STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

JAMES P. BROOKS
ACTING COMMISSIONER

May 17, 2011

Mr. Mark Whiting
Maine Department of Environmental Protection
Bureau of Land and Water Quality
Division of Environmental Assessment
106 Hogan Road
Bangor, Maine 04401

RE: Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0002704
Maine Waste Discharge License (WDL) Application # W-009049-5Z-B-M
Project SHARE Experimental Permit Modification, T37, T31, T30.

Dear Mark:

Enclosed please find a copy of your **final** Experimental MEPDES Permit / Maine WDL **Modification** which was approved by the Department of Environmental Protection. Please read the permit/license and its attached conditions carefully. You must follow the conditions in the order to satisfy the requirements of law. Any discharge not receiving adequate treatment is in violation of State Law and is subject to enforcement action.

Any interested person aggrieved by a Department determination made pursuant to applicable regulations, may appeal the decision following the procedures described in the attached DEP FACT SHEET entitled "*Appealing a Commissioner's Licensing Decision.*"

If you have any questions regarding the matter, please feel free to call me at (207) 215-1579 or contact me via email at Robert.D.Stratton@maine.gov.

Sincerely,

Bob Stratton DEP

Robert D. Stratton
Division of Water Quality Management
Bureau of Land and Water Quality

Enc./cc: Matt Young, Lori Mitchell (MEDEP); Sandy Mojica (USEPA)

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION
AUGUSTA, ME 04333

IN THE MATTER OF

PROJECT SHARE	)	MAINE POLLUTANT DISCHARGE
WATER QUALITY IMPROVEMENT PROJECT	)	ELIMINATION SYSTEM PERMIT
TOWNSHIPS 37, 31, 30 MD	)	AND
WASHINGTON COUNTY, MAINE	)	WASTE DISCHARGE LICENSE
#ME0002704	)	EXPERIMENTAL PERMIT
#W-009049-5Z-B-M **APPROVAL**	)	**MODIFICATION**

Pursuant to the provisions of the Federal Water Pollution Control Act, Title 33 USC, Section 1251, et. seq and Maine Law 06-096 CMR 414-A et seq., and applicable regulations, the Department of Environmental Protection (Department) has considered the application of PROJECT SHARE, with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

APPLICATION SUMMARY

The applicant has applied to modify Experimental Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0002704 / Maine Waste Discharge License (WDL) #W-009049-5Z-A-N, which was issued on November 30, 2009, for a five-year term. The Experimental MEPDES Permit / Maine WDL approved a water quality improvement project in several streams that form the headwaters of the Machias River in Washington County, Maine. The project involves the deposition of clam shells in and adjacent to study streams as a calcium source to attempt to mitigate for episodic acidification of streams, low buffering capacity, low calcium, high aluminum, poor fish conditions, low freshwater and early marine survival, and occasional fish kills in salmonid populations in tributaries to Dead Stream, Honeymoon Brook, and the upper Crooked River in Townships 37, 31, and 30. The permitting action established operational, monitoring, and reporting requirements. Information and data obtained will be used to assess the potential for larger scale water quality improvement projects of similar nature. The subject streams are all classified as Class A waters with watersheds of less than ten square miles.

PERMIT SUMMARY

This permitting action is similar to the November 30, 2009 MEPDES Permit / Maine WDL in that it is carrying forward all previous terms and conditions with a few exceptions. This permitting action is different in that, in response to lessons learned during the first year, it is:

1. adding an additional treatment site and monitoring areas on Bowles Stream, Class AA;
2. expanding one treatment area and eliminating bagging on another area on Dead Stream; and
3. allowing for use of other types of shells.

CONCLUSIONS

BASED on the findings in the attached Fact Sheet dated April 15, 2011, revised May 16, 2011, and subject to the Conditions listed below, the Department makes the following conclusions:

1. The discharge, either by itself or in combination with other discharges, will not lower the quality of any classified body of water below such classification.

2. The discharge, either by itself or in combination with other discharges, will not lower the quality of any unclassified body of water below the classification which the Department expects to adopt in accordance with state law.

3. The provisions of the State's antidegradation policy, 06-096 CMR 464(4)(F), will be met, in that:

   (a) Existing in-stream water uses and the level of water quality necessary to protect and maintain those existing uses will be maintained and protected;

   (b) Where high quality waters of the State constitute an outstanding national resource, that water quality will be maintained and protected;

   (c) The standards of classification of the receiving water body are met or, where the standards of classification of the receiving water body are not met, the discharge will not cause or contribute to the failure of the water body to meet the standards of classification;

   (d) Where the actual quality of any classified receiving water body exceeds the minimum standards of the next highest classification, that higher water quality will be maintained and protected; and

   (e) Where a discharge will result in lowering the existing quality of any water body, the Department has made the finding, following opportunity for public participation, that this action is necessary to achieve important economic or social benefits to the State.

4. The discharge will be subject to effluent limitations that require application of best practicable treatment.

ACTION

THEREFORE, the Department APPROVES the above noted modification of PROJECT SHARE's Experimental MEPDES Permit / Maine WDL to conduct a water quality improvement project by depositing clam and similar shells in and adjacent to tributaries to Dead Stream, Bowles Stream, Honeymoon Brook, and the upper Crooked River, Class A and Class AA, in Townships 37, 31, and 30 MD, SUBJECT TO THE ATTACHED CONDITIONS, and all applicable standards and regulations including

1. "*Maine Pollutant Discharge Elimination System Permit Standard Conditions applicable To All Permits*," revised July 1, 2002, copy attached to the 11/30/09 Experimental MEPDES Permit / Maine WDL cited above.

2. The attached Special Conditions, including any effluent limitations and monitoring requirements.

3. All other terms and conditions in the 11/30/09 Experimental MEPDES Permit / Maine WDL not modified by this action remain in effect and enforceable.

4. This permit modification and the authorization to discharge expire at midnight on November 30, 2014, concurrent with the 11/30/09 Experimental MEPDES Permit / Maine WDL. If a renewal application is timely submitted and accepted as complete for processing prior to the expiration of this permit, the authorization to discharge and the terms and conditions of this permit and all modifications and minor revisions thereto remain in effect until a final Department decision on the renewal application becomes effective. [*Maine Administrative Procedure Act*, 5 M.R.S.A. § 10002 and *Rules Concerning the Processing of Applications and Other Administrative Matters*, 06-096 CMR 2(21)(A) (effective April 1, 2003)]

Teco Brown

This permit is digitally signed by Teco Brown on behalf of Acting Commmissioner James P. Brooks. It is digitally signed pursuant to 10 M.R.S.A. § 9418. It has been filed with the Board of Environmental Protection as of the signature date.
2011.05.16 13:29:54 -04'00'

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: March 31, 2011
Date of application acceptance: April 14, 2011

This Order prepared by Robert D. Stratton, BUREAU OF LAND & WATER QUALITY

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to conduct a water quality improvement project by depositing clam shells in and adjacent to tributaries to Dead Stream, Bowles Stream, Honeymoon Brook, and the upper Crooked River. Such discharges shall be limited and monitored by the licensee as specified below. This permitting action references clam shells, but authorizes use of other species' shells also.

1. All sampling and analysis must be conducted in accordance with: (a) methods approved by 40 Code of Federal Regulations (CFR) Part 136, (b) alternative methods approved by the Department in accordance with the procedures in 40 CFR Part 136, or (c) as otherwise specified by the Department. Samples that are sent out for analysis shall be analyzed by a laboratory certified by the State of Maine's Department of Health and Human Services.

2. This Experimental Permit authorizes Project SHARE to conduct the approved water quality improvement project in three study stream locations: the Dead Stream 55-00-0, Dead Stream 55-50-0 West, and Bowles Stream 55-38-0 locations. Associated monitoring will be conducted at the three treatment sites and at the Dead Stream 58-00-0 monitoring site, as described below. This Experimental Permit does not authorize Project SHARE to conduct the project at the Honeymoon Brook or upper Crooked River treatment sites at this time, but establishes a mechanism for obtaining authorization at these sites (Permit Special Condition F).

3. Clam shells will be distributed in study streams as follows. (a) placement of shells directly in the streams for an instantaneous effect, with 50% of the site allocation placed in mesh erosion-control bags for easier placement and removal if necessary to adjust dosage and 25% distributed on the stream bottoms; (b) placement of 25% of the site allocation on the stream banks so that more shells are submerged during high flows to boost the buffering capacity when the stream needs it the most, and finally (c) application of additional shells and/or limestone to logging roads and roadside ditches at stream crossings in the vicinity to boost the buffering capacity of stormwater runoff. Shells will not be bagged at Dead Stream site 55-50-0 due to the volume of shells involved at that site. All shells used will be aged, clean shells. Project SHARE proposes to deposit 1.99 metric tons (MT) of shells at Dead Stream site 55-00-0, 5.97 MT of shells at Dead Stream site 55-50-0, and 2.0 MT of shells at Bowles Stream site 55-38-0. Following Department approval pursuant to Permit Special Condition F, Project SHARE proposes to deposit approximately 3.7 MT of shells at Honeymoon Brook Site 1, 1.8 MT of shells at Honeymoon Brook Site 2 (total 5.5 MT), and 7.8 MT of shells at the upper Crooked River site. The target pH at each location is 7.0 standard units (su) with a maximum pH of 7.6 su, equivalent to the highest summer pH recorded in the Machias watershed. Additional details, including the physical dimensions of the deposition at each site, are contained in Fact Sheet Section 2.g. Treatments are anticipated to occur for two years at each site.

4. Project SHARE shall post signs at all treatment sites to explain the nature and purpose of the project and to provide contact information for people having questions or concerns.

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, (cont'd)

5. Ambient monitoring will be conducted in study streams as follows. Monitoring will be conducted at each site through the use of automated data sondes, manual sampling, and electrofishing, according to the sample parameter. Data sondes will be positioned upstream and downstream of each treatment site. One data sonde will also be positioned further downstream of both Dead Stream treatment sites at the 58-00-0 monitoring location.

Measurements	Method	Where	Analysis	When	Who
pH, alkalinity, conductivity, D.O., water temperature, stream flow, depth	Data sonde	All Sites plus 58-000 site	before/after treatment up/down stream	Hourly from May-Nov	USFWS / DEP DEA
pH, alkalinity, conductivity	Field meter & Field titration	All Sites plus 58-000 site	before/after treatment up/down stream	monthly	DEP DEA
pH, dissolved organic carbon, major cations[1], aluminum species[2]	Grab, lab analysis	All Sites plus 58-000 site	before/after treatment up/down stream	Quarterly: May, Aug, Nov	DEP DEA
Algae	Grab	All Sites plus 58-000 site	before/after	yearly	DEP DEA
Macroinvertebrates	Rock riffle bags	All Sites plus 58-000 site	3 per site before/after	yearly	DEP DEA
Fish abundance	E-fishing	Dead, Bowles	before/after treatment up/down stream	yearly	USFWS/DMR
Fish abundance	E-fishing	Crooked	before/after treatment up/down stream	yearly	USFWS
Fish abundance	E-fishing	Honeymoon	before/after treatment up/down stream	yearly	USFWS

Data sondes will be used to collect continuous field data, with data retrieved from the sondes monthly. Field data will also be collected with handheld meters monthly during sonde calibration. The major cations[1] indicated refer to calcium, sodium, potassium, and magnesium. The aluminum species[2] indicated refer to total aluminum, total dissolved aluminum, organic aluminum, and ionic aluminum (also referred to as exchangeable or labile aluminum).

SPECIAL CONDITIONS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS, (cont'd)

6. Reporting will be conducted as follows. **On or before January 15 of each year,** Project SHARE shall submit to the Department a report that provides a detailed description of the treatment activities conducted at the study sites for that calendar year. The annual report will also include and evaluate the results of all monitoring conducted in that year, a narrative of lessons learned from the results, and Project SHARE's plans for the sites for the next year. *[PCS codes 90199, 90299, 90399, 90499, 90599]*.

