality. Transfer your samples to the fridge.

From 2-95South:

- Exit 2 for Scarborough/Old Orchard Beach and drive for 3.4 miles total
- Go through 4 traffic lights
- Left onto Westwood Avenue for short distance
- Left into the SPD parking lot

From 95North:

- Exit 36 to merge with 195E toward Saco/OOB and drive for 1.8 miles
- Exit 2B to merge with Route 1 North and drive for 7.6 miles
- Right onto Westwood Avenue for short distance
- Left into SPD parking lot

Eastern Maine Locations

- 1. Bass Harbor Ferry Terminal***, 114 Granville Road, Bass Harbor
- 2. Cobscook Community Learning Center***, 10 Commissary Point Road, Trescott Township

Bass Harbor Ferry Terminal, 114 Granville Road, Bass Harbor
Open 7:30 am to 4:30 pm

From Route 3 East in Trenton:

- Stay straight to go onto ME-198 S/ME-102 South. Continue to follow ME-102 South
- Stay straight to go onto Harbor Drive/ME-102A.
- Turn right onto Shore Road. Shore Road is just past Bass Harbor Woods Road
- Turn slight right onto Granville Road. Granville Road is just past McMullen Avenue

Cobscook Community Learning Center, 10 Commissary Point Road, Trescott Township
Open 24 hours/day: The fridge is in an outbuilding

From Route 1 in Whiting:

- Take Route 189 toward Lubec and Campobello Island, New Brunswick. Commissary Point Road is 1.8 miles on the left. The CCLC is the first driveway on the left.