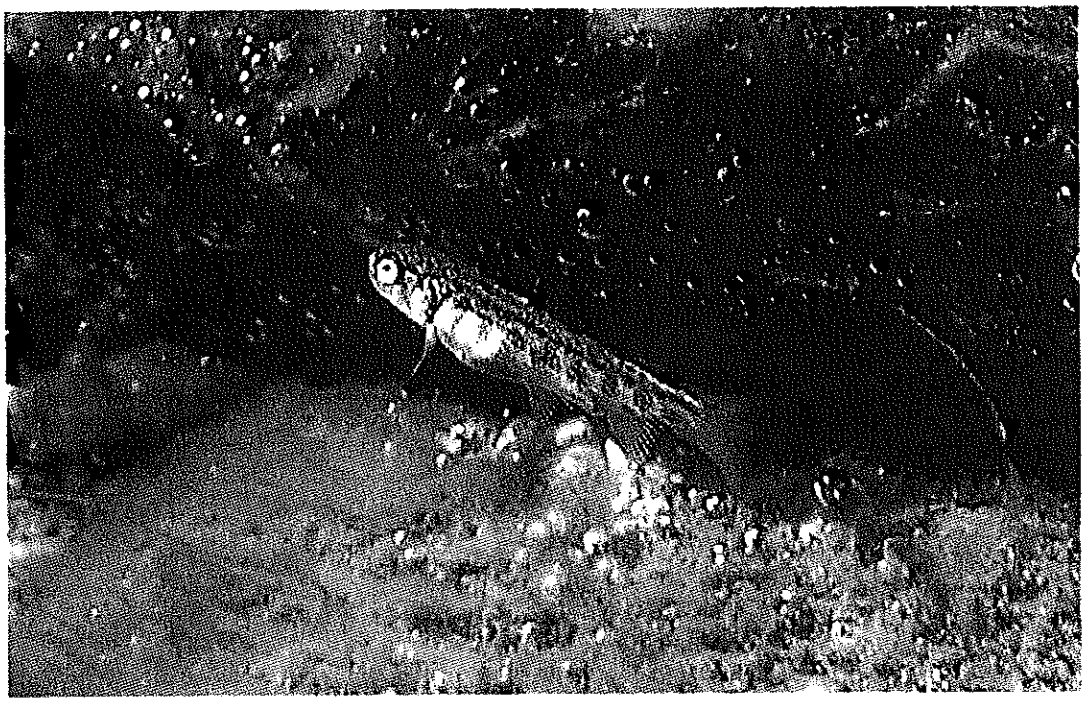
Eel Weir Hydropower Project WQC

- Appeal filed by Douglas H. Watts



Newly hatched Sebago Lake Atlantic salmon. Eel Weir Reach bypass. May 2004.

APPEAL OF DOUGLAS H. WATTS of the

MAINE DEPT. OF ENVIRONMENTAL PROTECTION

WATER QUALITY CERTIFICATION ORDER for the

EEL WEIR PROJECT, SEBAGO LAKE, MAINE.

AUGUST 30, 2011.

I. Structure of this Appeal.

This BEP appeal 'statement' is being filed under protest by the appellant pursuant to a March 2012 Kennebec County Superior Court order which caused Mr. Watts' timely filed appeal to the Maine Superior Court of Sept. 2011 to be 'remanded' to the Maine BEP for initial consideration rather than being heard directly by the Court. In its order, the Court allowed appellant Watts until April 13, 2012 to submit an 'updated' appeal statement to request the Maine BEP review the Final Water Quality Certification Order issued by the Maine DEP Commissioner for the Eel Weir Dam Project at Sebago Lake on August 30, 2011.[1]

This instant appeal document summarizes, states, re-states and includes by reference all claims and evidentiary proffers made by Mr. Watts and Friends of Sebago Lake ("FOSL") to the Maine DEP during the very long (nearly 10 year) process it has taken the Maine DEP to produce a final Water Quality Certification Order for the Eel Weir Dam project.[2] This Appeal makes no attempt to re-state all of the evidence and argument submitted by Mr. Watts and FOSL to the Maine DEP administrative record on this matter during the past 10 years, since doing so would result in an appeal document exceeding 1,000 pages. Much of the evidentiary submissions made by Mr. Watts and FOSL since 2002 to the Maine DEP consist of photographs and optical scans of paper documents and photographs from MDEP and Maine Geological Survey files. To reproduce all of these photographs and documents in paper form would be exhorbitantly expensive. For this reason, the appellant has compiled and submitted an indexed photographic appendix in CD-ROM format for Board members who wish to review these evidentiary submissions in detail.

Appellant's claims are broken into four sections:

I. Eel Weir Reach Bypass Flows.

II. Passage for Native Fish at the Eel Weir Dam.

III. The Effect of Eel Weir Dam and WQC on Natural Lake Levels.

IV. The 'flow cap' on fall outflows at Eel Weir Dam.

V. Remedy Requested.

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1 Order, Me. Sup. Ct., March 8, 2012 in re: *Douglas H. Watts v. Maine BEP*, KEN-AP-11-54; Letter of Maine BEP dated March 20, 2012 to Douglas H. Watts.

2 Comments of FOSL to Maine DEP, Oct. 8, 2006; Comments of FOSL to FERC and MDEP, July 8, 2011; Comments of Douglas H. Watts to Maine DEP, August 22, 2011.

BACKGROUND

This appeal arises from a Final Licensing Order issued August 30, 2011 by the Commissioner of the Maine Dept. of Environmental Protection ("DEP") granting state water quality certification to the S.D. Warren Company d/b/a the SAPPI Corporation pursuant to the U.S. Clean Water Act ("CWA") for its Eel Weir Dam hydroelectric dam and generating project at the outlet of Sebago Lake, Maine.

A. History of the Eel Weir Dam.

The Eel Weir Dam was constructed c. 1907 by the S.D. Warren Company as an expansion of the footprint of several older dams at the same site, the last being a wooden and stone dam constructed by the Presumpscot Water Power Company in 1878.

Unlike these earlier dams, the Eel Weir Dam was specifically constructed to divert all of the flow from the natural bed of the Presumpscot River into a 4,800 foot-long artificial power canal and to a hydroelectric generating facility at the end of the canal, whereupon the water is discharged back into the natural bed of the Presumpscot River. The effect of this artificial diversion was to leave the uppermost 1.25 miles of the Presumpscot River dry except during extreme flood flows.

This radical flow diversion destroyed all fish and aquatic life in the upper Presumpscot River, destroyed key spawning and nursery grounds for native freshwater and anadromous Atlantic salmon, native brook trout and other native fish species. The dam's 1907 construction required the Maine Legislature to completely repeal its longstanding legal requirement for fish passage at the outlet of Sebago Lake and the provision of free access and water flow to and from the lake for native salmon and trout spawn and migrate back and forth between the upper Presumpscot River and Sebago Lake. The dam's construction further caused the Maine Legislature to repeatedly appropriate public funds to pay for the screening of the dam's gates to prevent native salmon and brook trout from leaving Sebago Lake at high flows and being stranded to die in the dry riverbed below.

Today, the Eel Weir Dam and its power canal represent the longest artificial diversion of water from any river in Maine. Until 1992 the natural bed of the river for 1.25 miles below the dam spillway

had remained dry for nearly 90 years and was only re-watered to a minimal extent after an eight year legal controversy before the Federal Energy Regulatory Commission (FERC), which issued the dam's most recent federal operating license in 1984.

Hydroelectric dams are not 'grandfathered' under Maine's water quality laws.[1] Instead, when the Maine DEP initiates a water quality certification proceeding at a hydro dam pursuant to Sect. 401 of the U.S. Clean Water Act, the dam and its operations are reviewed *de novo* for compliance with applicable water quality standards. While the Maine DEP had the authority to review the Eel Weir Dam for state water quality standards compliance during the dam's 1984 federal re-licensing proceeding, it formally waived its certification authority by letter to FERC in 1979. The instant water quality certification represents the first and only time the Eel Weir Dam and its power canal have ever been formally reviewed by the Maine DEP for compliance with Maine water quality standards.

B. The legal nature of water quality standards.

The Maine Legislature reserves to itself the sole right to enact or amend water quality standards and the classification standards assigned to the various rivers, lakes and coastal waters of Maine. 38 MRSA §464(2)(D). The Legislature further states at §464(1) that:

> "The Legislature intends by passage of this article to establish a water quality classification system which will allow the State to manage its surface waters so as to protect the quality of those waters and, where water quality standards are not being achieved, to enhance water quality. This classification system shall be based on water quality standards which designate the uses and related characteristics of those uses for each class of water and which also establish water quality criteria necessary to protect those uses and related characteristics. The Legislature further intends by passage of this article to assign to each of the State's surface water bodies the water quality classification which shall designate the minimum level of quality which the Legislature intends for the body of water. This designation is intended to direct the State's management of that water body in order to achieve at least that minimum level of water quality."

As matter of long practice, the Maine Legislature makes explicit in statute any site-specific

1 *See*: Maine DEP, In the Matter of FPL Energy, Final Water Quality Certification Order for Gulf Island -Deer Rips Hydro Project, #L-17100-33-O-N, Sept. 21, 2005, at 26: "No water bodies are "grandfathered" from meeting water quality standards, and no projects—whether paper mills or dams—are "grandfathered" from appropriate regulation if determined to be causing or contributing to the failure of any water body to meet water quality standards."

exceptions to 'normal' Class AA, A and B classifications of Maine rivers. For example, the 1999 upgrade of the South Branch Carrabassett River to Class AA contains a specific exception stating: "The Legislature finds, however, that permitted water withdrawal from this river segment provides significant social and economic benefits and that this existing use may be maintained." 38 MRSA §467(4)(B)(2)(a).

These Legislative exceptions often run in a more restrictive direction, wherein numerous Class B river reaches are required by the Legislature to be free-flowing even though normal Class B standards allow for the construction of dams. See, *e.g.* the exception for a section of Dennys River which states: "From the Bunker Hill Road bridge to tidewater - Class B. Further, the Legislature finds that the free-flowing habitat of this river segment provides irreplaceable social and economic benefits and that this use must be maintained." 38 MRSA §467(2)(A)(2).

Statute provides numerous instances where the Legislature has created special exceptions for short distances of otherwise Class A river reaches immediately below hydropower dams, usually where the natural river channel at a falls is 'bypassed' by a power canal or penstock. See, *e.g.*, the Saco River at Swan's Falls and Hiram Falls. 38 MRSA §467(12)(A)(2) and (3). In addition to these reach-specific exceptions in Maine's water classification law, the Legislature has created a broader overlay of exceptions to Class A and Class B standards for the impoundments of certain hydroelectric dams constructed prior to 1992, wherein the Class A and Class B aquatic life standards in the impoundments are considered met so long as the Class C aquatic life standard is met. 38 MRSA §464(10). Lastly, the Legislature has created a relaxation in standards for certain downstream river reaches affected by specified existing hydropower projects wherein Class A aquatic life standards are deemed to be met so long as Class B aquatic life standards are met. 38 MRSA §464(11). See, *e.g.*, 38 MRSA §467(4)(A)(7).

A full review of Maine's general water quality statutes and its classification system for individual river reaches shows the Legislature has created no special exceptions or conditions in law for the reach of the Presumpscot River immediately below the Eel Weir Dam. Instead, the water quality classification standards for the upper Presumpscot River state:

9. Presumpscot River Basin.

A. Presumpscot River, main stem.

(1) From the outlet of Sebago Lake to its confluence with Dundee Pond - Class A.