   Additionally, if adverse effects are observed or indicated at any of the project sites during the year, Project SHARE will notify the Department's compliance inspector **within one working day of discovery**. As necessary or as instructed by the Department, Project SHARE will also notify the organizations noted below, requesting input on appropriate responses to discovered effects. The advisory group shall consist of: the Maine Department of Marine Resources (Joan Trial, Ernie Atkinson); the Maine Department of Inland Fisheries and Wildlife (Greg Burr, Rick Jordan, Merry Gallagher); the US Fish and Wildlife Service (Robert Dudley, Wende Mahaney, Scott Craig); the University of Maine (Steve Norton), NOAA Fisheries (Dan Kircheis), Project SHARE (Steve Koenig), and the University of Maine at Machias (William Otto). The advisory group can be amended upon Department approval.

B. NARRATIVE EFFLUENT LIMITATIONS

1. The effluent shall not contain a visible oil sheen, foam or floating solids at any time which would impair the usages designated by the classification of the receiving waters.

2. The effluent shall not contain materials in concentrations or combinations which are hazardous or toxic to aquatic life, or which would impair the usages designated by the classification of the receiving waters.

3. The discharges shall not cause visible discoloration or turbidity in the receiving waters which would impair the usages designated by the classification of the receiving waters.

4. Notwithstanding specific conditions of this permit the effluent must not lower the quality of any classified body of water below such classification, or lower the existing quality of any body of water if the existing quality is higher than the classification.

SPECIAL CONDITIONS

C. UNAUTHORIZED DISCHARGES

The permittee is authorized to discharge only in accordance with: 1) the permittee's General Application for Waste Discharge Permit, accepted for processing on September 1, 2009 and April 14, 2011; 2) the terms and conditions of this permit; and 3) only in areas and with materials and methods approved by this permitting action. Discharges of pollutants from any other point source are not authorized under this permit, and shall be reported in accordance with Standard Condition B(5), *Bypasses*, of this permit.

D. NOTIFICATION REQUIREMENT

In accordance with Standard Condition D, the licensee shall notify the Department of the following:

1. Any substantial change in the volume or character of pollutants being introduced into the receiving water.

2. For the purposes of this section, adequate notice shall include information on:
   a. The quality or quantity of pollutants introduced to the receiving water; and
   b. Any anticipated impact of the change in the quantity or quality of the pollutants to be discharged to the receiving water.

E. MONITORING AND REPORTING

The permittee shall conduct a monitoring program as described in Permit Special Condition A.4 and Fact Sheet Section 2.h and report information to the Department as described in Permit Special Condition A.5 and Fact Sheet Section 2.i. **Annual reports shall be submitted to the Department on or before January 15 of each year.** A signed copy of all reports required herein shall be submitted to the Department assigned compliance inspector (unless otherwise specified by the Department) and to the permitting staff at the following addresses, respectively:

Department of Environmental Protection
Bureau of Land and Water Quality
Division of Water Quality Management Compliance Staff
106 Hogan Road
Bangor, Maine 04401

Department of Environmental Protection
Bureau of Land and Water Quality
Division of Water Quality Management Permitting Staff
17 State House Station
Augusta, Maine 04333-0017

SPECIAL CONDITIONS

F. SCHEDULE OF COMPLIANCE: Subsequent Study Phases

Beginning upon issuance of this Experimental Permit and lasting through its effective term, the permittee is authorized to conduct the water quality improvement project described herein in the specified tributaries to Dead Stream and Bowles Stream. **Upon attainment of sufficient funding, support from its partners, and application to and written approval from the Department,** the permittee is authorized to conduct the water quality improvement project described herein in the specified tributaries to Honeymoon Brook and/or the upper Crooked River. The permittee may recommend modifications to the proposed project for later phases based on lessons learned in the initial phase. The permittee shall review all proposed in-stream clam shell deposition areas with MDIFW regional fisheries biologists **prior to treatment** and shall provide any input received to the Department.

G. REOPENING OF PERMIT FOR MODIFICATIONS

Upon evaluation of the tests results or monitoring requirements specified in Special Conditions of this permitting action, new site specific information, or any other pertinent test results or information obtained during the term of this permit, the Department may, at any time and with notice to the permittee, modify this permit to; 1) include effluent limits necessary to control specific pollutants or whole effluent toxicity where there is a reasonable potential that the effluent may cause water quality criteria to be exceeded, (2) require additional effluent and or ambient water quality monitoring if results on file are inconclusive; or (3) change monitoring requirements or limitations based on new information including, but not limited to, new information from ambient water quality studies of the receiving water.

H. SEVERABILITY

In the event that any provision, or part thereof, of this license is declared to be unlawful by a reviewing court, the remainder of the license shall remain in full force and effect, and shall be construed and enforced in all respects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

MAINE POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT
AND
MAINE WASTE DISCHARGE LICENSE

EXPERIMENTAL PERMIT FACT SHEET MODIFICATION

Date: April 15, 2011
Revised: May 16, 2011

MEPDES PERMIT NUMBER #ME0002704
MAINE WDL NUMBER #W-009049-5Z-B-M

NAME AND ADDRESS OF APPLICANT:

Project Share
14 Boynton Street
Eastport, Maine 04631

COUNTY: WASHINGTON

NAME AND ADDRESS WHERE DISCHARGE OCCURS: Tributaries of Dead Stream, Bowles Stream, Honeymoon Brook, and the Upper Crooked River, T37 MD, T31 MD, and T30 MD, Maine

RECEIVING WATER CLASSIFICATION: Class A, Class AA

COGNIZANT OFFICIAL AND TELEPHONE NUMBER: Mr. Mark Whiting, Maine DEP DEA
mark.c.whiting@maine.gov
(207) 356-5977

1. APPLICATION SUMMARY

Application: The applicant has applied to modify experimental Maine Pollutant Discharge Elimination System (MEPDES) Permit #ME0002704 / Maine Waste Discharge License (WDL) #W-009049-5Z-A-N, which was issued on November 30, 2009, for a five-year term. The experimental MEPDES Permit / Maine WDL approved a water quality improvement project in several streams that form the headwaters of the Machias River in Washington County, Maine. The project involves the deposition of clam shells in and adjacent to study streams as a calcium source to attempt to mitigate for episodic acidification of streams, low buffering capacity, low calcium, high aluminum, poor fish conditions, low freshwater and early marine survival, and occasional fish kills in salmonid populations in tributaries to Dead Stream, Honeymoon Brook, and the upper Crooked River in Townships 37, 31, and 30. The permitting action established operational, monitoring, and reporting requirements. Information and data obtained will be used to assess the potential for larger scale water quality improvement projects of similar nature. The subject streams are all classified as Class A waters with watersheds of less than ten square miles.

2. PERMIT SUMMARY

a. Regulatory: On January 12, 2001, the Department received authorization from the U.S. Environmental Protection Agency (USEPA) to administer the National Pollutant Discharge Elimination System (NPDES) permit program in Maine, excluding areas of special interest to Maine Indian Tribes. On October 30, 2003, after consultation with the U.S. Department of Justice, USEPA extended Maine's NPDES program delegation to all but tribally owned discharges. That decision was subsequently appealed. On August 8, 2007, a panel of the U.S. First Circuit Court of Appeals ruled that Maine's environmental regulatory jurisdiction applies uniformly throughout the State. From January 12, 2001 forward, the program has been referred to as the MEPDES program and MEDEP has issued joint MEPDES Permits and Maine WDLs.

Maine law, 38 M.R.S.A. Section 362-A, Experiments and Scientific Research in the Field of Pollution and Pollution Control states, "*Notwithstanding any other law administered or enforced by the department, the board is authorized to permit persons to discharge, emit or place any substances on the land or in the air or waters of the State, in limited quantities and under the strict control and supervision of the commissioner or the commissioner's designees, exclusively for the purpose of scientific research and experimentation in the field of pollution and pollution control. The research and experimentation conducted under this section is subject to such terms and conditions as the board determines necessary in order to protect the public's health, safety and general welfare, and may be terminated by the board or commissioner at any time upon 24 hours' written notice.*"

b. Terms and Conditions - This permitting action is similar to the November 30, 2009 MEPDES Permit / Maine WDL in that it is carrying forward all previous terms and conditions with a few exceptions. This permitting action is different in that, in response to lessons learned during the first year, it is:

1. adding an additional treatment site and monitoring areas on Bowles Stream, Class AA;
2. expanding one treatment area and eliminating bagging on another area on Dead Stream; and
3. allowing for use of other types of shells.

c. History: The most recent licensing and regulatory actions include the following:

August 1, 2008 – The Department reviewed and approved as a deminimus pollutant discharge, Project Share's pilot study of experimental calcium enhancement in the Machias River watershed. The pilot study involved placement of a contained quantity of clam shells in five streams. The purpose of the study was to determine degradation rates and ambient water chemistry changes for use in designing future larger scale projects to enhance buffering capacities in waters experiencing significant effects from acid rain.

2. PERMIT SUMMARY (cont'd)

June 24, 2009 – Project Share submitted to the Department a report of the findings of the 2008 pilot study. The results indicated that the shells dissolved rapidly, but that the small amounts used did not have a detectable effect on downstream water chemistry. Project Share viewed the pilot study as a success, indicating the potential for use of lessons learned in larger water quality improvement efforts.

November 30, 2009 – The Department approved MEPDES Permit #ME0002704 / Maine WDL #W-009049-5Z-A-N for Project Share for an experimental discharge permit for placement of clam shells in tributaries of up to three streams in the Machias River watershed to investigate the feasibility of reversing effects from episodical acidification of the streams and improving water quality and habitat value for salmonids. The MEPDES Permit / Maine WDL was issued for a five-year term.

January 24, 2011 – Project SHARE submitted its annual report covering the first year of the water quality improvement project covered by MEPDES Permit #ME0002704 / Maine WDL #W-009049-5Z-A-N. A limited project was conducted in 2010, with results demonstrating immediate but localized improvements in water quality following clam shell applications.

March 31, 2011 – Project SHARE submitted an application to modify its MEPDES Permit / Maine WDL., as described in Fact Sheet Section 2.b above. The modification application was assigned MEPDES Permit #ME0002704 / Maine WDL #W-009049-5Z-B-M.

c. <u>The Permittee and Partners</u>:

Project SHARE is a public-private partnership that was formed to oversee collaborative salmon recovery issues in the downeast Maine salmon rivers. Project Share's partners include the US Fish and Wildlife Services, the Washington County Soil and Water Conservation Service, the Downeast Resource, Conservation & Development (RC&D) Council, the Natural Resource Conservation Service (NRCS), the Maine Department of Marine Resources Bureau of Sea Run Fisheries and Habitat, NOAA Fisheries Service, Maine DEP Division of Environmental Assessment, other natural resource agencies, private land owners, and grass-roots watershed councils.

d. <u>Description of Problem</u>:

Maine is known for its clean rivers and streams with high water quality and habitat values. However, brook trout and Atlantic salmon populations are suffering from the cumulative effect of several stressors, including fishing pressure, competition from invasive species, habitat degradation, and effects from global climatic change. Additionally, some of the best brook trout and Atlantic salmon habitats are in parts of Maine with documented acid rain impacts. The acidification of freshwaters in Maine is actually influenced by a combination of processes, namely (1) the impact of decades of acid rain, (2) partial recovery from acid rain with cation storage in soils (and less export to surface waters), (3) loss of cations due to

2. PERMIT SUMMARY (cont'd)

repeated forest harvests, and (4) storage of cations in new biomass during the regrowth of forests (and again less export of cations to surface waters). These factors have had a profound and widespread impact on large parts of eastern North America (Jeziorski et al 2008). Using a database of sediment cores from 770 Eastern North American lakes, the authors conclude that many of these systems have lost so much calcium that they have passed critical thresholds (2.0 mg/L Ca) needed to support normal aquatic communities. Salmonids are known to have narrow tolerances for water quality and this issue is the impetus for Project SHARE's application for an experimental permit for water quality improvements.

Water quality problems from the combined acidification issues include the episodic acidification of streams, low buffering capacity, low calcium, high aluminum, poor fish condition, low freshwater and early marine survival, and occasional fish kills. These are the same issues that have been identified as contributing factors to the lack of salmon recovery in Maine (Dill et al 2002). Wild Atlantic salmon are on the brink of extinction in the United States (WWF 2001). Both freshwater and marine survival are very low. We are currently not producing enough fish to sustain our endangered Maine populations. Today Atlantic salmon in Maine are surviving only because of a massive hatchery and stocking program. Maine stocks millions of salmon fry, parr, and smolts each year and reportedly gets a return of 30-60 fish in the eight federally listed rivers.

There are at least three toxic effects that Project SHARE believes are currently limiting fisheries in the downeast area. These are chronic or episodic acidity, very low calcium levels, and exchangeable Al (also called "labile Al" or "ionic Al" by some authors). These three effects interact with each other in complicated ways. For instance, increasing Ca will boost alkalinity and pH, and a higher pH will reduce toxic Al. Fact Sheet Attachment A contains plotted exchangeable Al (Alx) data for several Crooked River sites and some tributary sites for a single sample date in June 2008 during baseflow conditions. The pH values during this period were around 6.0 for the mainstem (±0.2 pH units), while some of the tributaries had pH values in the low 5's. While pH in the mainstem remained within healthy limits, Alx values are highly variable and range from less than 10 (probably harmless) to values in the 20's (stressful, with some gill damage evident), to the 30's (gill damage is bad enough to be lethal to some smolts making a sea water transition), to values above 50 (a paralethal condition, fish are impaired and some fish will die depending on how long the conditions last), to values above 60 (lethal, death is expected within days or hours) (McCormick & Monette 2006). The saving grace for the Crooked River is that Alx is not lethal unless the pH is below 6.0, which mostly happens during high flow events. Calcium is a third water quality parameter that indicates trouble for fish. Calcium concentrations at these same sites ranged from 0.83-1.74 mg/L. All are below thresholds (greater than 2.5 mg/L) where we would expect brook trout to experience catastrophic reproductive failure (Russ Danner, MDIFW, unpublished experimental results). These are also well below the thresholds needed to sustain lake zooplankton (Jeziorski et al 2008). Since the conditions (Fact Sheet Attachment A, Aluminum Results) represent summer baseflow conditions, water quality would be expected to be worse during high flows when pH and temperature are lower and total Al and Alx are higher.

2. PERMIT SUMMARY (cont'd)

In its 2008 Pilot Study, Project SHARE collected data in five streams that demonstrated that pH goes through a daily cycle with higher pH during the day due to photosynthesis that removes carbon dioxide and lower pH at night due to respiration that releases carbon dioxide. They also observed large scale dips in pH due to heavy rainstorms that dilute stream alkalinity and carry organic acids from soil runoff into the streams. Calcium, pH and alkalinity are directly related to toxic exchangeable aluminum. All forms of aluminum increase as pH falls below pH 7. By increasing the pH, alkalinity, and calcium concentration of streams Project SHARE hopes to minimize the effect of aluminum on fish health.

e. Historical Treatments:

Acid mitigation projects in the United States include both streams and lakes which have been successfully limed in New Hampshire, New York, Massachusetts, Pennsylvania, Maryland, West Virginia, and Virginia. In Canada, acid rain mitigation projects are beginning in Nova Scotia where there are more than 50 rivers with lost or threatened salmon runs (Amiro & Gibson 2006). Limestone is often used as a buffering and calcium source, both for in-stream and terrestrial applications. In general, terrestrial applications are more expensive, use more material, and take longer to have an effect, but persist for longer periods of time between applications. Aquatic treatments often use an automated limestone doser. But limestone silos are very expensive; they require an electrical power source, a computerized dose regulation system, automated stream monitoring, and some kind of application, mixing and delivery system. An alternative to a lime doser is simply to add sand-sized limestone to a stream (e.g., Clayton et al, 1998). Limestone sand has been used in Maine hatcheries to improve the survival and health of brook trout (Russ Danner, MDIFW). The problem with this strategy is that sand-sized particles cause stream bed embeddedness (i.e., the filling of voids between rocks with fine particles), which eliminates habitat for fish eggs and fry, and for the invertebrates that support aquatic food chains. Clam shells (*Mya arenaria*) have been used in Norway and Sweden to buffer acidic streams and to protect salmon spawning beds (Hindar, 2006). Project SHARE reports that clam shells are approximately 90% calcium carbonate. Shell sand has also been used in hatcheries to improve fish health (Rosseland & Skogheim 1986). In stream applications, the large particle size and complicated shape of the shells avoids smothering fish eggs, fry, and invertebrates. The large surface/volume ratio promotes relatively rapid dissolution in acidic water, providing calcium and buffering capacity. The resulting higher, more neutral pH, causes aluminum to precipitate as hydroxides or to be bound in harmless organic complexes. Shells have the additional advantage of having local sources, while limestone must be imported from New Brunswick or southern Maine. Clam shells are a waste product which is now a liability for local seafood processors.

In 2008 the Department authorized Project SHARE to conduct a Pilot Study in Harmon Brook, Kerwin Brook, Lanpher Brook, Dead Stream, and the upper Crooked River. That study involved placement of a maximum of ten, 10-pound mesh bags of clam shells in each of the five streams. The primary focus of the Pilot Study was to verify assumptions that the shells would dissolve rapidly enough to produce a beneficial boost to stream alkalinity and

2. PERMIT SUMMARY (cont'd)

provide adequate calcium nutrition for fish, that the shells can be added to streams without causing embeddedness of the stream and loss of fish and invertebrate habitat, and that the open bags will allow for colonization of macroinvertebrates. The 2008 Pilot Study confirmed the findings of earlier studies in Tunk Stream at the outlet of Spring River Lake (2004) and Downing Bog Stream (2004) that clam shells dissolve at different rates depending on the flow and pH of the receiving waters. Based on this research, Project SHARE projects that the shells in Dead Stream, Honeymoon Brook, and the upper Crooked River will dissolve in 100-200 days. The 2008 Pilot Study yielded results on shell degradation, however it was found that the volume of shells used was too little to affect detectable improvements in water chemistry. In its final report, Project SHARE noted, "*The most important result is that we now know that clam shells will dissolve quickly enough in acidic freshwater that they could be used to change pH, alkalinity and calcium. Also, if added to downeast streams, we can expect to add a second dose of shells within the first year of an experimental liming project. We can also tell that the dose will be large, involving tons of clam shells per stream. This application will have to be spread out thinly in order to not fill in our small tributaries. Because of the large application area, we will probably want multiple sites to minimize filling of the stream bed.*" In the 2004 studies, the pH values of Tunk Stream and Downing Bog Stream were found to be 6.2 su and 5.4 su respectively. In the 2008 Pilot Study, pH values in the five streams were found to be in the healthy 6.0-7.0 su range during baseflow periods. However, the pH in all streams was found to drop during storm events, with three of the streams having pH values less than 5 su for several weeks, a level that is known to be toxic to salmonids.

In 2010, the project was conducted at a single site on Dead stream at the 55-50-0 Road. Project SHARE indicated, "*water quality improved immediately after each* (of three) *application*(s) *and settled down to a 0.5 pH unit increase over baseflow values by the end of the field season. The effect was mostly local with very little noticeable effect farther downstream at the 58-00-0 Rd.*". Based on this, Project SHARE proposed several project modifications, contained in this permitting action.

f. <u>Project Proposal</u>:

Project SHARE proposes to conduct experimental liming projects in four headwater streams that clearly have acidification problems, providing a source of calcium carbonate to reduce acidity and add buffering capacity to salmon and trout streams affected by acid rain. The project involves tributaries to Dead Stream and Bowles Stream (T31 and T37 MD), Honeymoon Brook (T31 MD), and the upper Crooked River (T30 MD). The first phase of the project targets one fishless tributary, one tributary with brook trout, and one tributary with other minnow species in the Dead Stream –Bowles Lake drainage, in the Old Stream watershed. Subsequent phases may involve two sites on an unnamed tributary to Honeymoon Brook and a single site on an unnamed tributary to the upper Crooked River. The Honeymoon Brook tributary has brook trout, but experienced fish kills in 2008 that was apparently acidification and Alx related. The upper Crooked River tributary maintains downstream salmon and brook trout populations and has occasionally been used for stocking

2. PERMIT SUMMARY (cont'd)

Atlantic salmon fry. Honeymoon Brook is in the Old Stream drainage and the Crooked River flows directly into the Machias River. Project Share proposes to use three application strategies at all project locations: (1) placement of shells directly in the streams for an instantaneous effect, (2) placement of additional shells on the stream banks so that more shells are submerged during high flows to boost the buffering capacity when the stream needs it the most, and finally (3) application of shells and/or limestone to logging roads and roadside ditches at stream crossings to boost the buffering capacity of stormwater runoff. Project SHARE proposes to use aged, clean shells for applications directly in streams or on stream banks for exposure to water during high flows. The amounts of shells to be used at each site were determined from research conducted by Clayton et al (1998) based on the size of the watershed and the predominant pH in the receiving water. Either clean shells and/or limestone gravel will be used on logging roads and in roadside ditches at stream crossings. Treatments are proposed to occur for two years at each site.

Phase 1 study site information. (Coordinates are UTM Zone 19N NAD83). One metric ton is 2,205 lbs.

Study Site	Study Site (Road)	Watershed	Watershed Size	pH	Clam Shells Required (Metric Tons) [1]	Fish Present	Data Sondes	UTM E	UTM N
Dead Stream	55:00:00	Old Stream	236.1 Ha	6.4	1.99 tons	Yes	2	592,761	4,982,518
Dead Stream	55:50:0 West	Old Stream	207.3 Ha	5.1	5.97 tons	No	2	594,727	4,978,322
Bowles Stream	55-38-0	Old Stream	174.0 Ha	6.2	2.00 tons	Yes	2	594,214	4,979,321
Dead Stream	58:00:00 [2]	Old Stream	Downstream water quality site			Yes	1	594,942	4,980,684

1. from Clayton et al 1998
2. a non-treatment site, monitoring only

Phase 2 study site information.

Study Site	Study Site (Road)	Watershed	Watershed Size	pH	Clam Shells Required (Metric Tons) [1]	Fish Present	Data Sondes	UTM East	UTM North
Honeymoon Brook Site 1	09:95:03	Old Stream	218 Ha	5.5	3.7 tons	Yes but	2	596,963	4,976,631
Honeymoon Brook Site 2	10:35:07	Old Stream		same	1.8 tons	fish kill 2008	2	598,023	4,976,838
Upper Crooked	48:30:00	Machias	391 Ha	5.8	7.8 tons	Yes & stocked	2	585,068	4,975,203

Project SHARE has the financial capacity and partner support to pursue the Dead Stream and Bowles Stream study sites at this time. Funding is not yet in place for the Honeymoon Brook and Crooked River study sites. Additionally, Project SHARE wishes to seek further discussion with its partners on these latter study areas because of the proximity of Atlantic salmon populations downstream. Based on this, this permitting action authorizes the described activities in the tributaries to Dead Stream and Bowles Stream upon its effective date pursuant to the requirements established herein. However, the described activities in the

2. PERMIT SUMMARY (cont'd)

tributaries to Honeymoon Brook and the upper Crooked River are only authorized pursuant to the provisions of Permit Special Condition F, which requires Project SHARE to demonstrate adequate funding, partner input and support, and Department review and approval.

g. Project Details:

As proposed in the 2009 MEPDES Permit / Maine WDL, in the first two years of the experimental project, clean clam shells will be collected from old waste heaps (initially donated to Project SHARE by Albert Carver, Inc). This permit modification provides for the use of shells from other species such as mahogany clams, consideration of varying shell sizes and degradation rates in determining necessary amounts to be deposited and timetables for replacement, and addition of a new treatment site on Bowles Stream (55-38-0 Road). Shells will be transported in a 15-cubic yard dump truck to the application sites. The shells will be distributed at stream sites by hand or mechanical devices. Initially, one-half of shells will be placed in erosion control socks, which are mesh bags or tubes, so that shells could be easily removed if needed. The other half of the in-stream application will be scattered on the stream bed and along the stream banks below the seasonal high water mark without bags, to increase the surface area and so that Project SHARE can observe the redistribution of shells by stream currents. Shells will not be bagged at Dead Stream site 55-50-0 due to the volume of shells involved at that site. Because of the amount of shell (1-2 dump truck loads) and the small size of headwater streams, the shells will have to be spread some distance downstream. The linear application increases the contact time of the stream water with the shell (it has to pick up enough bicarbonate to change the buffering capacity and raise the pH). The use of several sites (two on the Honeymoon Br tributary) or tributaries (two tributaries on Dead Stream and one on Bowles Stream) is to avoid abrupt transitions in water chemistry which could be harmful for fish. Project SHARE expects shells will have to be reapplied in the stream twice each year when smaller sized clamshells are used to replace shell mass that is lost to dissolution. The first applications for Dead Stream were on July 20, August 3, and September 21, 2010. Additional clean shells were and will be applied to the stream banks below the seasonal high water mark. These might also have to be reapplied after each major storm. Project SHARE expects that the shells will be redistributed downstream by the current, thereby increasing the treatment area and reducing the pH change per stream km. Limestone gravel or clean shells will be applied directly to road surfaces and roadside ditches. Project SHARE expects terrestrial applications will last for decades. The stream applications will likely have to be repeated, two per year.