(1-A) From the outlet of Dundee Pond to its confluence with the Pleasant River - Class A. For the purposes of water quality certification of the hydropower project at the Dundee Dam under the Federal Water Pollution Control Act, Public Law 92-500, Section 401, as amended, and licensing modifications to this hydropower project under section 636 and any other licensing proceeding affecting this project, the habitat characteristics and aquatic life criteria of Class A are deemed to be met in the waters immediately downstream and measurably affected by that project if the criteria of section 465, subsection 3, paragraphs A and C are met.

(2) From its confluence with the Pleasant River to U.S. Route 202 - Class B. Further, there may be no new direct discharges to this segment after January 1, 1999.

By the general rule of statutory interpretation, the DEP must rely on the plain language of statute unless the plain language is ambiguous. But this is not the case with the Class A 'natural' standard. It is inconceivable how the Maine Legislature could develop a more clear standard than at §465(2)(A) and §466(9).[2]

CLAIM ONE

A. The DEP's 'alternate' interpretation of Class A water quality standards at the Eel Weir 'Bypass' reach is less protective than the plain language of statute.

Class A standards state the habitat 'must be characterized as natural.' 38 MRSA §465(2)(A). The Class A standard of 'natural' is further defined at §466(9) as, 'in, or as if in, a state of nature not measurably affected by human activity.' The Class A 'natural' standard is clear and unambiguous . If the amount of water in the river is artificially reduced by 50 percent or more from its natural state, the river is 'measurably affected by human activity.' The WQC at 26 admits the Eel Weir project reduces the flow of the Presumpscot River to only 5-20 percent of its natural flow. The deliberate diversion of 80-95 percent of the river's flow out of the river and into the Eel Weir power canal is a human activity and its effect is measurable.

Regarding this issue, the WQC at 50 introduces an 'alternate' definition of this legal standard, which states: "Maine water quality standards do not require that lake levels and stream flows be as

2 In interpreting a statute, the courts will seek to give effect to the Legislature's intent. *Town of Eagle Lake v. Commissioner of Dept. of Education*, 2003 ME 27, ¶7. To determine legislative intent, the court "look[s] first to the statute's plain meaning and, if there is ambiguity, ... beyond that language to the legislative history ... *Id.* The court will avoid results that are "absurd, inconsistent, unreasonable or illogical." *Id.* The court will further "consider the whole statutory scheme for which the section at issue forms a part so that a harmonious result, presumably the intent of the Legislature, may be achieved." *Id.*

naturally occurs in order to attain Class GPA and Class A water quality standards, respectively. Rather, Class GPA and Class A standards are intended to protect and maintain the ecological functions and values of natural conditions for high quality waters. These standards do not require that lake levels and stream flows be unaltered."

The DEP's alternate definition of Class A standards is unlawful because it effectively removes the term 'natural' from Class A standards and makes the Class A habitat standard indistinguishable from the Class B habitat standards of 'unimpaired.'

The Class A habitat standard of 'natural' as defined at §466(9) is the only feature which distinguishes it from the Class B habitat standard. The Class A standard of 'natural' means, 'in, or as if in, a state of nature not measurably affected by human activity.' The habitat standard for Class B waters is 'unimpaired,' which means 'without a diminished capacity to support aquatic life.' §466(11). For the Class A habitat standard of 'natural' to have any meaning, it must be substantively different than the Class B standard, since Class A is a higher and more protective standard than Class B.

If the Legislature intended the Class A standard of 'natural' to be no more protective than the Class B standard of 'unimpaired,' the distinction in Maine's water quality classification system between Class A and Class B habitat standards would be rendered meaningless and there would be no need for the Legislature to provide separate and distinct legal definitions of 'natural' and 'unimpaired' at 38 MRSA §466(9) and (11).[3]

Under the plain language of §465(2)(A) and §466(9), the only factual matters at issue are whether the DEP's authorized diversion of 80-95 percent of the outflow from Sebago Lake out of the natural bed of the Presumpscot River and into the 4,800 foot long Eel Weir power canal is natural or artificial; and whether this flow diversion is 'measurable,' as in whether the diversion causes the natural river to the 'measurably affected by human activity.'

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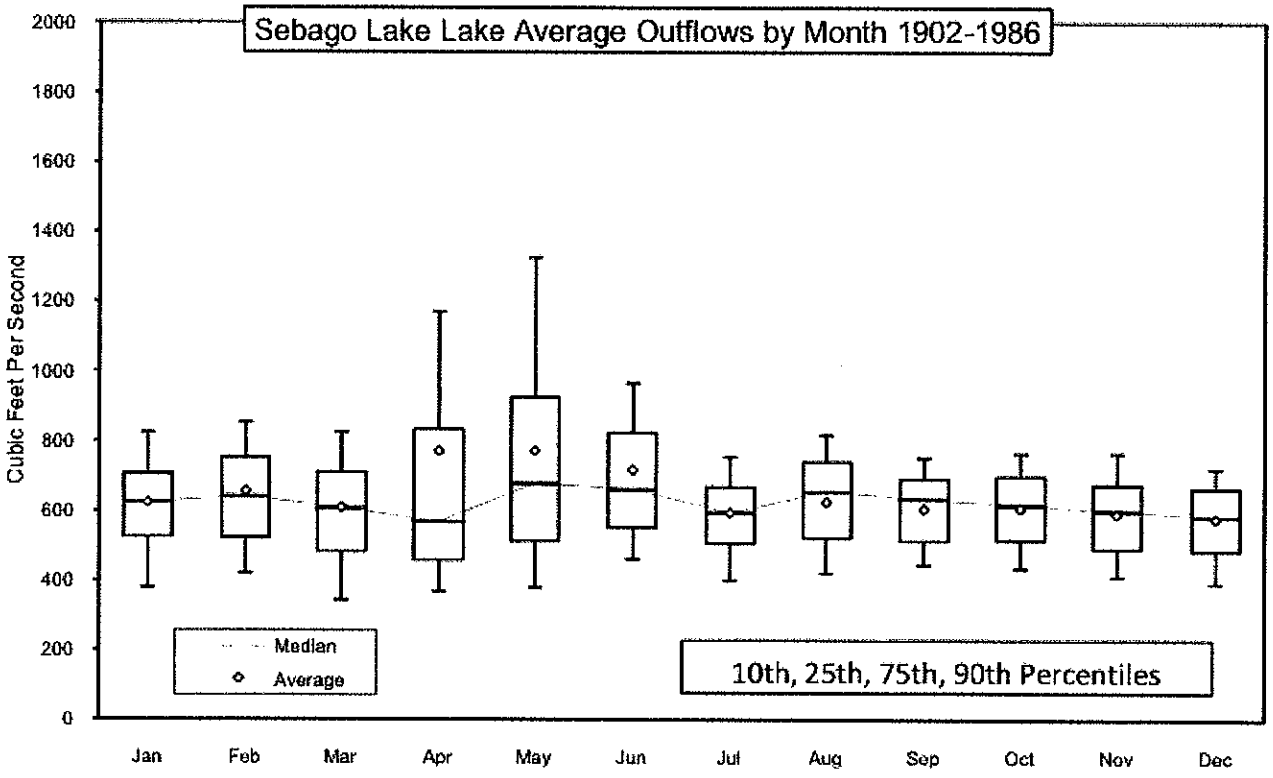
3 *Handyman Equipment Rental v. Portland*, 724 A.2d 605, 607-608 (Me. 1999) (words in statute must be given meaning and cannot be treated as meaningless and superfluous). See also, e.g., *Cobb v. Bd of Counseling*, 2006 ME 48, at ¶ 11: "[T]he cardinal rule of statutory interpretation is to give effect to the intention of the Legislature. We discern legislative intent from the plain meaning of the statute and the context of the statutory scheme. *Brent Leasing Co., Inc. v. State Tax Assessor*, 2001 ME 90, ¶ 6, 773 A.2d 457, 459. All words in a statute are to be given meaning, and none are to be treated as surplusage if they can be reasonably construed. *Stromberg-Carlson Corp. v. State Tax Assessor*, 2001 ME 11, ¶ 9, 765 A.2d 566, 569."

The only lawful interpretation of the DEP's claim at 50 is that Class A and Class B habitat standards are interchangeable in a *higher* direction, ie. that in certain cases the only way a waterbody can meet the Class B standard of 'unimpaired' is for it to also meet the Class A standard of 'natural.' [4] As the chart below shows, the median monthly outflow of Sebago Lake for the historic period of record, 1902-1986 (prior to Warren's unilateral alteration of lake and level and flow after 1987), is approx. 600 cfs, with monthly outflows rarely dropping below 400 cfs.



Data source: USGS, Portland Water District.

B. The prescribed minimum bypass flow violates Class A dissolved oxygen standards in the Eel Weir bypass reach.

The WQC states at 27 that the applicant conducted dissolved oxygen sampling at two sites in the bypass reach at flows of 50 cfs during the summer of 2000. At flows of only 50 cfs, substantial portions of the natural riverbed of the Presumpscot River in the bypass reach are de-watered and have

4 In the instant case, this distinction is irrelevant since evidence in the WQC shows the prescribed 75 cfs flow in the bypass reach also fails to meet the Class B standard of 'unimpaired.'

dissolved oxygen levels of zero.[5] By definition, a section of the natural river channel which would be fully watered under natural, seasonal conditions but is de-watered at artificially lower flows is a violation of Class A dissolved oxygen standards since that section of the river channel contains no water. Under the sampling regimen approved by DEP in the Eel Weir bypass, dissolved oxygen standards would be in attainment at virtually any river flow above zero, so long as the sampling was conducted in the remaining thread of flowing water. As the WQC states at 27, this is exactly how the sampling was conducted by S.D. Warren in 2000. Warren sampled dissolved oxygen at flows of 50 cfs -- but only in that portion of the river channel which was still wetted and flowing at 50 cfs. What Warren did not do -- and the DEP did not require -- was to sample dissolved oxygen across a horizontal river transect at a range of flows, including the flow which would occur in the summer if there was no diversion of flow to the Eel Weir power canal. Under the sampling regime used by Warren, flows as low as 5, 10 or 25 cfs still would still show attainment for dissolved oxygen so long as the sampling was purposefully conducted within the remaining thread of flowing water.

C. DEP invertebrate studies show the bypass does not meet Class A standards at flows of 75 cfs.

The WQC states at 24 that Maine DEP used a single 'rock-basket' in the summer of 2000 to assess macroinvertebrate populations in the *wetted* section of the bypass at flows of 50-75 cfs.[6] The invertebrate testing method used by DEP is fatally flawed for the same reasons described above for its dissolved oxygen sampling. Rock baskets placed in a de-watered section of the river channel are going to score a 'zero' for aquatic invertebrates, since they require water to live. The only place a rock basket can be placed which will not score zero is in the *remaining* wetted portion of the river channel. As such, the DEP aquatic invertebrate sampling regime becomes an exercise in self-fulfilling prophesy. What DEP should have done -- but did not do -- was to deploy rock baskets horizontally across the entire river channel at a variety of flows to determine how many baskets would become dewatered at the various tested flows.[7] This is exactly what was done by fisheries agencies in the bypass to assess changes in the quantity of fish habitat at a variety of tested flows, as discussed at E below. Under DEP

5 *See:* Table of usable fish habitat in the WQC at 23. At 50 cfs, there are 9,487 units of adult salmon habitat in the bypass reach. At 200 cfs, the amount of habitat increases three-fold to 31,016 units of habitat. This is due to the increase in wetted riverbed vs. dry riverbed at higher flows. At flows higher than 200 cfs, the amount of wetted habitat is even greater.

6 See WQC at 24: "Samples were collected at a single site located about 150 meters upstream of the Route 35 bridge."

7 *See*: DEP Rules, Ch. 579(3)(G)(1)(3)(d): "Classification attainment decisions may be based on a determination of the degree to which the sampled site conforms to the narrative aquatic life classification criteria provided in statutory standards for water quality classification. The decision is based on established principles of water pollution biology and must be fully documented." This rule prohibits the DEP from 'cherry-picking' the one wetted area in an otherwise artificially de-watered streambed and using it as a proxy for the river at its natural flow. Here, the DEP violated it.