Project SHARE's hypothesis is that clam shells will increase fish density and health (fish condition index) in and below the applications areas. Project SHARE views success as restoring fish to stream reaches that are currently fishless, improving the health of fish already in residence, increasing the diversity and abundance of aquatic macroinvertebrates, maintaining Ca:H rations above 10, and providing the necessary information to more accurately calculate application rates. Potential negative impacts could include mixing zone toxicity and aggressive blooms of algae due to possible release from toxic effects, though

2. PERMIT SUMMARY (cont'd)

neither of which has been reported for these kinds of projects (Clair & Hindlar 2005). During the life of the project, Project SHARE will submit annual reports to the Department as described in Permit Special Condition A.6 and Fact Sheet Section 2.i. If successful, Project SHARE will seek approval to expand the project downstream to the middle and lower portions of the watershed.

Project SHARE expects that shell additions will increase stream pH above 6.0 su and possibly above 7.0 su, depending on stream flows. Because the solubility of calcium carbonate declines exponentially above pH 7.0 su, Project SHARE does not expect treatment site stream pHs to get much above pH 7.2 su. Project SHARE notes that a pH range of 6.0-7.6 su is common in the Machias and Penobscot Rivers and among many tributaries in their drainages. Though a pH near 8.0 su would be well within the tolerance ranges for salmon and trout, Project SHARE intends to limit stream pH values to 7.6 su or less to avoid potential harm to less tolerant species.

As dissolution is dependent upon stream flow, temperature, and pH, all three of which being affected by weather, the required application rates are approximate. Based on experiments in Tunk Stream, Downing Bog Stream, and in a 2008 pilot project, Project SHARE expects shell dissolution in 100-200 days.

The two Dead Stream tributaries are variable in width, but have a mean width of approximately 4-feet. Based on site conditions, Project SHARE intends to apply 1.99 metric tons (4.3 m^3) to the 55-00-0 road tributary and 5.97 metric tons (12.8 m^3) to the 55-50-0 road tributary. Bowles Stream is a larger and more perennial stream, with a more moderate pH (baseflow pH around 6.0 standard units), compared to the un-named tributary. Two metric tons (4.3 m^3) will be applied to the Bowles Stream 55-38-0 road site. One metric ton (1,000 kg) of clam shells occupies 2.15 m^3. The erosion control socks that Project SHARE intends to use to enclose a portion of the in-stream shell deposits, are 18-inches wide. In order to be moveable if necessary, Project SHARE will limit the length of the tubes to 2-feet long, which equates to 102 pounds each. The Dead Stream 55-00-0 road site previously had half of its 1.99 metric tons of shells placed in net bags, covering 60 square feet (1.5-ft x 40-ft). Of the remaining shells, half were scattered loosely on the bottom at a depth of 0.5-inches x 27-inches wide x 420 linear feet, covering 945 square feet of stream bottom, and half were scattered on the stream banks. The total stream bottom coverage was 1,005 square feet. In the 2011 project modification, Project SHARE will expand the 55-00-0 site treatment area from 200 meters to 800 meters in length to allow for greater stream water / shell contact time and calcium carbonate entrainment. The application rate will remain as above, with shells spread thinner to occupy the greater length. As described above, shells for the Dead Stream 55-50-0 road site will not be placed in net bags due to the volume of shells involved. The deposited shells will be scattered loosely on the bottom at a depth exceeding the previously planned 0.5-inches x 27-inches wide x 1,348 linear feet, covering 3,033 square feet of stream bottom, and half will be scattered on the stream banks. The total stream bottom coverage will be 3,225 square feet. For the two sites, the total Dead Stream bottom coverage would entail approximately 4,230 square feet. The Bowles Stream site was added to better address

2. PERMIT SUMMARY (cont'd)

the needs of the large Dead Stream watershed. The Bowles Stream 55-38-0 road site will have half of its 2.0 metric tons of shells placed in net bags, covering 60 square feet (1.5-ft x 40-ft). Of the remaining shells, half will be scattered loosely on the bottom at a depth of 0.5-inches x 27-inches wide x 420 linear feet, covering 945 square feet of stream bottom, and half will be scattered on the stream banks. The total stream bottom coverage will be 1,005 square feet. It is anticipated that a similar sized area will be covered each time Project SHARE replenishes the sites with new shells. All distances are approximate and subject to site conditions.

If funding, partner support, and Department approval are successful, Project SHARE's two proposed Honeymoon Brook application sites would occupy approximately 3,015 square feet of stream bottom combined, distributed between the two sites as follows. Because of the different sizes of the two sections of stream, the 5.5 metric tons of shells will likely be divided with 3.7 MT at Site 1 and 1.8 MT at Site 2. For Site 1, half of the 3.7 MT will be placed in net bags, covering 120 square feet (1.5-ft x 80-ft). Of the remaining shells, half will be scattered loosely on the bottom at a depth of 0.5-inches x 27-inches wide x 840 linear feet, covering 1,890 square feet of stream bottom, and half will be scattered on the stream banks. The total stream bottom coverage for Site 1 will be 2,010 square feet. For Site 2, half of the 1.8 MT will be placed in net bags, covering 60 square feet (1.5-ft x 40-ft). Of the remaining shells, half will be scattered loosely on the bottom at a depth of 0.5-inches x 27-inches wide x 420 linear feet, covering 945 square feet of stream bottom, and half will be scattered on the stream banks. The total stream bottom coverage for Site 2 will be 1,005 ft^2.

For the upper Crooked River Site, half of the 7.8 MT will be placed in net bags, covering 252 square feet (1.5-ft x 168-ft). Of the remaining shells, half will be scattered loosely on the bottom at a depth of 0.5-inches x 27-inches wide x 1,764 linear feet, covering 3,969 square feet of stream bottom, and half will be scattered on the stream banks. The total stream bottom coverage for the upper Crooked River Site will be 4,221 square feet.

h. Monitoring

Project SHARE will monitor pH, alkalinity, conductivity, dissolved oxygen (DO), water temperature, stream flow, and depth above and below all application sites. In addition, at Dead Stream, Project SHARE will monitor below the confluence of the treatment tributaries at the 58-00-0 Road. Data sondes will be used to collect continuous field data above and below the treatment sites. Field data will also be collected with hand held meters monthly during sonde calibrations for instant feedback on pH, alkalinity, and conductivity. Project SHARE will adjust the shell dose by removing bags of shells if needed to keep the pH below 7.6 (the highest summer pH recorded in the Machias watershed). Grab samples will be taken quarterly (May, August, Nov) for laboratory analysis of pH, calcium, DO, carbon, major cations, and aluminum species. Algae and macroinvertebrate sampling will be done by MEDEP DEA. Electrofishing will be done annually below the treatment sites by USFWS and at Dead Stream 58-00-0 by MEDMR. Due to access issues on the logging roads, the sondes will be removed from December – April. The Dead Stream – Bowles Stream Pilot Project is anticipated as a two-year project. Mesh bags will be recovered at the end of the experiment.

2. PERMIT SUMMARY (cont'd)

Summary of monitoring plan showing the role of the SHARE partners.

Measurements	Method	Where	Analysis	When	Who
pH, alkalinity, conductivity, D.O., water temperature, stream flow, depth	Data sonde	All Sites plus 58-000 site	before/after treatment up/down stream	Hourly from May-Nov	USFWS / DEP DEA
pH, alkalinity, conductivity	Field meter & Field titration	All Sites plus 58-000 site	before/after treatment up/down stream	monthly	DEP DEA
pH, dissolved organic carbon, major cations[1], aluminum species[2]	Grab, lab analysis	All Sites plus 58-000 site	before/after treatment up/down stream	Quarterly: May, Aug, Nov	DEP DEA
Algae	Grab	All Sites plus 58-000 site	before/after	yearly	DEP DEA
Macroinvertebrates	Rock riffle bags	All Sites plus 58-000 site	3 per site before/after	yearly	DEP DEA
Fish abundance	E-fishing	Dead, Bowles	before/after treatment up/down stream	yearly	USFWS/DMR
Fish abundance	E-fishing	Crooked	before/after treatment up/down stream	yearly	USFWS
Fish abundance	E-fishing	Honeymoon	before/after treatment up/down stream	yearly	USFWS

Data sondes will be used to collect continuous field data, with data retrieved from the sondes monthly. Field data will also be collected with handheld meters monthly during sonde calibration. The major cations[1] indicated refer to calcium, sodium, potassium, and magnesium. The aluminum species[2] indicated refer to total aluminum, total dissolved aluminum, organic aluminum, and ionic aluminum (also referred to as exchangeable or labile aluminum).

For quality assurance, field equipment will be checked against each other (sonde pH and hand held pH meters) and will be checked against lab data (closed cell pH). Ten percent of all lab samples will be duplicated. Field protocols will follow the accepted Salmon Rivers Protocols for sondes, pH, and conductivity. The LaMotte alkalinity field kit is new to this field season and is not in the Salmon Rivers Protocol. This is essentially a field Gran Titration, which is an accepted EPA method. Project SHARE proposes to use the LaMotte protocols, making sure that reagents are fresh at the beginning of each season. Ten percent of all Gran titrations will be duplicated.

2. PERMIT SUMMARY (cont'd)

i. Reporting:

Because of the naturally paired data, data from above and below application sites can be analyzed with t-tests. Before and after data can be compared using an analysis of variance. As described in Permit Special Condition A.6, on or before January 15 of each year, Project SHARE shall submit to the Department a report that provides a detailed description of the treatment activities conducted at the study sites for that calendar year. The annual report will also include and evaluate the results of all monitoring conducted in that year, a narrative of lessons learned from the results, and Project SHARE's plans for the sites for the next year.

j. Public Information and Involvement:

Project SHARE held a public informational meeting on August 25, 2009 at the University of Maine at Machias to provide information and respond to questions regarding the experimental water quality improvement project. Public notice of Project SHARE's application to the Department was provided as described in Fact Sheet Section 7, below.

Because of the large quantity of shells to be deposited at the treatment sites and different methods of deposition to be employed, the project is anticipated to draw public attention and questions when observed. Project SHARE expects the shells to stain with organic matter and become less obvious within a matter of days following deposition. Even so, Project SHARE will post signs at treatment sites to explain the nature and purpose of the project and to provide contact information for people having questions or concerns.

3. CONDITIONS OF LICENSES

Maine law, 38 M.R.S.A. Section 414-A, requires that the effluent limitations prescribed for discharges, including, but not limited to, effluent toxicity, require application of best practicable treatment (BPT), be consistent with the U.S. Clean Water Act, and ensure that the receiving waters attain the State water quality standards as described in Maine's Surface Water Classification System. In addition, 38 M.R.S.A., Section 420 and Department rule 06-096 CMR Chapter 530, *Surface Water Toxics Control Program,* require the regulation of toxic substances not to exceed levels set forth in Department rule 06-096 CMR Chapter 584, *Surface Water Quality Criteria for Toxic Pollutants,* and that ensure safe levels for the discharge of toxic pollutants such that existing and designated uses of surface waters are maintained and protected.

Maine law, 38 M.R.S.A. Section 362-A, establishes conditions for the discharge, emission, or placement of materials for the purpose of scientific research and experimentation in the field of pollution and pollution control, "*Notwithstanding any other law administered or enforced by the department…*".

4. RECEIVING WATER QUALITY STANDARDS:

Tributaries to Dead Stream, Honeymoon Brook, and the upper Crooked River are classified as Class A waters pursuant to Maine Law, 06-096 CMR 467.5(B), as "*Machias River, tributaries – Class A unless otherwise specified*". Bowles Stream is classified as a Class AA water pursuant to 06-096 CMR 467.5(B)(9). Maine Law, 06-096 CMR 465(2) describes the classification standards for Class A waters and 06-096 CMR 465(1) describes the classification standards for Class AA waters.