Rules, Ch. 579 §5(A), a macroinvertebrate score of 'indeterminate' for attainment of Class A standards cannot be scored as 'in attainment' unless other Class A narrative water quality standards are being achieved:[8]

> **5. Application of decision results**
>
> **A. Attainment of statutory classification.** A waterbody shall be determined to be in attainment of the designated aquatic life uses and characteristics of its assigned water classification, if the association value, as determined according to Sections 3 and 4 of this chapter, following methods outlined in "Methods for Biological Sampling and Analysis of Maine's Rivers and Streams" (DEP LW0387-B2002), is shown to be equal to or greater than 0.6 for that class or any higher class, or where the provisions for professional judgement determine that the water should be determined to be in attainment of its assigned water classification or any higher classification; and where other standards and criteria pertinent to protecting the aquatic life uses of the classification are determined to be attained (including, but not limited to, support of indigenous fish or other aquatic species, as required in the water quality classification law).

The WQC at 20 states that the bypass reach does not support natural, self-sustaining populations of native brook trout and salmon ("The river does not currently support self-sustaining populations of coldwater fish."). MDIFW (2011) states: "Existing flow provisions were developed to accommodate the development of a self-sustaining salmon fishery. This effort has not proved successful ..." Since the WQC admits the Class A, B and C standards for the support of indigenous brook trout and salmon is not currently being achieved in the bypass reach, the 'indeterminate' macroinvertebrate score for Class A standards is not supportive of Class A standards attainment.

D. DEP invertebrate studies show the *wetted* bypass reach at 75 cfs only meets Class B standards.

The WQC states at 24 that Maine DEP used a single 'rock-basket' in the summer of 2000 to assess macroinvertebrate populations in the *wetted* section of the upper Presumpscot River with the river at 10-20 percent of natural flows.The WQC states at 24: "Analysis of the monitoring data using the DEP's linear discriminant model indicates that the sampled community attains Class B standards and is *indeterminate* for attainment of Class A standards. Further analysis of the sampling results indicates that the majority of the organisms sampled were filter feeders, which are indicative of a Class B community." (emphasis added). Under DEP Rules, Ch. 579 §5(A), a macroinvertebrate score of 'indeterminate' for attainment of Class A standards cannot be scored as 'in attainment' unless other Class

8 DEP Rules, Ch. 579, "Classification Attainment Evaluation Using Biological Criteria for Rivers and Streams."

A narrative water quality standards are being achieved:[9]

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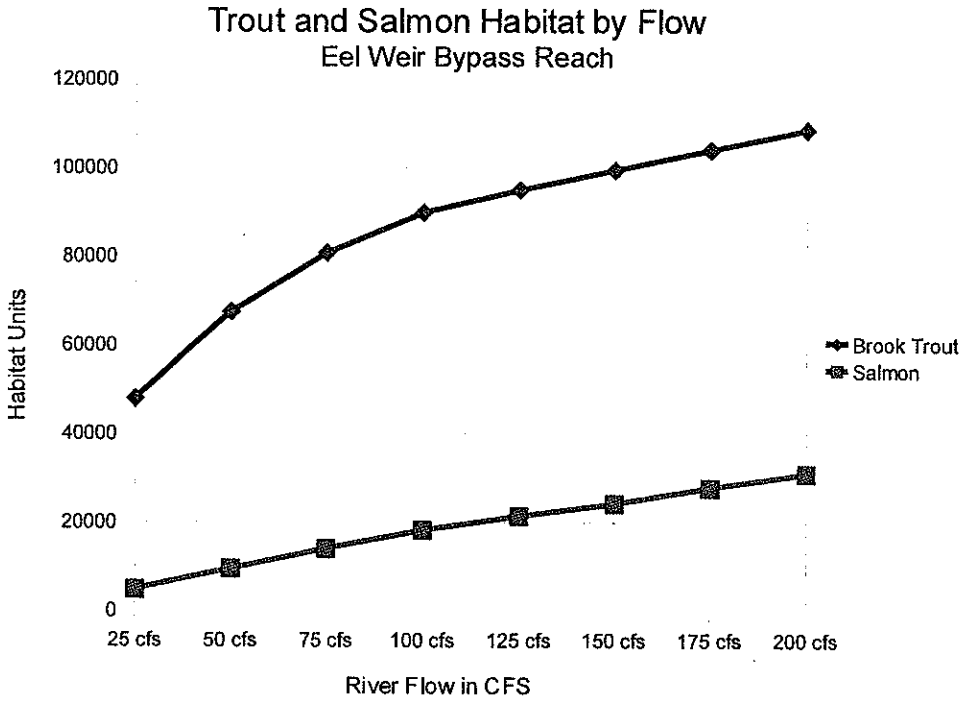
E. Fish habitat utilization studies show Class A dissolved oxygen standards and aquatic life standards are not attained in the bypass at 75 cfs.

Like aquatic invertebrates, fish also require dissolved oxygen and wetted habitat in order to live. As such, fish are a useful proxy to test for the ability of a river to support its native aquatic life at various flows. S.D. Warren was required by the FERC and state and federal agencies to conduct an intensive fish habitat utilization study of the bypass reach; and unlike the DEP dissolved oxygen and 'rock basket' studies, this study was done at a wide range of tested flows using a number of horizontal transects in various sections of the bypass. By this study method, qualified observers (ie. fisheries biologists) give a 'score' for the habitat suitability of the various parts of each horizontal transect for fish and fish species. A section of the transect which is de-watered or barely watered at a certain flow is given a score of zero. At the conclusion of the study, after all the flows have been tested at all the transects, total scores are derived for 'weighted usable area' of fish habitat for the river reach based on

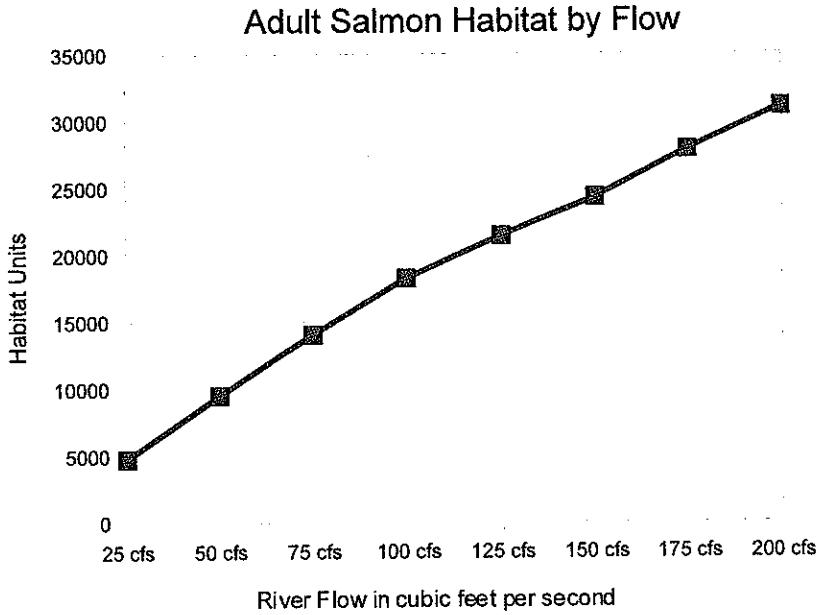
9 DEP Rules, Ch. 579, "Classification Attainment Evaluation Using Biological Criteria for Rivers and Streams."

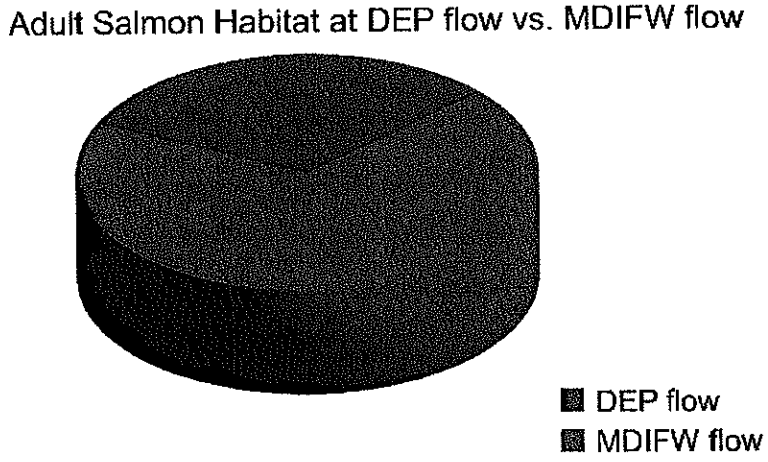
the various flows tested. A summary of these results are shown at page 23 in the WQC.

The WQC chart at 23 displays the weighted usable habitat in the bypass reach at the studied flows, which ranged from 25 cfs to 200 cfs. For adult Atlantic salmon, weighted usable habitat area (WUA) ranges from 4,801 units at 25 cfs to 31,016 units at 200 cfs; for adult brook trout the WUA is 47,889 units at 25 cfs and 108,694 at 200 cfs. WUA was the highest at the highest flow tested (200 cfs) and was lowest at the lowest flow tested (25 cfs). Habitat quantity at the highest flow tested (200 cfs) was much higher than at the prescribed DEP flow of 75 cfs:



Species	WUA at 75 cfs	WUA at 200 cfs
Brook trout (adult)	80,811	108,694
Atlantic salmon (adult)	14,027	31,016





This chart shows the amount of adult Atlantic salmon habitat in the Eel Weir bypass reach at the DEP recommended bypass flow of 75 cfs and at the MDIFW recommended flow of 200 cfs. Note that the 7Q10 drought flow for the Presumpscot River at Sebago Lake is 270 cfs. Average annual outflow at Sebago Lake is 660 cfs.

The data in the WQC show there is much more usable habitat for adults of both of these native fish species in the bypass reach when flows are at 200 cfs as compared with 75 cfs; with the difference most

pronounced for adult salmon.[10] This data shows that at flows of 75 cfs more than 15,000 units of habitat for adult salmon are 'lost' and not present. At a flow of only 50 cfs, which is the flow used by Warren for its dissolved oxygen sampling, more than 20,000 units of adult salmon habitat are lost and not present as compared to flows of 200 cfs or more. This data shows, among other things, why the DEP's dissolved oxygen and invertebrate sampling studies were performed incorrectly and generated spurious results. Unlike the fish habitat utilization studies, they were not conducted a variety of river flows so that meaningful comparisons could be made about the effects of various flows on dissolved oxygen and aquatic life throughout the river's natural channel. Had the quantitative fish habitat studies been conducted like the dissolved oxygen and 'rock basket' studies they would have produced meaningless results, since the amount of usable habitat would be 'whatever' was measured at that one spot in the river channel at one arbitrary flow. For this reason, the fish habitat utilization studies are the only meaningful set of quantitative data to determine attainment of Class A dissolved oxygen and aquatic life standards in the bypass reach at the DEP's recommended flow of 75 cfs.

G. Fish habitat utilization studies show the Eel Weir bypass does not meet Class A or Class B standards for fish and other aquatic life.

If a river does not meet Class B standards it does not meet Class A standards. DEP's studies show the bypass reach of the Presumpscot River does not meet Class B standards for fish and aquatic life. DEP macroinvertebrate studies and dissolved oxygen studies show the *wetted* portion of the Presumpscot River at ~75 cfs meets Class B standards as 'unimpaired.' But this finding does not apply to those sections of the riverbed which are de-watered at 75 cfs but would be fully watered at river flows higher than 75 cfs. De-watered is the antonym of 'unimpaired,' which means by statute, 'without a diminished capacity to support aquatic life.' 38 MRSA §466(11).

The WQC at 23 cites studies of usable wetted habitat in the bypass reach for adult native brook trout and Atlantic salmon under different modelled flow conditions. These studies show significantly less usable habitat for adult brook trout and salmon at 75 cfs than at 200 cfs or higher flows. For adult brook trout, flows at 75 cfs reduce usable habitat by 25 percent as compared to 200 cfs. For adult salmon, flows at 75 cfs reduce usable habitat by more than 50 percent as compared to 200 cfs. A reduction in usable aquatic habitat by 25 percent and by 50 percent is 'impaired' within the meaning of

10 For inexplicable reasons, the chart in the WQC at 23 only shows habitat data at flows up to 200 cfs even though the WQC at 22 states that habitat studies were conducted at flows up to 440 cfs.

Class B habitat standards (unimpaired = without a diminished capacity to support aquatic life.)

CLAIM TWO

A. The DEP flow of 75 cfs violates Class A and Class B water quality standards because it puts this reach of the Presumpscot River in a perpetual condition of extreme drought.[11]

Under natural conditions, no river is in a perpetual condition of extreme drought, since a drought is defined as an extreme condition which only happens rarely (if it happened every week, or every month, or every year, it wouldn't be called a drought.) Maine DEP tests for wastewater treatment plant compliance in Maine rivers at what is called a '7Q10 flow,' which is defined by US EPA as "the lowest 7-day average flow that occurs (on average) once every 10 years."[12] The purpose of the 7Q10 standard is to ensure that wastewater treatment plant discharges will not cause water quality violations in a river even at drought flows. The WQC states at p. 30, fn. 66, that Maine DEP has estimated the 7Q10 flow for the Presumpscot River at Westbrook to be 300 cfs, which the DEP has estimated to consist of 270 cfs released at the outlet of Sebago Lake and 30 cfs coming from tributaries to the Presumpscot River below Sebago Lake. This DEP data shows that the 75 cfs *maximum* flow established by DEP for the Eel Weir bypass is only 27 percent of the 7Q10 flow estimated by DEP at the outlet of Sebago Lake. This means the *maximum* flow allotted to the Eel Weir bypass is nearly four times lower than the natural drought flow which could be expected to occur below Sebago Lake for seven consecutive days in a once every ten year drought.

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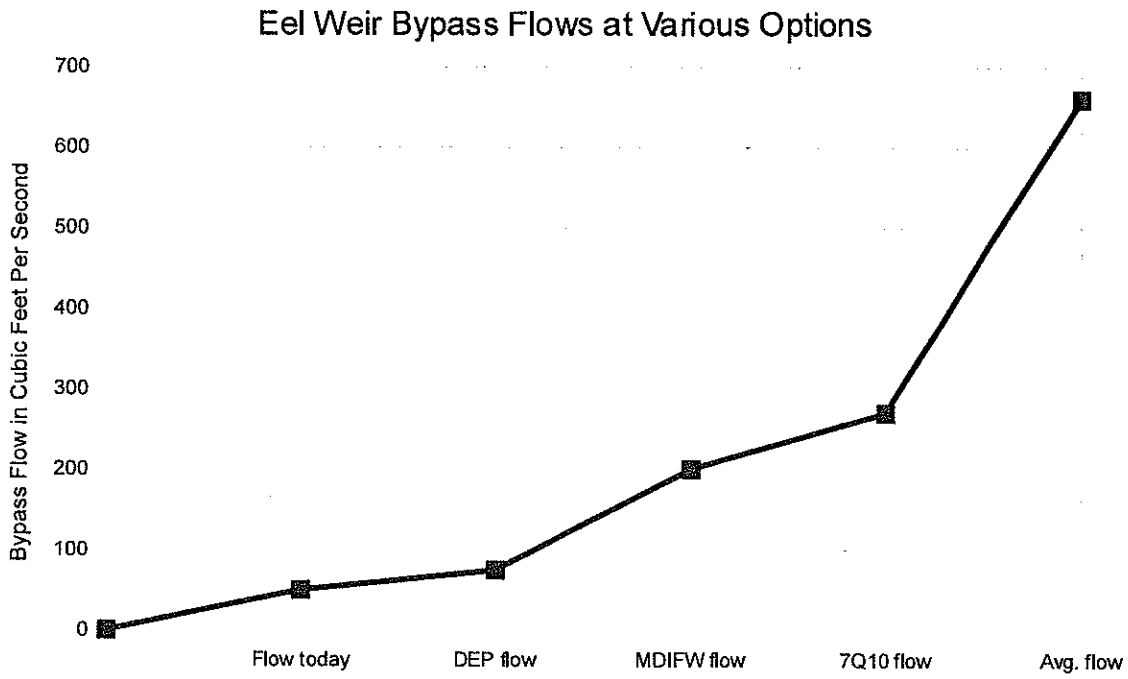
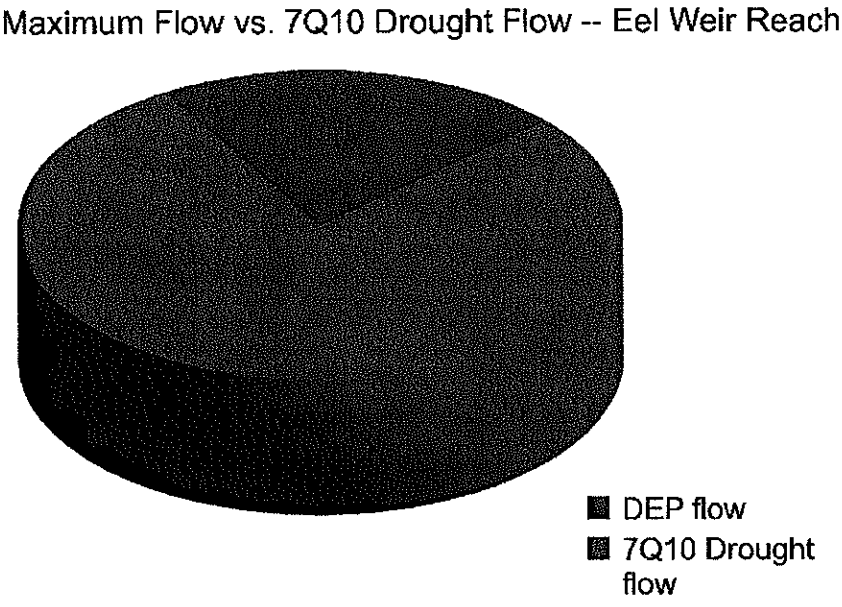
11 This reach of the Presumpscot River is Class A, not Class B. As this section demonstrates, even if this reach of the Presumpscot River was Class B, it would still fail to meet Class B standards for habitat and aquatic life.

12 US EPA definition sourced at: http://water.epa.gov/scitech/datait/models/dflow/flow101.cfm#1Q10



This chart shows a range of various flow options in the bypass reach. "Flow today" = 50 cfs; DEP recommended flow = 75 cfs; MDIFW recommended flow = 200 cfs; 7Q10 drought flow = 270 cfs; the annual average outflow from Sebago Lake = 660 cfs. Of the five options, only the last two are 'natural,' and the 7Q10 flow is only 'natural' during the worst seven days of a once-in-ten-year drought.

The DEP proposal of 75 cfs cannot be construed to comply with either the Class A standard of 'natural' or even the Class B standard of 'unimpaired' because, by definition, 7Q10 flows only *naturally* occur for seven days once every 10 years. According to the WQC at p. 30, the DEP's estimate of the 7Q10 flow at the outlet of Sebago Lake is 270 cfs. By the DEP's own calculations in the WQC, it would take a flow of 270 cfs in the bypass reach just to bring river flows ***up to*** the worst seven days of a once in ten year drought. Given this data, it is not surprising that the quantitative fish habitat studies conducted by S.D. Warren show a 50 percent increase in adult salmon habitat in the bypass at 200 cfs as compared to 75 cfs. This is because even the maximum study flow of 200 cfs is only 74 percent of the flow that would naturally occur during the worst seven days of the worst drought one could expect at Sebago Lake once every ten years.



This chart shows the difference between the DEP recommended maximum flow for the Eel Weir Reach of the Presumpscot River (75 cfs) vs. the natural 7Q10 drought flow for the Eel Weir Reach (270 cfs). 7Q10 flow is defined by Maine DEP and US EPA as the lowest 7-day average flow that occurs in a once-in-ten-year drought.

B. The DEP's estimate of 7Q10 flow at Sebago Lake shows its use of 'professional judgment' and '3/4s wetted width' in lieu of the plain language of Class A standards is inapt.

The DEP estimates a 7Q10 flow (ie. drought flow) of 270 cfs at the outlet of Sebago Lake. WQC at 30, fn.66. For this reason, the WQC orders a minimum flow of 270 cfs be released from Sebago Lake for the Presumpscot River to Casco Bay at all times -- except for the 1.25 mile Eel Weir bypass reach. In the Eel Weir reach, the WQC states that DEP staff applied a very different and alternative flow standard which relies on 'professional judgment' and fulfillment of an informal 'back of the envelope' standard that requires three quarters of the river's cross-section to be wetted ('3/4s wetted width'). Through its application of this informal alternative standard, the DEP concludes that a flow of 75 cfs in the Eel Weir bypass allows Class A standards to be met. WQC at 25-26. The WQC further states that the river channel in the Eel Weir bypass achieves 'bank full' conditions at flows of 133 cfs. WQC at 25. None of this comports with DEP's conclusion at p. 30 that the 7Q10 flow at Sebago Lake is 270 cfs. A 7Q10 flow is defined by the US EPA and Maine DEP as "the lowest 7-day average flow that occurs (on average) once every 10 years." The term 'bank full' has a very specific hydrologic meaning, as US EPA states: "The term **bankfull** was originally used to describe the incipient elevation

on the bank where flooding begins. In many stream systems, the bankfull stage is associated with the flow that just fills the channel to the top of its banks and at a point where the water begins to overflow onto a floodplain (Leopold et al. 1964)."[13] According to the WQC at 25, the Presumpscot River at the outlet of Sebago Lake reaches 'bankfull' discharge at 133 cfs. But according to the WQC at 30, the once in ten years drought flow at Sebago Lake is twice that: 270 cfs. This would have to mean that the Presumpscot River directly below Sebago Lake is *above* flood stage even in the middle of a once in ten year *drought.*

Record evidence shows this apparent paradox is due to the DEP's incorrect application of the hydrologic concepts of 'bankfull' and its policy of '3/4s wetted width' to a *braided* river channel.[14] The Presumpscot River directly below Sebago Lake and above Route 35 is a classic braided river channel. At natural seasonal flows, the Presumpscot River directly below Sebago Lake spreads out into a complex of branching, winding channels of various widths. WQC at 22-23.[15] The DEP's '3/4s wetted width' policy was never designed to accommodate the type of river structure found in the Presumpscot directly below Sebago Lake; instead it was designed for rivers with a singular, highly defined and confined river channel. This is shown by the policy's definition in the WQC at 25: "The DEP has found that, generally, flows providing wetted conditions in a weighted average of 3/4ths of the cross-sectional area of a river or stream, as measured by bankfull conditions, are sufficient to meet habitat and aquatic life standards."