5. RECEIVING WATER QUALITY CONDITIONS:

The State of Maine 2010 *Integrated Water Quality Monitoring and Assessment Report* (DEPLW1187), prepared pursuant to Sections 303(d) and 305(b) of the Federal Water Pollution Control Act contains no references to the tributaries of Dead Stream, Honeymoon Brook, the upper Crooked River, or to Bowles Stream, indicating by default that they are not officially known to be impaired waters. However, as noted herein, the study streams have suffered the effects of episodical acidification as demonstrated by impacts on their water chemistries and aquatic biota.

6. DISCHARGE IMPACT ON RECEIVING WATER QUALITY:

This experimental project is intended to reverse the trends noted in Fact Sheet Section 5 above, restoring fish to stream reaches that are currently fishless, improving the health of fish already in residence, increasing the diversity and abundance of aquatic macroinvertebrates, maintaining Ca:H rations above 10, and providing the necessary information to more accurately calculate application rates. The Department notes that the placement of clam and similar shells in the study streams will cover bottom habitat and potentially alter flow dynamics in the streams. However, the Department views these changes as temporary and far outweighed by the potential benefits sought.

As licensed, the Department has determined in the long-term that the existing water uses will be maintained and protected and the discharges will not cause or contribute to the failure of the receiving waters to meet the standards of their classifications.

7. PUBLIC COMMENTS:

Public notice of this application was made in the Ellsworth American newspaper on or about August 13 and August 20, 2009. The Department receives public comments on an application until the date a final agency action is taken on that application. Those persons receiving copies of draft licenses shall have at least 30 days in which to submit comments on the draft or to request a public hearing, pursuant to Chapter 522 of the Department's rules.

8. DEPARTMENT CONTACTS:

Additional information concerning this licensing action may be obtained from and written comments should be sent to:

Robert D. Stratton
Division of Water Quality Management
Bureau of Land and Water Quality
Department of Environmental Protection
17 State House Station
Augusta, Maine 04333-0017

Telephone: (207) 215-1579
Fax: (207) 287-3435
email: Robert.D.Stratton@maine.gov

9. RESPONSE TO COMMENTS:

During the period of April 15, 2011 through May 16, 2011, the Department solicited comments on the proposed draft Experimental Maine Pollutant Discharge Elimination System Permit / Maine Waste Discharge License Modification to be issued to Project SHARE for the proposed discharge. The Department did not receive any comments that resulted in significant revisions to the permit, but made some minor internal revisions. Therefore, no response to comments has been prepared.

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ATTACHMENT A

(Location and Resource Maps)

1. Dead Stream Location Map 2009 (T31, T37)

2. Dead Stream and Bowles Stream Location Map

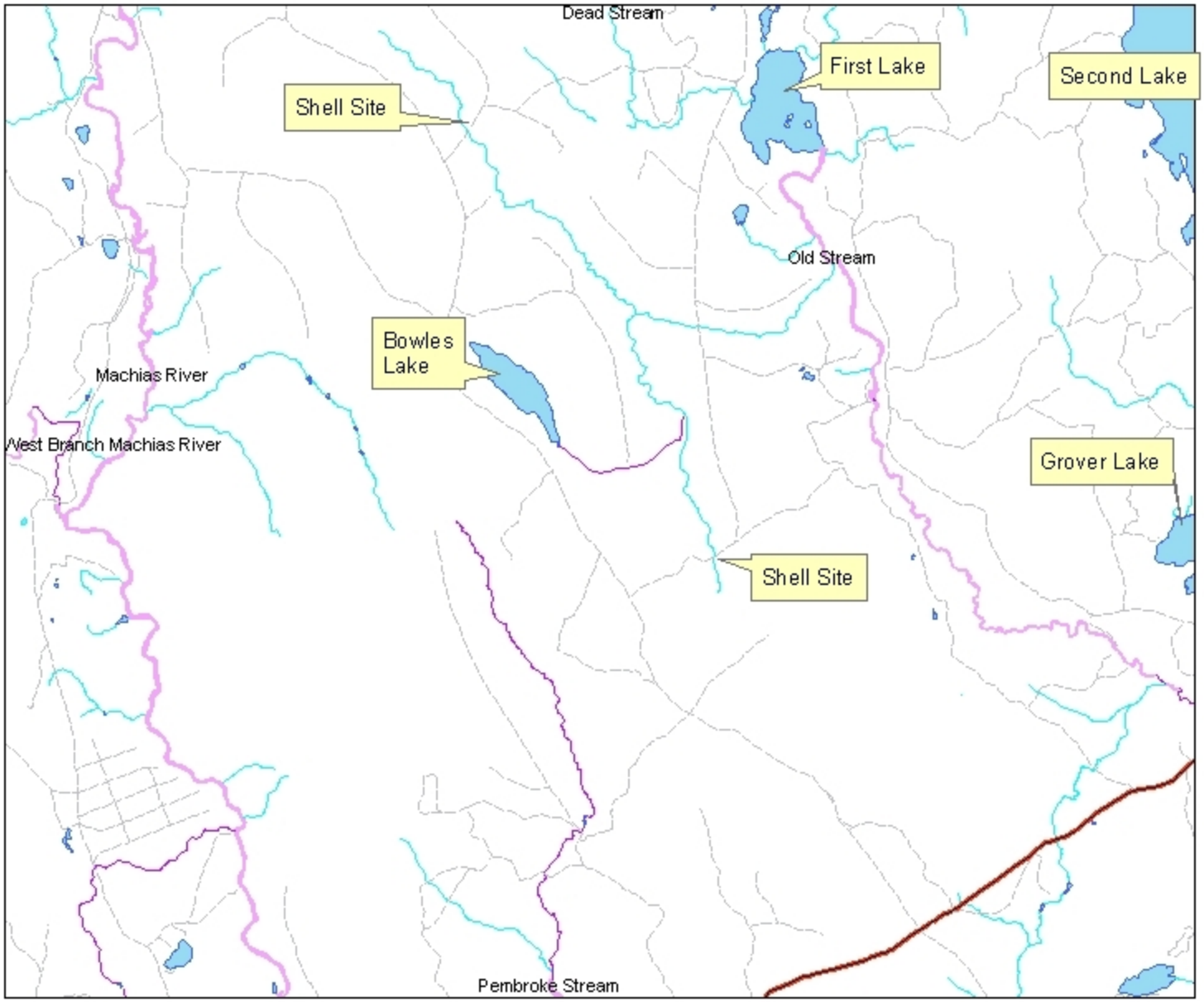
3. Honeymoon Brook Location Map (T31)

4. Honeymoon Brook Study Sites with Sensitive Areas

5. Upper Crooked River Location Map (T30)

6. Upper Crooked River Study Sites with Sensitive Areas

7. Upper Crooked River Chemistry Survey Aluminum Results



Legend

Rivers
- AA
- A
- B
- C

Streams
- AA
- A
- B
- C

Ponds and Lakes

Wastewater_Facilities

Wastewater_Outfalls

Roads

JURISDICTION
- Town Road
- Town Road - Summer
- Town Road - Winter
- State-aided Highway
- State Highway
- Toll Highway
- Private Road
- Reservation Road
- Seasonal Parkway

N

Miles
0 0.25 0.5 1 1.5 2

Dead Stream
T 31 & T37 MD, Maine

Map created by:
Bob Stratton
Division of Water Quality Management
Maine Department of Environmental Protection

DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF MAINE

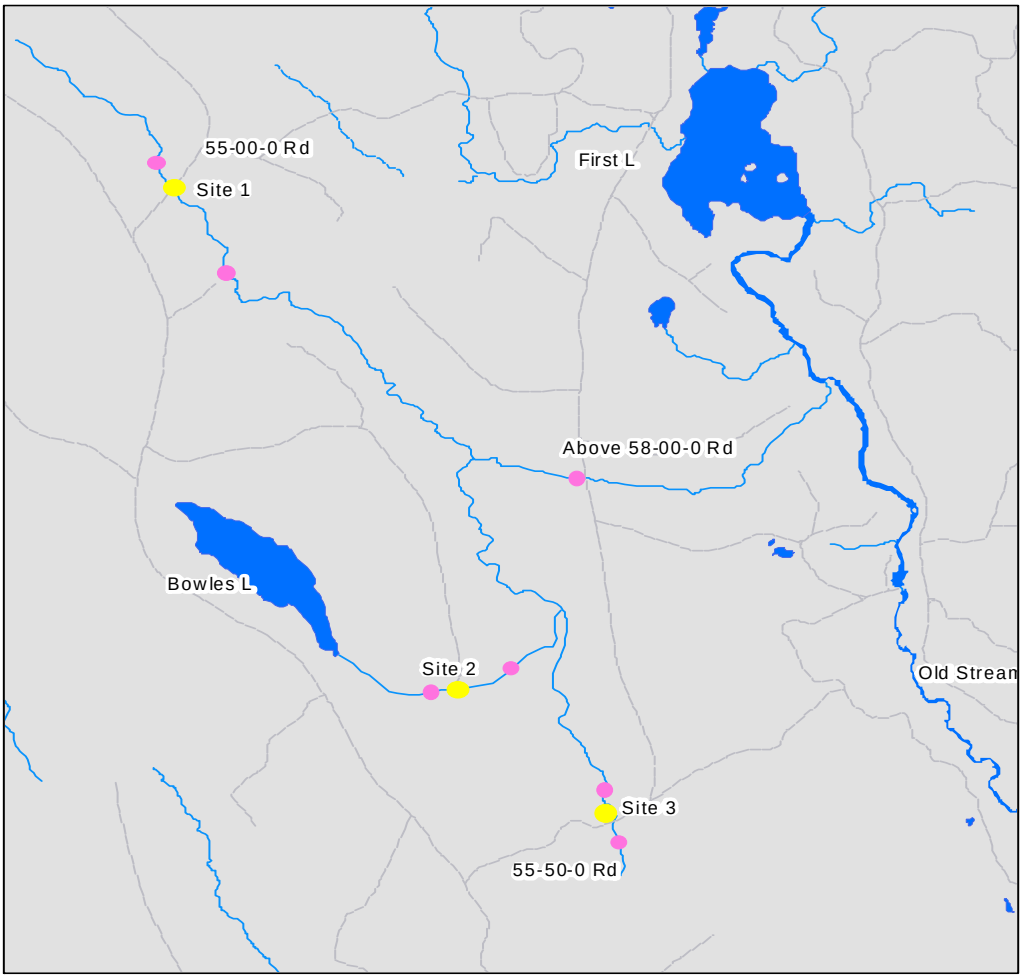


Figure 1. Shell application sites are in yellow, while water quality monitoring sites are bright pink. Sites 1 and 3 were included in the original water quality treatments, while Site 2 is a new proposed site.

Phase 1 study site information. (Coordinates are UTM Zone 19N NAD83). One metric ton is 2,205 lbs.