As defined in the WQC, the DEP's 3/4s wetted width policy is not hydrologically applicable to river reaches with braided channels. This is because the policy relies on the standard hydrologic definition of 'bankfull,' ie. when the river approaches flood stage and starts to overtop its banks. In a braided river there is no single river bank or river channel: there are multiple channels, some larger and some smaller, and each individual channel fills and overtops and reaches 'bankfull' conditions at very different flows.[16] The reason the WQC concludes at p. 25 that the river reaches 'bankfull stage' at 133

13 US EPA definition sourced at: http://water.epa.gov/scitech/datait/tools/warsss/bankfull.cfm

14 "Braided channels are subdivided by multiple midstream bars of sand or gravel." -- *Encyclopedia Britannica.*

15 The WQC at 22-23 states that aquatic habitat quantity in the braided side channels was measured up to a flow of 185 cfs. This flow is approx. 40 percent less than the 7Q10 *drought* flow of the river (270 cfs). For this reason, the actual amount of wetted habitat in the braided channels of the river below Sebago under normal, natural flow conditions (400-1,000 cfs) is much higher than the 7 percent estimated by DEP based on flows of less than 185 cfs.

16 *See also:* Ritzi (1986): "A particularly important physical feature of the bypass channel is that the present riverine reaches have channels and banks determined by the flow regime of the past 160 years. At higher discharges the bypass channel overflows into terrestrial habitat that was formerly river channel but has undergone natural vegetative succession to become wooded shoreline." [Charles Ritzi Associates. 1986. Minimum Flow Study and Recommendation, Eel Weir Project, Presumpscot River, Maine. Prepared for S.D. Warren Company. Westbrook, Maine.] Because the Eel Weir bypass reach was completely de-watered from 1907 to 1992, much of the natural river channel structure in the

cfs but also concludes at p. 30 that the *same* stretch of river is in drought stage at 270 cfs is because the DEP incorrectly applied the terms 'bankfull' and '3/4s wetted width' to the braided river channel below the outlet of Sebago Lake. While the DEP's '3/4s wetted width' policy has probative value when applied to highly confined river channels, it produces nonsensical results when applied to braided river channels, ie. the river being at flood stage and at drought stage at exactly the same time.

CLAIM THREE

A. The WQC arbitrarily creates a less protective legal subcategory of Class A water quality standards for the Eel Weir bypass without Legislative and US EPA approval.

Maine's water quality classification law states that the entire Presumpscot River from the outlet of Sebago Lake to its confluence with Dundee Pond is Class A. But in the WQC, the Maine DEP creates two separate flow standards for this Class A reach of the Presumpscot River. A flow of 75 cfs is required from Sebago Lake to the outlet of the Eel Weir power canal; and a flow of 270 cfs is required for the river immediately below the outlet of the power canal.

The DEP admits its 75 cfs prescribed flow in the bypass reach is not based on natural flows from Sebago Lake, since it has prescribed a minimum 7Q10 flow of 270 cfs for the Presumpscot River immediately below the outlet of the Eel Weir power canal. The WQC prescription of 75 cfs is not 'natural' within the meaning of Class A standards. The DEP could just as easily prescribe a minimum 7Q10 flow of 270 cfs to the bypass reach, as it has for the river immediately below the bypass reach. The WQC states that the DEP has studied flows of up to 200, 300 and 440 cfs in the bypass reach and found that flows of 200 cfs or higher produce much more usable aquatic habitat in the river for native brook trout, Atlantic salmon and other aquatic life than flows of 75 cfs. WQC at 22-23.

Maine law does not allow the DEP to subdivide a Class A river into small, arbitrarily drawn sections and create *less* protective standards and requirements for certain sections.[17] Only the Maine Legislature can do this, but only with US EPA approval. The Maine Legislature has done this in the

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bypass reach has turned into a heavily wooded, floodplain forest, with trees as large as 40 feet and 12 inches in diameter growing in what used to be the river's natural channel.

17 *See*: Maine BEP, In Matter of S.D. Warren Company, Presumpscot River Hydro Projects Water Quality Certification, Findings of Fact and Order on Appeal, Oct. 2, 2003 at 9: "Nowhere, as appellant [S.D. Warren] suggests, does the statute state that 'some' of the waters be suitable for the designated uses; that 'some' of the aquatic species indigenous to the waters be supported; or that 'some' of the habitat must be unimpaired or natural. On the contrary the terms 'receiving waters' and 'habitat' are unqualified and the statute specifically states that the water quality must be such as to support 'all' indigenous aquatic species."

past, but has not done so on the Presumpscot River directly below the Eel Weir dam. The only reason given in the WQC given for this artificial distinction is to maximize S.D. Warren's hydropower generation by minimizing flows into the bypass reach. WQC at 26.

Maine law does not give DEP the authority to create a special sub-category of water quality standards in the Class A reach of Presumpscot River for the bypass that is less protective of aquatic life than the river directly below the bypass. Only the Maine Legislature has the authority to make such a legal subdivision. The Legislature has done this at S.D. Warren's Dundee Falls project (38 MRSA §467(9)(A)(1-A)); but it has not done so on the Presumpscot River at the Eel Weir project.

CLAIM FOUR

A. The DEP bases its required bypass flow on conclusions about fish habitat which are self-contradictory and not supported by credible evidence.

1. The WQC states 26: "In addition, habitat suitability for smallmouth bass also increases with increasing flows. To the extent that smallmouth bass compete with brook trout and landlocked Atlantic salmon, low flows in the bypass will improve habitat suitability for coldwater species. The evidence in the record indicates that limiting flows to 75 cfrs will reduce habitat suitability for adult smallmouth bass by 17 percent when compared to a flow release of 100 cfs."

And at 23: "Weighed Usable Area for both juvenile and adult stages of smallmouth bass, an introduced species, increased in the riffle-run and braided channel habitats with increasing flows. Smallmouth bass compete with trout and salmon species for space and forage and are known to prey on juvenile salmonids, including trout and salmon."

These assertions are based on the common sense notion that an increase in wetted habitat in the bypass reach will tend to increase the amount of habitat for all fish species and all aquatic life; and that various fish species compete with each other in rivers for available, wetted habitat. But the assertion incorrectly concludes that an increase in wetted habitat, which benefits all fish species, is somehow 'bad' because it also benefits smallmouth bass. By such a construction, the best flow in the bypass would be zero, since a flow of zero would eliminate all habitat for smallmouth bass and reduce all competition for physical space. The assertion also errs by stating that a flow of 75 cfs vs. 100 cfs is

somehow more beneficial to adult brook trout and Atlantic salmon because it reduces smallmouth bass habitat by 17 percent.[18] This assertion is incorrect because the same reduction in flow will also reduce brook trout and salmon habitat by the same or greater proportion as for smallmouth bass. The WQC at 23 reviews quantitative instream fish habitat studies in the bypass which show that salmon habitat increases by 50 percent with flows at 200 cfs rather than 75 cfs; and brook trout habitat is increased by 25 percent at flows of 200 cfs rather than 75 cfs. To the extent that a flow of 75 cfs reduces smallmouth bass habitat as compared to higher bypass flows, it also decreases habitat for brook trout and salmon by the same amount.

In sum, the DEP's argument in the WQC at 23 and 26 for flows of 75 cfs rather than higher flows is that at higher flows, more fish can live in the river than at low flows; that some of these fish will be smallmouth bass; that at higher flows there will be more smallmouth bass than at lower flows; that smallmouth bass compete for space with other fish; so the best way to reduce the number of smallmouth bass competing for physical space with brook trout and salmon is to reduce the amount of water in the river. Artificially reducing the size of the river does not reduce the need by fish to compete with one another for space; it only reduces the number of all species of fish in the river. Making a river smaller does nothing but make the river smaller.

B. The DEP's use of coldwater refugia in the bypass to defend its 75 cfs flow has no scientific or legal support.

The WQC at 23 states: "Analysis of the study results indicate that, at the lowest monitored flow of 79 cfs, both coldwater seeeps provided areas of thermal refuge for coldwater species, but that the temperature in these areas increased as flows increase, resulting in one seep becoming unsuitable as a thermal refugia at flows of 115 cfs and higher and the second seep becoming unsuitable as a thermal refuge at flows of 172 cfs or higher."

The WQC at 26 states: "In view of the site-specific conditions discussed above, increasing the current minimum flow releases in the Eel Weir Bypass to 75 cfs on a year round basis will improve overall aquatic habitat conditions, will improve suitability for adult brook trout and landlocked Atlantic salmon (the species of primary fisheries management concern), and will improve angling conditions,

18 The DEP's claim of a benefit for stocked trout and salmon by keeping flows no higher than 75 cfs is refuted by the official recommendation of MDIFW for a 200 cfs flow in the bypass reach to benefit stocked trout and salmon. *See*: MDIFW comment letter to FERC, June 17, 2011.

while maintaining thermal refugia for coldwater fish and most of the existing hydropower generation. In addition, limiting the occurrence of flow releases in the Eel Weir Bypass in excess of 300 cfs will maintain the fishability of the bypass."

The WQC unlawfully and improperly uses data regarding coldwater refugia in the Eel Weir Bypass to defend its 75 cfs flow and to argue against natural or otherwise higher flows than 75 cfs. The DEP's error is twofold. First, the DEP fails to acknowledge that under natural conditions, ie. if there was no dam or water diversion at the outlet of Sebago Lake, the seasonal flow in the bypass would be much higher than 75 cfs or even 200 cfs, as shown by the fact that the WQC requires a *minimum* flow of 270 cfs for the river below the outlet of the Eel Weir power canal.

Historic records show the Eel Weir Reach supported a large, healthy and wild population of native salmon and brook trout immediately prior to the construction of the Eel Weir Dam in 1907 (*See*: Kendall 1935; and other references in comments by D. Watts to DEP on draft WQC, August 22, 2011). The DEP here presents the implausible claim that the Presumpscot River in its unimpaired condition and flow in the 1800s and earlier provided less habitat and less high quality habitat for trout and salmon than the river does today at 5-10 percent of its natural flow.

The WQC fails to respond to the extensive comments and evidence presented by Mr. Watts and Friends of Sebago Lake to the DEP over the past decade which show that the purported 'need' for the coldwater seeps in the Eel Weir Reach bypass during the summer by trout and salmon are an artifact of the lack of passage for native fish at the Eel Weir Dam. Because the Eel Weir Dam is impassable to fish, native brook trout and salmon in the Eel Weir Reach are physically trapped in this short, 1.25 reach of free-flowing river. They cannot move back and forth from the Eel Weir bypass to Sebago Lake and use the lake as thermal refugia when summer water temperatures in the river become high. This is the natural behavior of both trout and salmon which seasonally inhabit tributaries of large, deep, coldwater lakes like Sebago Lake.This is shown in several recent MDIFW radio-tracking studies of native brook trout, including the Magalloway River watershed (Boucher 2008). In this study, Boucher reported:

> "Brook trout traveled least during the summer period (average of 0.30 miles), then generally moved short distances (average of 0.72 miles) to spawning areas. Greatest movements occurred in the fall to reach overwintering habitat (average of 6.5 miles) and in the spring (average of 11.7 miles) as they returned to their summer range. The greatest

> distances traveled by individual trout during the entire study period (late June 2005 to mid July 2006) ranged from 35 to 72 miles .... Two tagged fsh traveled upstream 24.6 and 25.1 miles to reach summer range in an approximate 30-day period .... These studies also confrmed the need to maintain free passage of brook trout throughout this subdrainage, because fish from all three populations travel long distances to reach habitat critical to their life history."[19]

In another recent MDIFW study of native brook trout at Chamberlain Lake, Maine, MDIFW reported:

> "Radio tags were implanted into 39 mature males, 8 mature females, and 5 immature brook trout. We have tracked these fish periodically from the time they were tagged to the present to identify and pinpoint spawning areas, over-wintering areas, and other areas with concentrations of brook trout. Tracking was conducted using boats, snowmobiles, stationary data loggers, and Warden Service airplanes. Radio-tagged brook trout actively moved throughout the entire Chamberlain Lake system at the end of September through early October. Most radio-tagged brook trout accessed spawning tributaries by the second week in October ... As we headed into the 2007 fall spawning season we noted some interesting movements exhibited by the remaining tagged brook trout. Of the 22 individuals still at large, we identified 13 that had spawned in Chamberlain Lake tributaries in 2006. All 13 returned to the same tributaries in 2007. This is strong evidence that individual brook trout home to specific sites within Chamberlain Lake tributaries."[20]

These recent MDIFW studies show the 'problem' of trout and salmon requiring coldwater seeps in the Eel Weir Bypass is one of the DEP's own creation, since the DEP has refused in the WQC to require SAPPI to provide fish passage at the Eel Weir Dam for native brook trout and salmon. If this passage were required by DEP, the purported 'need' by trout and salmon for access to coldwater spring seeps in the Eel Weir bypass during the heat of the summer would be eliminated, since the fish would simply migrate upstream into the deep, cold waters of Sebago Lake, which is what these species have done each summer at Sebago for millennia -- until the Eel Weir Dam was built without fish passage in 1907.[21]

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19 Boucher, D. 2008. Seasonal Movements and Habitat Use by Brook Trout in the Magalloway River, Maine. Final Fisheries Report Series No. 08-01. Maine Dept. of Inland Fisheries & Wildlife Augusta, Maine.