Study Site	Study Site (Road)	Watershed	Watershed Size	pH	Clam Shells (Metric Tons) [1]	Fish Present	Data Sondes	UTM E	UTM N
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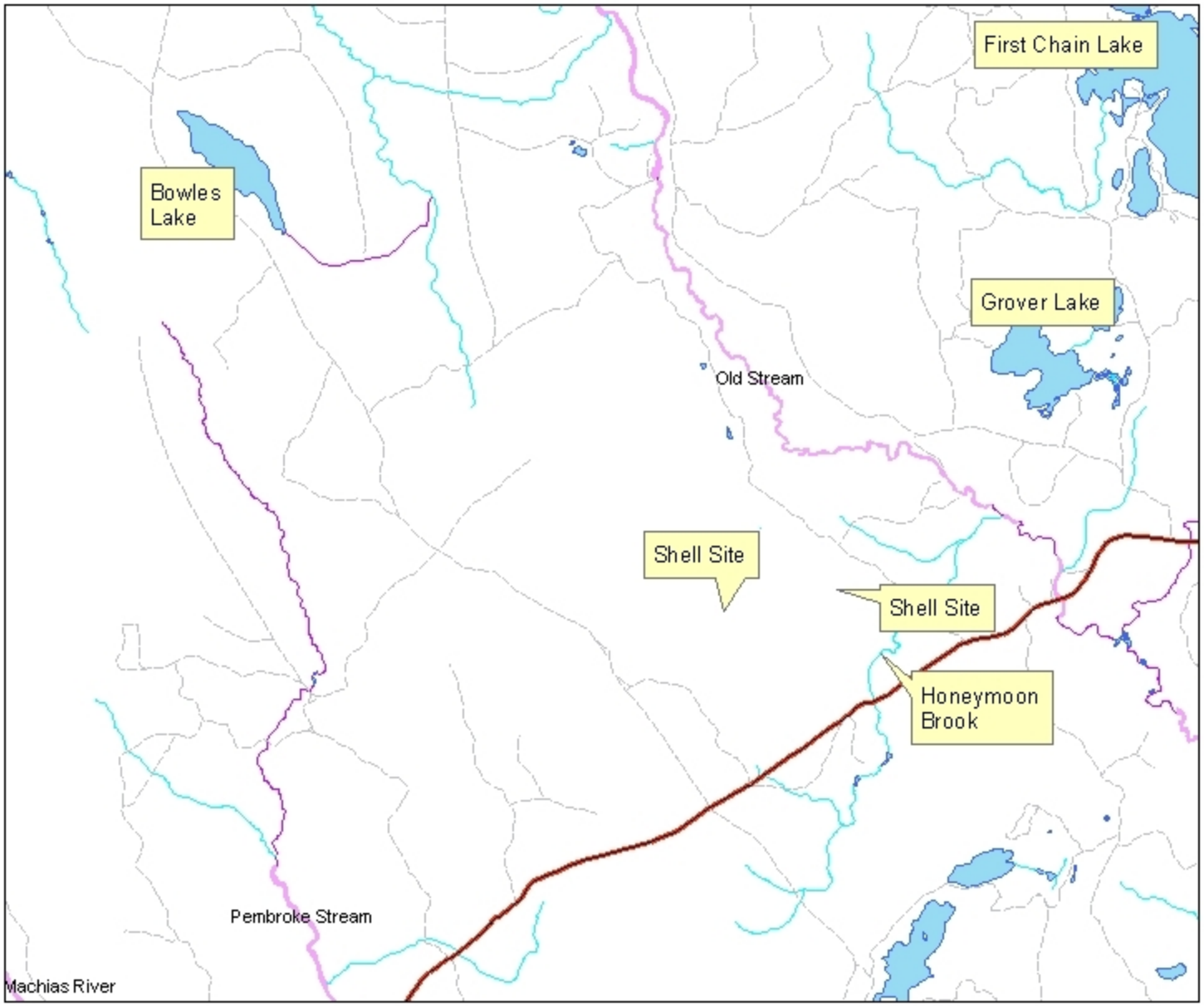
1. from Clayton et al 1998 2. a non-treatment site, monitoring only



Legend

Rivers
- AA
- A
- B
- C

Streams
- AA
- A
- B
- C

Ponds and Lakes

Wastewater_Facilities

Wastewater_Outfalls

Roads

JURISDICTION
- Town Road
- Town Road - Summer
- Town Road - Winter
- State-aided Highway
- State Highway
- Toll Highway
- Private Road
- Reservation Road
- Seasonal Parkway

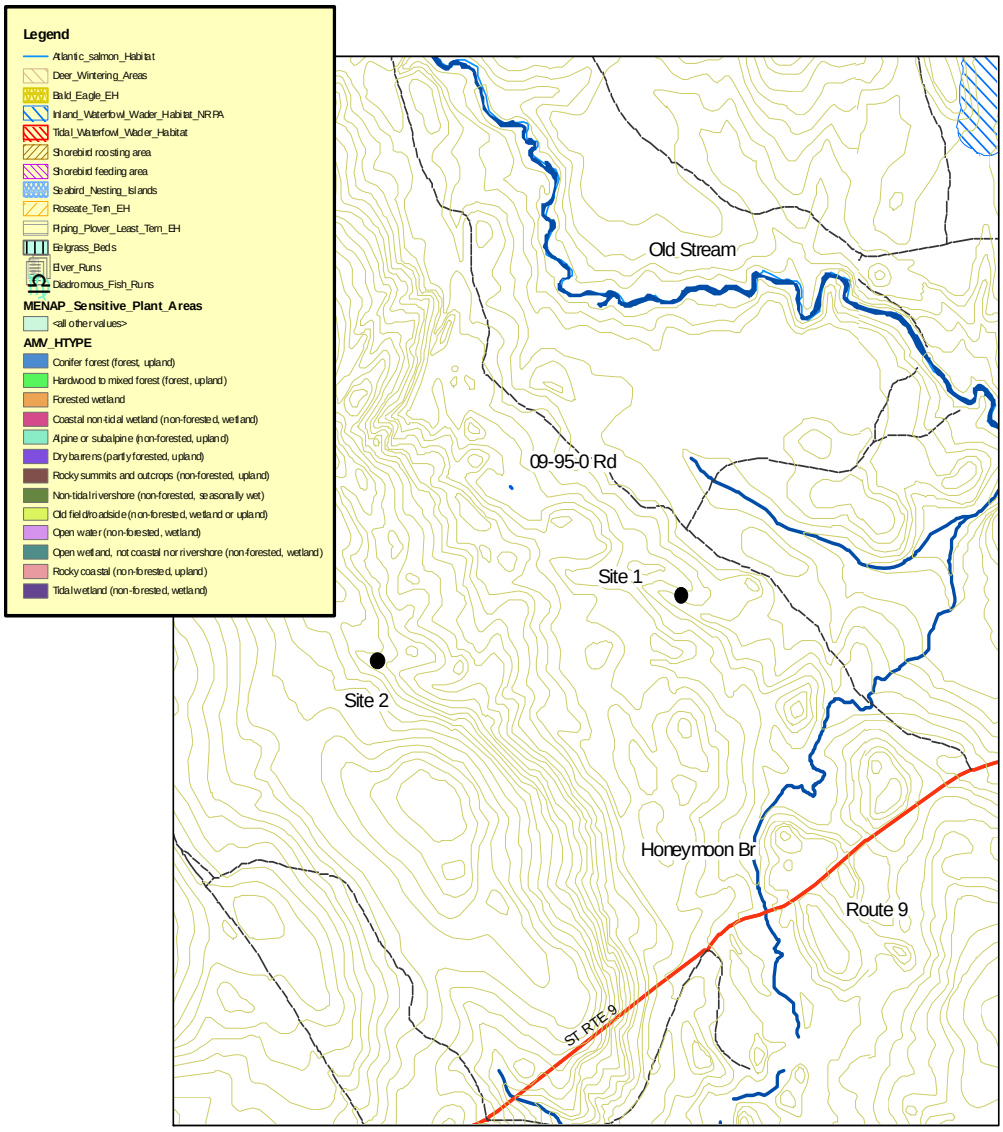
N

Miles
0 0.2 0.4 0.8 1.2 1.6

Honeymoon Brook
T 31 MD, Maine

Map created by:
Bob Stratton
Division of Water Quality Management
Maine Department of Environmental Protection

DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF MAINE

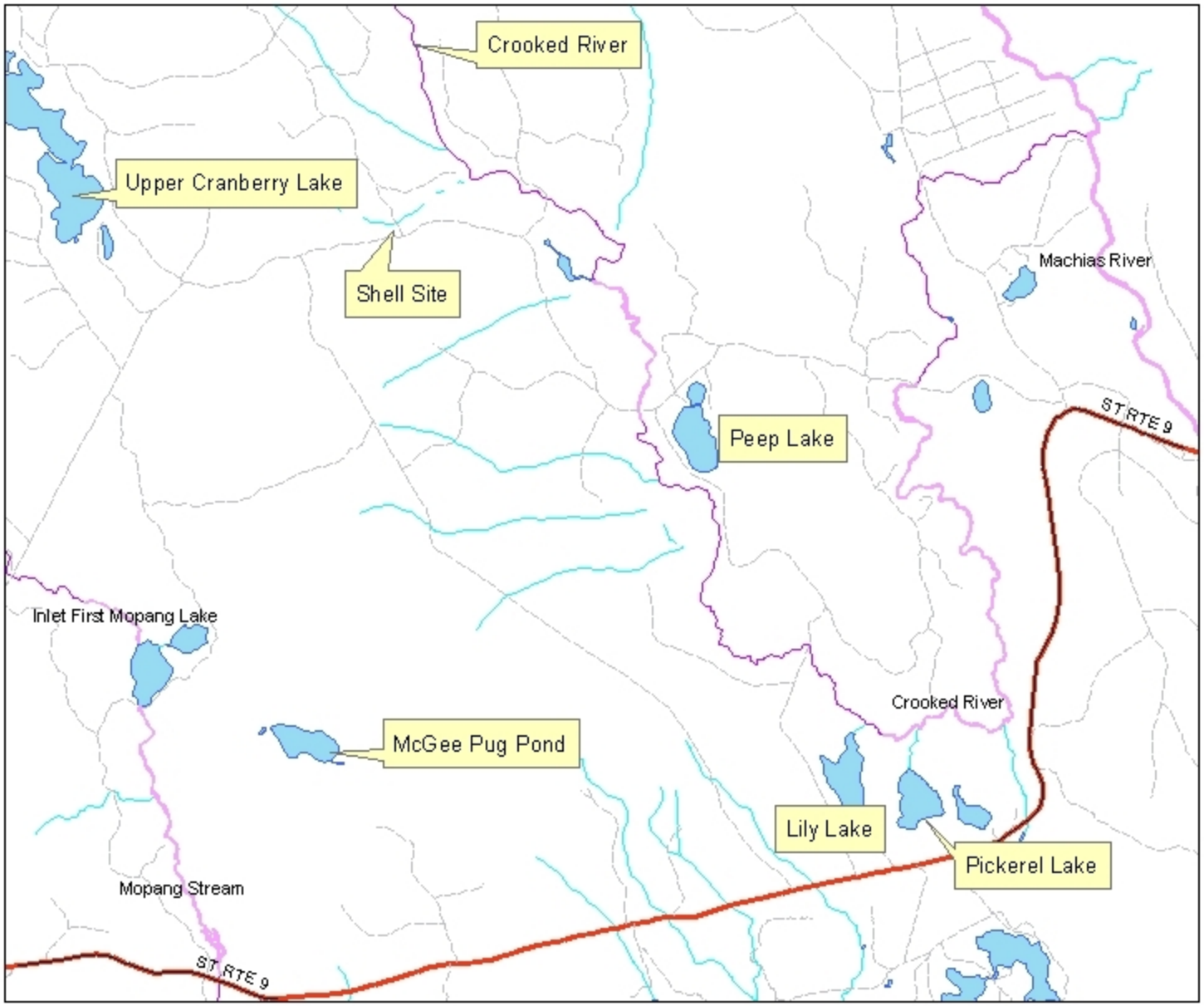


Honeymoon Brook Shell Application Sites
(un-named trib does not show on topo)

Locations of proposed clam shell application sites on an un-named tributary to Honeymoon Brook. The dose was calculated for the lower site (Site 1). The tributary does not show on USGS topographic sheets.

Proposed locations and doses (in metric tons) for Honeymoon Brook tributary clamshell application sites. The dose has been calculated from Clayton et al 1998[1].