20 *See*: Comments of Douglas H. Watts to Maine DEP on draft WQC, August 22, 2011, p. 11, fn.8: MDIFW 2006-2007 migration study of native brook trout at Chamberlain Lake, Maine. Report sourced from MDIFW Region E Fisheries Newsletter for 2008, accessed on-line at http://www.maine.gov/IFW/fishing/newsletter/region_e.pdf.

21 *See*, e.g., Oct. 22, 1705 edition of the Boston Newsletter, No. 79, which provides the first written description of Sebago

The WQC fails to note that brook trout and salmon lived in great numbers in the Eel Weir reach of the river for thousands of years without the benefit of the Eel Weir Dam, its diversionary power canal, and the DEP's prescribed flow of only 5-20 percent of the river's natural flow in the bypass reach. Taking DEP's argument on its face, the Presumpscot River below Eel Weir must have been barren of native trout and salmon prior to the Eel Weir dam's construction and its diversion of nearly all of the river's flow in 1907. The historic record shows the opposite.

CLAIM FIVE

A. The DEP's use of an 'alternative' Class A standard is unlawful because it was performed and applied incorrectly, it is not suitable to the specific physical configuration of the bypass reach and it produces results which are demonstrably less protective than the plain language standard.

The WQC at 50 argues for an 'alternate' definition of Class A standards for the Eel Weir bypass, stating: "Maine water quality standards do not require that lake levels and stream flows be as naturally occurs in order to attain Class GPA and Class A water quality standards, respectively. Rather, Class GPA and Class A standards are intended *to protect and maintain the ecological functions and values of natural conditions* for high quality waters. These standards do not require that lake levels and stream flows be unaltered." (emphasis added).

This means that an 'alternate,' site-specific standard must result in conditions which are *at least as protective* of natural conditions as the plain language standard of 'natural.' DEP data shows the opposite in the bypass. In fact, the WQC data and evidence show a flow of 75 cfs is far less protective of fish, fish habitat and aquatic life than higher flow options, including those recommended by MDIFW, the minimum flow required for the Presumpscot immediately below the bypass, the natural 7Q10 drought flow and the average annual outflow of Sebago Lake. The Appellant readily concedes that a bypass flow of 80-90 percent of natural flows would, on the whole, be as protective to aquatic

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Lake. It states: "The same night [thirteenth of October], Capt. Lane and his company Returned from Sabegoog Ponds, which lies about 20 miles W.N.W. from Casko, but made no other discovery than a few deserted Wigwaams: This Pond is 20 miles long, and about 7 miles wide, very remarkable for Fishing, where our men were refresh'd with a variety of Fish, especially Salmon Trouts, some whereof 2 foot long." Also, Kendall (1935): "In the Presumpscot River, which is the outlet of Sebago Lake, the Sebago salmon used to breed and in the spring of the year, large well-conditioned salmon were found in the stream. Later they disappeared. Prior to the erection of the dam at the head of the river, and later while the fishway was effective, most, if not all, of the salmon returned to the lake. In later years, the fishway having become impassable, some of the fish continued to disappear, where to, no one knows.'

life as 100 percent of natural flow; in other words, the aquatic life and habitat in the bypass at 80-90 percent of natural flow would be 'in, or as if in, a state of nature not measurably affected by human activity,'[22] as set forth in Class A standards. But the DEP is not recommending the bypass receive anywhere near 80 percent of its natural flow; the DEP is recommending the bypass receive only 5-20 percent of its natural flow, leaving the bypass with only 27 percent of the flows it would naturally receive during the worst seven days of a once-in-ten-year drought. Putting a river reach in a condition worse than what would *naturally* occur only during the worst seven days of a one in ten year drought does not comport with a goal to "protect and maintain the ecological functions and values of *natural* conditions." This is because under natural conditions, the Eel Weir bypass reach would only see river flows at 270 cfs or lower during the worst seven days of a once-in-ten-year drought. The river would never *naturally* experience flows of just 27 percent of this amount (75 cfs) every day, every week, every month and every year, which is what the WQC recommends. As the WQC shows at 23, a reduction in flows from 200 cfs to 75 cfs causes a 55 percent reduction in adult salmon habitat in the bypass: from 31,000 units to 14,000 units. This is a measurable decrease in habitat which is solely due to human activity and would never occur under natural conditions, and certainly not 24 hours a day, 365 days a year. The recommended flow of 75 cfs fails to meet the purpose of DEP's own proposed alternate standard, which is to "protect and maintain the ecological functions and values of *natural* conditions." WQC at 50. For this reason, the DEP's use of an 'alternate' Class A standard under Ch. 579 is inappropriate. Data shows that even if it were properly performed, the 'alternate' standard would still show non-attainment of Class A standards.

CLAIM SIX

A. The DEP flow of 75 cfs in Eel Weir bypass reach violates Ch. 587 of DEP Rules.

Ch. 587 of DEP Rules is titled, "Instream Flows and Lake and Pond Levels." The chapter's purpose states in summary:

> "This Chapter establishes river and stream flows and lake and pond water levels to protect natural aquatic life and other designated uses in Maine's waters. Instream flow

22 The effects on aquatic life and wetted habitat from a reduction in flows in the bypass to 80-90 percent of natural flows would be indiscernible from changes solely due to natural year to year variations in river flow. Even if subtle changes did occur, they would not be 'measurable' in the sense intended by the Legislature under Class A narrative habitat standards. In contrast, the changes caused by reducing flows by 80-90 percent are severe and easily measurable.

> requirements for Class AA, A, B, and C waters are based on natural flows that occur in Maine waters, and the uses and characteristics assigned by the water quality classification program (38 M.R.S.A. Sections 464, 465) with attention given to protecting the outstanding natural resources associated with Class AA waters. Flow is managed to provide natural variation of flow described by seasonal aquatic base flows, or other seasonally variable flows, shown to protect aquatic life resources and water quality standards. Water level requirements for Class GPA waters take into account natural variation of water levels that occur in Maine lakes and ponds, and the uses and characteristics assigned by the water quality classification program (38 M.R.S.A. Sections 464, 465-A). Water level is managed to provide variation that takes into account expected seasonal levels shown to protect aquatic resources and other water quality standards of Class GPA and downstream waters."

The diversion of natural flow from the Presumpscot River by the Eel Weir dam and power canal falls under the category of a 'non-consumptive' water use under Ch. 587 §1 ('Applicability'). Ch. 587(1) states of non-consumptive water uses: "Flows in the segment between a point of withdrawal and a downstream point of return must be sufficient to maintain all other water quality standards, including all designated uses and characteristics of the assigned classification." Evidence in the record shows the non-consumptive withdrawal of 80-90 percent of the river flow by the Eel Weir dam into the power canal and out of bypass reach causes or contributes to the river reach being in non-attainment of its Class A water quality standards, particularly its 'natural' habitat standard and its ability to support native brook trout and salmon in natural, self-sustaining populations. *See*: WQC at 20 ("The river does not currently support self-sustaining populations of coldwater fish."). As such, the recommended DEP flow of 75 cfs does not meet the minimum standards assigned to non-consumptive water uses under Ch. 587.

CLAIM SEVEN

A. The WQC admits the Eel Weir bypass reach does not support natural, self-sustaining populations of native, indigenous brook trout and Atlantic salmon. This failure is a violation of Class A, B and C water quality standards. Because the Eel Weir Dam contributes to this failure, the DEP cannot issue a water quality certification for the project.[1]

The WQC states at 20 the Eel Weir bypass reach does not support natural, self-sustaining populations of native brook trout and salmon ("The river does not currently support self-sustaining populations of coldwater fish."). MDIFW (2011) states: "Existing flow provisions were developed to accommodate the development of a self-sustaining salmon fishery. This effort has not proved successful and the bypass is currently managed principally for brook trout, although some salmon and browns are also stocked to diversify angling opportunity. " MDIFW (Brautigam 1997) states: "Water temperatures and the lack of a smelt forage limits salmon growth potential in the bypass."

Until the construction of the Eel Weir Dam in 1907, the bypass reach supported natural, self-sustaining populations of brook trout and salmon. See, e.g. Kendall (1935): "In the Presumpscot River, which is the outlet of Sebago Lake, the Sebago salmon used to breed and in the spring of the year, large well-conditioned salmon were found in the stream. Later they disappeared. Prior to the erection of the dam at the head of the river, and later while the fishway was effective, most, if not all, of the salmon returned to the lake. In later years, the fishway having become impassable, some of the fish continued to disappear, where to, no one knows."

CLAIM EIGHT

A. The WQC fails to require fish passage essential to the support of self-sustaining native and indigenous fish populations in the Eel Weir reach.

Aside from requirements for upstream and downstream passage of indigenous American eel at the Eel Weir dam, the Draft WQC fails to include requirements for the passage for other fish species

1 See: DEP Rules, Ch. 579(5)(D): "If the classification attainment evaluation shows that the standards of classification of the water body are not met, and the applicant is unable to show that the activity does not, or a new activity will not cause or contribute to non-attainment, then a license, permit or water quality certification may only be issued when it can be demonstrated that modifications to the proposed activity, as required by the new license, permit or certification, will provide attainment conditions."

indigenous to Sebago Lake and the Upper Presumpscot River. WQC at 55-56. Instead, the Draft WQC 'reserves authority' to the Maine DEP to require passage in the future at its sole discretion. *id.* A mere reservation of discretionary authority by the DEP via a 're-opener' is not an appropriate legal substitute for a standing, active requirement for fish passage when the facts and existing conditions show such passage is required immediately. If the contrary were true, DEP could make the same 'reservation of authority' for indigenous American eel, which it has not.

B. The Ability Of A Water Body To Support its Indigenous Fish Goes To The Heart Of Water Quality Standards.

The Clean Water Act, Maine water quality laws, and the Maine Department and Board of Environmental Protection are unequivocal that the presence of indigenous fish, and safe passage past dams to support indigenous fish, are an integral part of water quality standards. Congress declared that the objective of the CWA "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The CWA sets a "national goal" to achieve "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water." 33 U.S.C. §1251(a)(2). To further the objective and goal of the CWA, Congress required states to adopt water quality standards that "protect the public health or welfare, enhance the quality of water and serve the purposes of [the CWA]." 33 U.S.C. § 1313(c)(2)(A). State water quality standards must consist of designated uses of its waters (such as habitat for fish or other aquatic life) and criteria to protect such uses. 33 U.S.C. § 1313(c)(2)(A); 40 C.F.R. § 131.2. The ability of the Presumpscot River and Sebago Lake to provide for the protection and propagation of an indigenous fish species such as native Atlantic salmon thus clearly goes to the heart of the CWA and water quality standards.