Study Site	Study Site (Road)	Watershed	Watershed Size	pH	Clam Shells Required (Metric Tons) [1]	Fish Present	Data Sondes	UTM East	UTM North
Honeymoon Brook Site 1	09:95:03	Old Stream	218 Ha	5.5	3.7 tons	Yes but	2	596,963	4,976,631
Honeymoon Brook Site 2	10:35:07	Old Stream		same	1.8 tons	fish kill 2008	2	598,023	4,976,838



Legend

Rivers
- AA
- A
- B
- C

Streams
- AA
- A
- B
- C

- Ponds and Lakes
- Wastewater_Facilities
- Wastewater_Outfalls

Roads

JURISDICTION
- Town Road
- Town Road - Summer
- Town Road - Winter
- State-aided Highway
- State Highway
- Toll Highway
- Private Road
- Reservation Road
- Seasonal Parkway

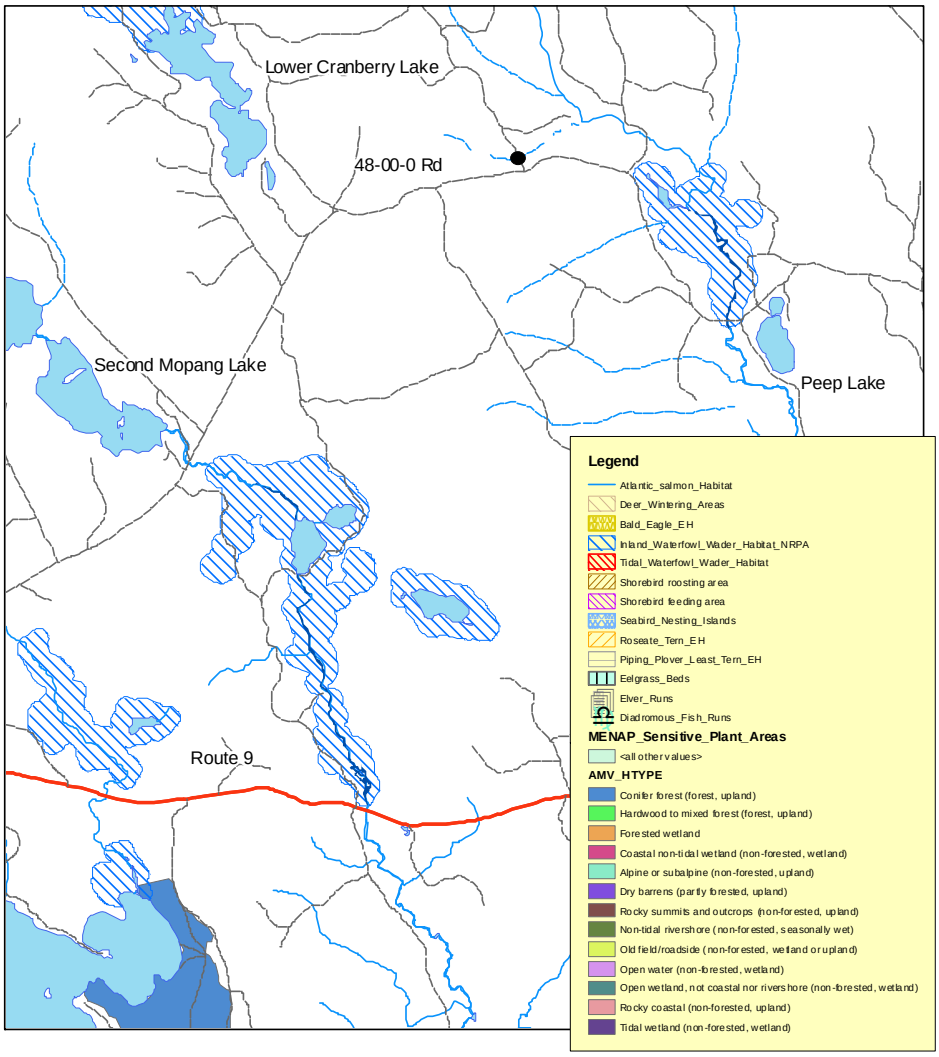
N

Miles
0 0.2 0.4 0.8 1.2 1.6

Upper Crooked River
T 30 MD, Maine

Map created by:
Bob Stratton
Division of Water Quality Management
Maine Department of Environmental Protection

DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF MAINE



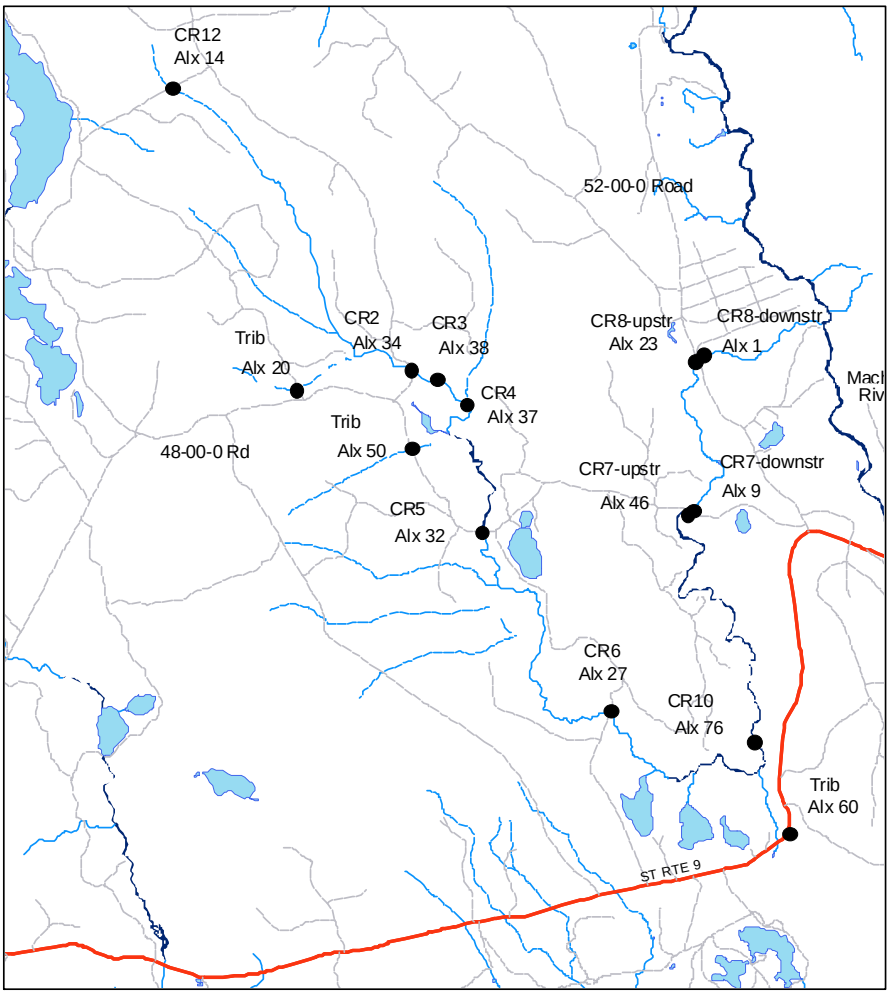
Proposed Shell Site on Un-named Tributary on Upper Crooked River

Kilometers
0 0.5 1 2

Location of proposed single clam shell application site off the 48-30-0 Road on an un-named tributary to the Crooked River.

Proposed locations and doses (in metric tons) for the Crooked River tributary clamshell application site. The dose has been calculated from Clayton et al 1998[1].

Study Site	Study Site (Road)	Watershed	Watershed Size	pH	Clam Shells Required (Metric Tons) [1]	Fish Present	Data Sondes	UTM East	UTM North
Upper Crooked	48:30:00	Machias	391 Ha	5.8	7.8 tons	Yes & stocked	2	585,068	4,975,203



Crooked River SHARE Chemistry Survey
Aluminum Results

0 1 2 4 Kilometers

A map of the Crooked River, one of the better nursery areas in the Machias River drainage for young salmon. This shows lab results for exchangeable Al (Alx) in ug/L during baseflow conditions in June 2008. The Crooked River sites are named with "CR" and a site number. Tributary sites are simply identified as "Trib." The minimum detection limit for Alx is about 10 ug/L so values below this level are not to be taken too literally. Note, Alx values are highly variable and range from less than 10 (probably harmless) to values in the 20's (stressful, with some gill damage evident), to the 30's (gill damage is bad enough to be lethal to some smolts making a sea water transition), to values above 50 (a paralethal condition, fish are impaired and some fish will die depending on how long the conditions last), to values above 60 (lethal, death is expected within days or hours) (McCormick & Monette 2006).

Calcium, pH and alkalinity are directly related to toxic exchangeable aluminum. All forms of aluminum increase as pH falls below pH 7. Alx is not lethal unless the pH is below 6.0. During this period, some of the tributaries had pH values in the low 5's. By increasing the pH, alkalinity, and calcium concentration of streams Project SHARE hopes to minimize the effect of aluminum on fish health.

CONTENTS

A. GENERAL PROVISIONS

1. **General compliance**. All discharges shall be consistent with the terms and conditions of this permit; any changes in production capacity or process modifications which result in changes in the quantity or the characteristics of the discharge must be authorized by an additional license or by modifications of this permit; it shall be a violation of the terms and conditions of this permit to discharge any pollutant not identified and authorized herein or to discharge in excess of the rates or quantities authorized herein or to violate any other conditions of this permit.

2. Other materials. Other materials ordinarily produced or used in the operation of this facility, which have been specifically identified in the application, may be discharged at the maximum frequency and maximum level identified in the application, provided:

(a) They are not

(i) Designated as toxic or hazardous under the provisions of Sections 307 and 311, respectively, of the Federal Water Pollution Control Act; Title 38, Section 420, Maine Revised Statutes; or other applicable State Law; or
(ii) Known to be hazardous or toxic by the licensee.

(b) The discharge of such materials will not violate applicable water quality standards.

3. Duty to comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of State law and the Clean Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

(a) The permittee shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act, and 38 MRSA, §420 or Chapter 530.5 for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.
(b) Any person who violates any provision of the laws administered by the Department, including without limitation, a violation of the terms of any order, rule license, permit, approval or decision of the Board or Commissioner is subject to the penalties set forth in 38 MRSA, §349.

4. Duty to provide information. The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The permittee shall also furnish to the Department upon request, copies of records required to be kept by this permit.

5. Permit actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

6. Reopener clause. The Department reserves the right to make appropriate revisions to this permit in order to establish any appropriate effluent limitations, schedule of compliance or other provisions which may be authorized under 38 MRSA, §414-A(5).

7. Oil and hazardous substances. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities or penalties to which the permittee is or may be subject under section 311 of the Federal Clean Water Act; section 106 of the Federal Comprehensive Environmental Response, Compensation and Liability Act of 1980; or 38 MRSA §§ 1301, et. seq.

8. Property rights. This permit does not convey any property rights of any sort, or any exclusive privilege.

9. Confidentiality of records. 38 MRSA §414(6) reads as follows. "Any records, reports or information obtained under this subchapter is available to the public, except that upon a showing satisfactory to the department by any person that any records, reports or information, or particular part or any record, report or information, other than the names and addresses of applicants, license applications, licenses, and effluent data, to which the department has access under this subchapter would, if made public, divulge methods or processes that are entitled to protection as trade secrets, these records, reports or information must be confidential and not available for public inspection or examination. Any records, reports or information may be disclosed to employees or authorized representatives of the State or the United States concerned with carrying out this subchapter or any applicable federal law, and to any party to a hearing held under this section on terms the commissioner may prescribe in order to protect these confidential records, reports and information, as long as this disclosure is material and relevant to any issue under consideration by the department."

10. Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

11. Other laws. The issuance of this permit does not authorize any injury to persons or property or invasion of other property rights, nor does it relieve the permittee if its obligation to comply with other applicable Federal, State or local laws and regulations.

12. Inspection and entry. The permittee shall allow the Department, or an authorized representative (including an authorized contractor acting as a representative of the EPA Administrator), upon presentation of credentials and other documents as may be required by law, to:

(a) Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
(b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
(c) Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
(d) Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

B. OPERATION AND MAINTENACE OF FACILITIES

1. General facility requirements.

(a) The permittee shall collect all waste flows designated by the Department as requiring treatment and discharge them into an approved waste treatment facility in such a manner as to

maximize removal of pollutants unless authorization to the contrary is obtained from the Department.

(b) The permittee shall at all times maintain in good working order and operate at maximum efficiency all waste water collection, treatment and/or control facilities.

(c) All necessary waste treatment facilities will be installed and operational prior to the discharge of any wastewaters.

(d) Final plans and specifications must be submitted to the Department for review prior to the construction or modification of any treatment facilities.

(e) The permittee shall install flow measuring facilities of a design approved by the Department.

(f) The permittee must provide an outfall of a design approved by the Department which is placed in the receiving waters in such a manner that the maximum mixing and dispersion of the wastewaters will be achieved as rapidly as possible.

2. Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

3. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

4. Duty to mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

5. Bypasses.

(a) Definitions.

(i) Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

(ii) Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

(b) Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs (c) and (d) of this section.

(c) Notice.

(i) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least ten days before the date of the bypass.

(ii) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in paragraph D(1)(f), below. (24-hour notice).

(d) Prohibition of bypass.