In Maine, the Legislature sets water quality standards. 38 M.R.S.A. § 464(1) and (2). Consistent with the CWA mandate, Maine water quality standards for waters classified as A and GPA (such as the upper Presumpscot River and Sebago Lake), require the waters to be of a quality suitable for the legally designated uses of fish habitat and for the human uses of recreation and fishing. 38 M.R.S.A. §§ 465(2)(A), (3)(A); 465-A(1)(A). In addition, for waters that are classified as A and GPA, "[t]he habitat must be characterized as natural." 38 M.R.S.A. §§ 465(2)(A); 465-A(1)(A). "Natural" is defined by statute as meaning, "in, or as if in, a state not measurably affected by human activity." 38 M.R.S.A. § 466(9).

The WQC lacks provision of fish passage at the Eel Weir Dam for native Atlantic salmon to live in and spawn in the upper Presumpscot River. Thus, the WQC clearly and directly contravenes the CWA and state water quality standards. The Maine Board of Environmental Protection ("BEP") has made it unequivocally clear that the presence of indigenous fish in a water body is a water quality issue. For instance, at Warren's other Presumpscot River dams, the BEP held water quality statutes specifically state "that the water quality must be such as to support all indigenous aquatic species." BEP, *In the Matter of S.D. Warren Company Presumpscot River Hydro Projects Water Quality Certification*, Findings of Fact and Order on Appeal, p. 9 (October 2, 2003). More specifically, the BEP considers fish passage to be a water quality issue because it is fundamental to the ability of a water body to support indigenous fish. The BEP regularly requires hydroelectric dams to provide passage for indigenous fish in order to assure attainment of the designated uses contained in water quality standards. E.g., *S.D. Warren Company v. Maine Dep't of Envtl. Prot.*, 2004 Me. Super. LEXIS 115, at *10-14 (Cumberland 2004), *aff'd*, 2005 ME 27, 868 A.2d 210 (Me. 2005), *aff'd*, 547 U.S. 370 (2006) (fish passage required at Presumpscot River dams); *Save Our Sebasticook, Inc. v. Bd. of Envtl. Prot.*, 2007 ME 102, 928 A.2d 736, 739 (Me. 2007) (fish passage required at Sebasticook River dam).

Similarly, when compiling CWA-required reports on the quality of the state's waters, the Department of Environmental Protection may declare a water body "impaired" due to lack of fish passage at a dam. DEP, *2010 Integrated Water Quality Monitoring and Assessment Report*, pp. 17-18 (2010) (failure of Androscoggin River dam to provide shad passage caused water quality of river to be impaired). Courts have also held that fish passage "clearly bear[s] on the attainment of the designated uses of fishing, recreation, and fish habitat," and thus is integral to water quality standards. *S.D. Warren Company v. Maine Dep't of Envtl. Prot.*, 2004 Me. Super. LEXIS 115, at *10 (Cumberland) (quoting *Bangor Hydro-Electric Co. v. Board of Envtl. Prot.* 595 A.2d 438, 443 (Me. 1991)).

C. Native Sebago Lake Atlantic Salmon Require Immediate Passage at Eel Weir.

In 2005 Friends of Sebago Lake ("FOSL") submitted to the DEP extensive formal comments and evidence on this topic which is part of the administrative record of this proceeding. In summary, the evidence submitted by FOSL shows that lake-dwelling (ie. non-anadromous) Atlantic salmon are indigenous to the upper Presumpscot River directly below the Eel Weir Dam, that they historically used that reach of the river as spawning and nursery habitat, and that the species is not naturally present in the river below the Eel Weir Dam today solely due to the lack of fish passage at the Eel Weir Dam.

The WQC does not review or challenge this record evidence. In fact, the WQC at 20 admits the Eel Weir Reach of the Presumpscot River does not support *natural, self-sustaining populations* of native brook trout and Atlantic salmon; and states the current presence of these animals in the Eel Weir Reach is wholly dependent upon the annual stocking of artificially reared members of these species by MDIFW.[2] And contrary to the WQC, MDIFW has abandoned efforts to restore a naturally sustaining salmon fishery in the Eel Weir Reach due to the salmons' demonstrated inability to survive there without access to the native population of rainbow smelt in Sebago Lake (MDIFW 2011; Brautigam 1997).[3] The WQC states at 20 that occasionally some native salmon from Sebago Lake 'drop down' over the Eel Weir Dam into the Eel Weir Reach at extreme high water levels. Yet the WQC at 34 prescribes a 'fall outflow cap' at the Eel Weir Dam to prevent native salmon from doing this.

Sebago Lake is Class GPA; the Presumpscot River at the outlet of Sebago Lake, ie. directly below the Eel Weir Dam spillway, is Class A. WQC at 17. For waters that are classified as A and GPA, "[t]he habitat must be characterized as natural." 38 MRSA §§ 465(2)(A); 465-A(1)(A). "Natural" is defined by statute as meaning, "in, or as if in, a state not measurably affected by human activity." 38 M.R.S.A. § 466(9). The failure of the Draft WQC to require immediate passage for native non-anadromous Atlantic salmon at the Eel Weir Dam violates the Class GPA standards for Sebago Lake and the Class A standard for the upper Presumpscot River.[4]

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2 The WQC states at 20: "Existing Conditions. The Presumpscot River supports self-sustaining populations of several resident warmwater fish species (including smallmouth and largemouth bass, yellow perch, and chain pickerel) and migratory American eel. The river does not currently support self-sustaining populations of coldwater fish. However, several species of coldwater fish (including brook trout, brown trout, and landlocked Atlantic salmon) are present in the river, and are supported primarily by annual stocking. The Eel Weir Bypass currently provides a very popular year-round fishery for stocked coldwater fish (including brook trout, brown trout, and landlocked Atlantic salmon) and for indigenous landlocked Atlantic salmon that drop down from Sebago Lake."

3 *See*: June 17, 2011 MDIFW letter to FERC at 2: "The current minimum flow provisions were developed to address very different fishery management goals back in 1985. Existing flow provisions were developed to accommodate the development of a self-sustaining salmon fishery. This effort has not proved successful and the bypass is currently managed principally for brook trout, although some salmon and browns are also stocked to diversify angling opportunity. " *See also*: MDIFW (1997): "Water temperatures and the lack of a smelt forage limits salmon growth potential in the bypass." Brautigam, F. 1997. Presumpscot River Eel Weir By-Pass Fishery. Fishery Interim Summary Report No. 97-4. Maine Department of Inland Fisheries & Wildlife. Augusta, Maine.

4 *See also:* MDIFW study reports on the use of the East Outlet of the Kennebec River by wild non-anadromous Atlantic salmon at Moosehead Lake which states: "In the 1990s, FERC Relicensing of the Moosehead Project created an opportunity to assess conditions in the East Outlet, and the effects of operating the East Outlet dam on the fishery in the Outlet. The new license (issued on 11/25/97) included many provisions beneficial to fish. A couple of these provisions included the maintenance of the fishway in the dam that allows fish to pass up into Moosehead Lake from the Outlet, and habitat enhancements. IF&W identified 2 areas where habitat could be altered during the relicensing study period to address the limited amount of spawning area available in the East Outlet. One location was selected to improve conditions for salmon spawning, and the other to provide a refuge area for newly hatched fry. Kennebec Water Power supported and funded the work that was accomplished in August of 1998. These channels were both used by salmon for spawning the very first fall of their existence, and have been used every fall since then. IF&W has electrofished

D. Informal State Fisheries Management Plans Do Not Control Maine DEP Water Quality Certifications.

The WQC at 34, fn. 78, states, "[M]DIFW has expressed concerns that fish passage at the Eel Weir Dam would interfere with current landlocked salmon management plans and would allow access into Sebago Lake for invasive species. See letter from Francis Brautigam, DIFW Regional Fisheries Biologist, to Dana Murch, DEP, dated November 2, 2005."[5]

In 2010, the Maine Superior Court held that MDIFW has a "limited advisory role" in DEP regulatory proceedings regarding the effects of dams and MDIFW's role does not replace that of Maine DEP when the DEP considers WQC certifications or permits for existing or proposed dams. *Scribners Mills Preservation, Inc. v. Maine DEP*, CUM-AP-09-016 (2010) at 15.

As the Court stated in 2010 in *Scribners Mills*, informal state fisheries agency 'plans' and/or comments by fisheries agency staff have no legal standing in a WQC proceeding because state fisheries agencies and staff have no duty or authority to enforce the U.S. Clean Water Act or Maine water quality standards.[6] This duty is delegated solely to the Maine DEP and BEP. At most, these agency plans or

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numerous salmon fry throughout the refuge channel in the years after its construction. The year following the habitat improvements, IF&W monitored the fishway at the East Outlet Dam, and compared the catch of wild salmon for years before and after the habitat improvements downstream. IF&W observed almost a three-fold increase in the number of young wild salmon moving upstream into Moosehead Lake from the river below. Although the river may not be producing the number of salmon smolts to Moosehead Lake that we would expect from a river of its size, the habitat improvement work has been very successful. Monitoring of wild salmon production in the East Outlet continued during the summer of 2007. Region E fisheries staff with assistance from Kennebec Water Power trapped the fishway at the East Outlet Dam from June 25th until July 30th. A total of 1,535 wild salmon were collected. We are most interested in the number of salmon smolts, those less than 8 inches, that are moving up into Moosehead Lake. This size class is a good indicator of spawning success, and survival of young salmon. The number of wild salmon smolts collected this year, 618 (40%) indicates that there was good survival and recruitment of young salmon coming up through the East Outlet fishway and into Moosehead Lake." Source: MDIFW 2008 Region E Fisheries Newsletter accessed on-line at http://www.maine.gov/IFW/fishing/newsletter/region_e.pdf

5 Contrary to this assertion in the WQC, MDIFW has no 'management plan' for natural, self-sustaining population of landlocked Atlantic salmon in the bypass reach. *See*: June 17, 2011 MDIFW letter to FERC at 2: "The current minimum flow provisions were developed to address very different fishery management goals back in 1985. Existing flow provisions were developed to accommodate the development of a self-sustaining salmon fishery. This effort has not proved successful and the bypass is currently managed principally for brook trout, although some salmon and browns are also stocked to diversify angling opportunity. " *See also*: MDIFW (1997): "Water temperatures and the lack of a smelt forage limits salmon growth potential in the bypass." Brautigam, F. 1997. Presumpscot River Eel Weir By-Pass Fishery. Fishery Interim Summary Report No. 97-4. Maine Department of Inland Fisheries & Wildlife. Augusta, Maine.

6 In *Scribners Mills*, plaintiffs argued that Maine DEP had improperly delegated its water quality certification and permitting authority to MDIFW staff biologists, one of whom, Francis Brautigam, wrote pointed comments in a 2008 letter to DEP against rebuilding the Scribners Mills Dam above Sebago Lake. Maine DEP stated in *Scribners Mills* that written comments and plans submitted by state fisheries agencies and their staff to DEP are treated with no greater deference than any other evidence the Department considers in a WQC or permitting proceeding.

comments are just one of many documents the DEP must weigh and consider alongside all other submitted evidence in a WQC proceeding. *See also*: Maine BEP, *In the Matter of S.D. Warren Company Presumpscot River Hydro Projects Water Quality Certification*, Findings of Fact and Order on Appeal at 22 (October 2, 2003).

In the cited 2003 Presumpscot WQC above, appellant Warren argued that WQC conditions for fish passage at its dams were unlawful because they were based on a 'draft' fisheries management plan devised by the state's fisheries agencies which had not been fully reviewed and approved pursuant to Maine's Administrative Procedures Act. The Maine BEP, Maine Superior Court and Maine Supreme Court found this claim without merit.