(i) Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless:

(A) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
(B) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
(C) The permittee submitted notices as required under paragraph (c) of this section.

(ii) The Department may approve an anticipated bypass, after considering its adverse effects, if the Department determines that it will meet the three conditions listed above in paragraph (d)(i) of this section.

6. Upsets.

(a) Definition. Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(b) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph (c) of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(c) Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(i) An upset occurred and that the permittee can identify the cause(s) of the upset;
(ii) The permitted facility was at the time being properly operated; and
(iii) The permittee submitted notice of the upset as required in paragraph D(1)(f) , below. (24 hour notice).
(iv) The permittee complied with any remedial measures required under paragraph B(4).

(d) Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

C. MONITORING AND RECORDS

1. General Requirements. This permit shall be subject to such monitoring requirements as may be reasonably required by the Department including the installation, use and maintenance of monitoring equipment or methods (including, where appropriate, biological monitoring methods). The permittee shall provide the Department with periodic reports on the proper Department reporting form of monitoring results obtained pursuant to the monitoring requirements contained herein.

2. Representative sampling. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. If effluent limitations are based wholly or partially on quantities of a product processed, the permittee shall ensure samples are representative of times when production is taking place. Where discharge monitoring is required when production is less than 50%, the resulting data shall be reported as a daily measurement but not included in computation of averages, unless specifically authorized by the Department.

3. Monitoring and records.

(a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

(b) Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years, the permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

(c) Records of monitoring information shall include:

(i) The date, exact place, and time of sampling or measurements;
(ii) The individual(s) who performed the sampling or measurements;
(iii) The date(s) analyses were performed;
(iv) The individual(s) who performed the analyses;
(v) The analytical techniques or methods used; and
(vi) The results of such analyses.

(d) Monitoring results must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in the permit.

(e) State law provides that any person who tampers with or renders inaccurate any monitoring devices or method required by any provision of law, or any order, rule license, permit approval or decision is subject to the penalties set forth in 38 MRSA, §349.

D. REPORTING REQUIREMENTS

1. Reporting requirements.

(a) Planned changes. The permittee shall give notice to the Department as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

(i) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or

(ii) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under Section D(4).

(iii) The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan;

(b) Anticipated noncompliance. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

(c) Transfers. This permit is not transferable to any person except upon application to and approval of the Department pursuant to 38 MRSA, § 344 and Chapters 2 and 522.

(d) Monitoring reports. Monitoring results shall be reported at the intervals specified elsewhere in this permit.

(i) Monitoring results must be reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Department for reporting results of monitoring of sludge use or disposal practices.

(ii) If the permittee monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136 or as specified in the permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Department.

(iii) Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Department in the permit.

(e) Compliance schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

(f) Twenty-four hour reporting.

(i) The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance

has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(ii) The following shall be included as information which must be reported within 24 hours under this paragraph.

(A) Any unanticipated bypass which exceeds any effluent limitation in the permit.
(B) Any upset which exceeds any effluent limitation in the permit.
(C) Violation of a maximum daily discharge limitation for any of the pollutants listed by the Department in the permit to be reported within 24 hours.

(iii) The Department may waive the written report on a case-by-case basis for reports under paragraph (f)(ii) of this section if the oral report has been received within 24 hours.

(g) Other noncompliance. The permittee shall report all instances of noncompliance not reported under paragraphs (d), (e), and (f) of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in paragraph (f) of this section.

(h) Other information. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or information.

2. Signatory requirement. All applications, reports, or information submitted to the Department shall be signed and certified as required by Chapter 521, Section 5 of the Department's rules. State law provides that any person who knowingly makes any false statement, representation or certification in any application, record, report, plan or other document filed or required to be maintained by any order, rule, permit, approval or decision of the Board or Commissioner is subject to the penalties set forth in 38 MRSA, §349.

3. Availability of reports. Except for data determined to be confidential under A(9), above, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by State law, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal sanctions as provided by law.

4. Existing manufacturing, commercial, mining, and silvicultural dischargers. In addition to the reporting requirements under this Section, all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Department as soon as they know or have reason to believe:

(a) That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(i) One hundred micrograms per liter (100 ug/l);
(ii) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
(iii) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with Chapter 521 Section 4(g)(7); or
(iv) The level established by the Department in accordance with Chapter 523 Section 5(f).

(b) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following ``notification levels'':

(i) Five hundred micrograms per liter (500 ug/l);
(ii) One milligram per liter (1 mg/l) for antimony;
(iii) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with Chapter 521 Section 4(g)(7); or
(iv) The level established by the Department in accordance with Chapter 523 Section 5(f).

5. Publicly owned treatment works.

(a) All POTWs must provide adequate notice to the Department of the following:

(i) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of CWA or Chapter 528 if it were directly discharging those pollutants.
(ii) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.
(iii) For purposes of this paragraph, adequate notice shall include information on (A) the quality and quantity of effluent introduced into the POTW, and (B) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

(b) When the effluent discharged by a POTW for a period of three consecutive months exceeds 80 percent of the permitted flow, the permittee shall submit to the Department a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans.

E. OTHER REQUIREMENTS

1. Emergency action - power failure. Within thirty days after the effective date of this permit, the permittee shall notify the Department of facilities and plans to be used in the event the primary source of power to its wastewater pumping and treatment facilities fails as follows.

(a) For municipal sources. During power failure, all wastewaters which are normally treated shall receive a minimum of primary treatment and disinfection. Unless otherwise approved, alternate power supplies shall be provided for pumping stations and treatment facilities. Alternate power supplies shall be on-site generating units or an outside power source which is separate and independent from sources used for normal operation of the wastewater facilities.

(b) For industrial and commercial sources. The permittee shall either maintain an alternative power source sufficient to operate the wastewater pumping and treatment facilities or halt, reduce or otherwise control production and or all discharges upon reduction or loss of power to the wastewater pumping or treatment facilities.

2. Spill prevention. (applicable only to industrial sources) Within six months of the effective date of this permit, the permittee shall submit to the Department for review and approval, with or without conditions, a spill prevention plan. The plan shall delineate methods and measures to be taken to prevent and or contain any spills of pulp, chemicals, oils or other contaminates and shall specify means of disposal and or treatment to be used.

3. **Removed substances.** Solids, sludges trash rack cleanings, filter backwash, or other pollutants removed from or resulting from the treatment or control of waste waters shall be disposed of in a manner approved by the Department.

4. **Connection to municipal sewer.** (applicable only to industrial and commercial sources) All wastewaters designated by the Department as treatable in a municipal treatment system will be cosigned to that system when it is available. This permit will expire 90 days after the municipal treatment facility becomes available, unless this time is extended by the Department in writing.

F. DEFINITIONS. For the purposes of this permit, the following definitions shall apply. Other definitions applicable to this permit may be found in Chapters 520 through 529 of the Department's rules

Average means the arithmetic mean of values taken at the frequency required for each parameter over the specified period. For bacteria, the average shall be the geometric mean.

Average monthly discharge limitation means the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month. Except, however, bacteriological tests may be calculated as a geometric mean.

Average weekly discharge limitation means the highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Best management practices ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Composite sample means a sample consisting of a minimum of eight grab samples collected at equal intervals during a 24 hour period (or a lesser period as specified in the section on monitoring and reporting) and combined proportional to the flow over that same time period.

Continuous discharge means a discharge which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities.

Daily discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the day.

Discharge Monitoring Report ("DMR") means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by approved States as well as by EPA. EPA will supply DMRs to any approved State upon request. The EPA national forms may be modified to substitute the State Agency name, address, logo, and other similar information, as appropriate, in place of EPA's.

Flow weighted composite sample means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.

Grab sample means an individual sample collected in a period of less than 15 minutes.

Interference means a Discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(1) Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
(2) Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Maximum daily discharge limitation means the highest allowable daily discharge.

New source means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

(a) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or
(b) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

Pass through means a discharge which exits the POTW into waters of the State in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

Permit means an authorization, license, or equivalent control document issued by EPA or an approved State to implement the requirements of 40 CFR parts 122, 123 and 124. Permit includes an NPDES general permit (Chapter 529). Permit does not include any permit which has not yet been the subject of final agency action, such as a draft permit or a proposed permit.

Person means an individual, firm, corporation, municipality, quasi-municipal corporation, state agency, federal agency or other legal entity.

Point source means any discernible, confined and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged.

Pollutant means dredged spoil, solid waste, junk, incinerator residue, sewage, refuse, effluent, garbage, sewage sludge, munitions, chemicals, biological or radiological materials, oil, petroleum products or byproducts, heat, wrecked or discarded equipment, rock, sand, dirt and industrial, municipal, domestic, commercial or agricultural wastes of any kind.

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Publicly owned treatment works ("POTW") means any facility for the treatment of pollutants owned by the State or any political subdivision thereof, any municipality, district, quasi-municipal corporation or other public entity.

Septage means, for the purposes of this permit, any waste, refuse, effluent sludge or other material removed from a septic tank, cesspool, vault privy or similar source which concentrates wastes or to which chemicals have been added. Septage does not include wastes from a holding tank.

Time weighted composite means a composite sample consisting of a mixture of equal volume aliquots collected over a constant time interval.

Toxic pollutant includes any pollutant listed as toxic under section 307(a)(1) or, in the case of sludge use or disposal practices, any pollutant identified in regulations implementing section 405(d) of the CWA. Toxic pollutant also includes those substances or combination of substances, including disease causing agents, which after discharge or upon exposure, ingestion, inhalation or assimilation into any organism, including humans either directly through the environment or indirectly through ingestion through food chains, will, on the basis of information available to the board either alone or in combination with other substances already in the receiving waters or the discharge, cause death, disease, abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction, or physical deformations in such organism or their offspring.

Wetlands means those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Whole effluent toxicity means the aggregate toxic effect of an effluent measured directly by a toxicity test.

DEP INFORMATION SHEET

Appealing a Commissioner's Licensing Decision

Dated: May 2004 **Contact: (207) 287-2811**

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's (DEP) Commissioner: (1) in an administrative process before the Board of Environmental Protection (Board); or (2) in a judicial process before Maine's Superior Court. This INFORMATION SHEET, in conjunction with consulting statutory and regulatory provisions referred to herein, can help aggrieved persons with understanding their rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

DEP's *General Laws*, 38 M.R.S.A. § 341-D(4), and its *Rules Concerning the Processing of Applications and Other Administrative Matters* (Chapter 2), 06-096 CMR 2.24 (April 1, 2003).

HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written notice of appeal within 30 calendar days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days will be rejected.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner and the applicant a copy of the documents. All the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

WHAT YOUR APPEAL PAPERWORK MUST CONTAIN

The materials constituting an appeal must contain the following information at the time submitted:

1. *Aggrieved Status*. Standing to maintain an appeal requires the appellant to show they are particularly injured by the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error.* Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge.* If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.

5. *All the matters to be contested.* The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.

6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.

7. *New or additional evidence to be offered.* The Board may allow new or additional evidence as part of an appeal only when the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process or show that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2, Section 24(B)(5).

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license file is public information made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.

2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer questions regarding applicable requirements.

3. *The filing of an appeal does not operate as a stay to any decision.* An applicant proceeding with a project pending the outcome of an appeal runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will formally acknowledge initiation of the appeals procedure, including the name of the DEP project manager assigned to the specific appeal, within 15 days of receiving a timely filing. The notice of appeal, all materials accepted by the Board Chair as additional evidence, and any materials submitted in response to the appeal will be sent to Board members along with a briefing and recommendation from DEP staff. Parties filing appeals and interested persons are notified in advance of the final date set for Board consideration of an appeal or request for public hearing. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision. The Board will notify parties to an appeal and interested persons of its decision.

II. APPEALS TO MAINE SUPERIOR COURT

Maine law allows aggrieved persons to appeal final Commissioner licensing decisions to Maine's Superior Court, see 38 M.R.S.A. § 346(1); 06-096 CMR 2.26; 5 M.R.S.A. § 11001; & MRCivP 80C. Parties to the licensing decision must file a petition for review within 30 days after receipt of notice of the Commissioner's written decision. A petition for review by any other person aggrieved must be filed within 40-days from the date the written decision is rendered. The laws cited in this paragraph and other legal procedures govern the contents and processing of a Superior Court appeal.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, contact the DEP's Director of Procedures and Enforcement at (207) 287-2811.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.