Here, in a novel variant of Warren's claim, the Maine DEP appears to argue its options for WQC conditions requiring free passage for native salmonids and other fish at the Eel Weir Dam are strictly limited by the goals and objectives of an informal MDIFW recreational fisheries 'plan' for the river, one in which natural, self-sustaining populations of native brook trout and salmon is not desired. Such an informal 'plan' has no relevance in a WQC proceeding. As the 2003 BEP Presumpscot decision and the 2010 Maine Superior Court's *Scribners Mills* decision state, the Maine DEP alone determines what conditions are necessary in a WQC to ensure attainment of applicable water quality standards for native fish and other aquatic life. State fisheries agencies have at best a "limited advisory role" in the WQC process. *Scribners Mills* at 15. Agency 'plans' which would result in the *non-attainment* of water quality standards are entitled no deference in a WQC.

By the logic here employed by DEP, it could issue a WQC allowing the complete de-watering and extirpation of all aquatic life from a river reach simply because an informal state fisheries agency 'plan' stated this as its goal. DEP's position is akin to what S.D. Warren tried and failed to assert in 2003: that absent an official fisheries agency 'plan' which recommends restoring an extirpated native fish species, the DEP has no independent authority in a WQC to require water quality conditions necessary to restore and sustain the species.[7] Or, as the BEP said to S.D. Warren in 2003:

> "Taking Warren's argument to its logical extension, no fishways could be required anywhere by DEP (or, by the state's own fisheries agencies) unless a final fishery management plan had been

7 The DEP's position regarding deference to MDIFW 'plans' and written comments in this proceeding is opposite its position regarding the same issue (a dam), the same waterbody (Sebago Lake), the same state agency (MDIFW), the same fisheries biologist (Francis Brautigam) and the same fish species (Atlantic salmon) in *Scribners Mills*.

adopted, even though (1) the state's fisheries agencies are already charged under law with restoring sea-run fish to their historic habitat, and (2) the DEP is already charged under law with restoring the chemical, physical and biological integrity of the State's waters. Such an argument has no legal basis and could limit the restoration of sea-run fish to Maine's waters and the attainment of water quality standards in Maine's waters."

E. Native Brook Trout Require Immediate Passage at Eel Weir.

The Draft WQC offers wildly conflicting arguments and recommendations regarding this native species of Sebago Lake and the Presumpscot River. The DEP admits the species is native to Sebago Lake and its outlet, the Presumpscot River and states at 20 that the reach of the Presumpscot River does not today support native, self-sustaining populations of the species. The WQC offers no factual or scientific explanation for why a native indigenous fish species, the brook trout, can no longer live in a natural, self-sustaining manner in the upper Presumpscot River, when it used to do so without human assistance or intervention for the past 9,000 years.

Scientific and physical evidence offers some clues. The native brook trout of Maine (*Salvelinus fontinalis*) require a highly circumscribed set of parameters to live and prosper. In environments such as Sebago Lake and the upper Presumpscot River, directly below the outlet of Sebago, brook trout have evolved over millennia to take advantage of free access between these adjacent riverine and lake environments, using the riverine portion of their environment for parts of their life and the lake environment for other parts of their life, much like native Atlantic salmon. Brook trout are highly sensitive to warm water temperatures (ie. over 67 F) and in oligotrophic pond and lake environments seek out deeper waters below the thermocline during summer months. In the natural environment of Sebago, adult brook trout inhabiting the outlet river would most likely migrate into the deep waters of the lake during mid-summer. Extensive migration studies by MDIFW in the 1960s and 1970s of native brook trout in the Rangeley Lake chain documented large scale seasonal movements of brook trout to and from the various lakes and river thoroughfares, indicating that when brook trout are not naturally or artificially impeded, they can and do travel widely, presumably seeking preferred feeding habitat and water temperatures (DeSandre et al. 1977).[8] This has also been shown on the Magalloway River in

8 *See* also, the MDIFW 2006-2007 migration study of native brook trout at Chamberlain Lake, Maine, which states: "Radio tags were implanted into 39 mature males, 8 mature females, and 5 immature brook trout. We have tracked these fish periodically from the time they were tagged to the present to identify and pinpoint spawning areas, over-wintering areas, and other areas with concentrations of brook trout. Tracking was conducted using boats, snowmobiles, stationary data loggers, and Warden Service airplanes. Radio-tagged brook trout actively moved throughout the entire

northwestern Maine (Boucher 2008).

Native brook trout in the Eel Weir Reach are artificially confined to a short, 1.25 mile reach of free-flowing water by the Eel Weir Dam at the outlet of Sebago and downstream by the warmwater impoundment of the North Gorham Dam. Thermal refugia is supplied by a number of small seepage brooks along the free-flowing 1.25 mile reach, the larger of which support native brook trout of a very small size (2-4 inches) typical of such very small waters. Brook trout do spawn in the reach and in the spring the newly hatched fry are frequently observed in eddies along the river bank and in various side channels of the main channel. However, according to MDIFW, it is unknown how many of these fry successfully recruit to adulthood. Since the reach was re-watered in 1992, MDIFW has considered it necessary to artificially stock the reach with adult-sized hatchery-reared brook trout in order to sustain an adult brook trout population sufficient for a recreational sport fishery for the species.
At present, according to the Draft WQC at 20, neither MDIFW or DEP considers the reach in its existing or proposed condition as capable of supporting a fully natural, self-sustaining population of its native brook trout.

MDIFW and DEP identify warm water temperatures, especially in mid-summer, as a limiting factor to the maintenance of a natural, self-sustaining population of brook trout in the reach. In the past, MDIFW has stated its concern that higher minimum flows in the reach during the summer from Sebago Lake could impair these refugia by overwhelming them with warmer lake water. This analysis is flawed for several reasons.

The temperature of water from Sebago Lake entering the Eel Weir Reach is the same today as at any point in the past, since the lake itself has not changed. The principal and most important historic change to the Eel Weir Reach is the impassability of the Eel Weir Dam to fish, including native brook trout. The inability of native brook trout to freely migrate back and forth from the reach to Sebago Lake deprives the trout of their most effective *natural* adaptation against the effects of high mid-summer water temperatures in the reach. This impassability prevents trout from seasonally migrating into the

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Chamberlain Lake system at the end of September through early October. Most radio-tagged brook trout accessed spawning tributaries by the second week in October ... As we headed into the 2007 fall spawning season we noted some interesting movements exhibited by the remaining tagged brook trout. Of the 22 individuals still at large, we identified 13 that had spawned in Chamberlain Lake tributaries in 2006. All 13 returned to the same tributaries in 2007. This is strong evidence that individual brook trout home to specific sites within Chamberlain Lake tributaries." Source: MDIFW Region E Fisheries 2008 Newsletter accessed on-line at http://www.maine.gov/IFW/fishing/newsletter/region_e.pdf

cool, highly oxygenated thermocline and hypolimnion of Sebago Lake itself and back into the Eel Weir Reach for spawning and when the water temperature in the reach is at favorable temperatures. Because the Presumpscot River below the reach is impounded for virtually all of its length to Westbrook, the current lack of access to Sebago Lake by brook trout is even more sharply felt, as the trout are today literally "stuck" in a short 1.25 mile free-flowing remnant of the natural river.

However, neither DEP or MDIFW discuss this key biological limiting factor nor recommend the most obvious and logical remedy: a fishway at the Eel Weir Dam suitable for brook trout. Instead, the Draft WQC accepts without analysis the alternative suggested by MDIFW, which is to maintain a wholly artificial sports fishery for brook trout in the reach by annually and perpetually stocking thousands of aquaculture-origin, hatchery-reared brook trout into the reach to be immediately caught and consumed by sports anglers.

As a matter of law however, the creation and perpetuation of a wholly artificial 'fishery' for aquaculture reared brook trout is not a legally acceptable substitute for the restoration and maintenance of a natural, self-sustaining population of native brook trout in the Eel Weir Reach; and such an artificial fishery does not equate to attainment of the river's Class A 'natural' standard. On the contrary, the 'need' for such an artificial, perpetual enhancement is an admission by DEP and MDIFW that the Eel Weir Reach is not in attainment of its Class A standards as suitable habitat for its native brook trout, and is not in attaiment of its 'natural' standard, ie. "in, or as if in, a state not measurably affected by human activity." This illustrates the inappropriateness of Maine DEP relying on MDIFW informal fisheries 'plans' in a WQC proceeding.

MDIFW has no legal duty or authority to enforce attainment of Maine water quality standards. This duty is reserved solely to the DEP and the BEP. *BEP* at 22. MDIFW's legal duties toward the conservation of native fish species are amorphous and in actual practice the agency is often perfectly content with maintaining an artificial 'sports fishery' in a waterbody via the annual and perpetual stocking of aquaculture-reared salmonids of native origin (ie. brook trout), non-native origin (ie. brown trout and rainbow trout) or animals of wholly non-natural origin (ie. 'splake,' a non-reproductive, artificial hybrid of brook trout and lake trout).

In the instant case, the WQC admits its conclusions regarding the need for fish passage at the Eel Weir Dam (except for American eel) are based solely upon the whim and caprice of MDIFW fisheries

biologists who seem to prefer to 'manage' the Eel Weir Reach as a wholly artificial 'fishery' comprised of aquaculture-reared, hatchery-raised fish and have no interest in restoring its native fish, particularly its native salmonid species, to their historic, self-sustaining natural populations.

F. The WQC's lack of fish passage requirements at the Eel Weir Dam requires a Use Attainability Analysis (UAA).

Except for referencing the MDIFW 'plans' for the Eel Weir Reach, the WQC contains no rational explanation for not requiring the restoration of free passage for native fish at the Eel Weir Dam, which these species have enjoyed for the past 9,000 years and which allowed native salmonids to live in a natural, self-sustaining condition in the Eel Weir Reach for the past 9,000 years. The need for such an explanation is acute because the WQC admits at 20 that the Eel Weir Reach currently does not support natural populations of its native, indigenous salmonids (ie. brook trout and Atlantic salmon). The WQC offers no cogent explanation for this absence and offers no remedy for it.

Because the Eel Weir Reach is Class A, the DEP must treat it as it treats any other Class A waterbody. This means the reach must fully attain its Class A water quality standards, ie. it must be 'natural' and must be able to support its indigenous aquatic life, including its native salmonids in a 'natural' condition,' and in the WQC the DEP must certify that the Eel Weir Dam does not 'cause or contribute' to any non-attainment of these standards.

The decision by the Maine DEP in the WQC to not require necessary fish passage for native salmonids at Eel Weir creates a *de facto* 'sub-category' of Class A standards and legally designated uses specific and unique to the Eel Weir Reach of the Presumpscot River which is lower and less stringent than the plain language of Class A standards. This 'sub-category' essentially states that, unlike other Class A waters in Maine, the Eel Weir Reach need not be 'natural' and need not be capable of supporting natural, self-sustaining populations of its native salmonid species. The DEP cannot do this for several reasons. First is that the authority to create 'sub-categories' of legal water quality classifications and designated uses is reserved to the Maine Legislature. 38 MRSA §464(1) and (2). Second is that the U.S. Clean Water Act requires the completion of a 'Use Attainability Analysis' (UAA) prior to creating such a sub-category; and this UAA must be submitted to US EPA for review and approval before taking effect. 40 C.F.R. § 131.10(g). Last is that the legal requirement that a river be suitable for all of its indigenous species is mandatory in all water classification categories, including

Class C, the state's least protective.

In a WQC, the DEP must interpret applicable state and federal water quality laws, but its interpretation must be consonant with the plain language and intent of those laws. An interpretation which defeats the letter, goals and purpose of these laws is unlawful. The recent case at Flagstaff Lake is instructive.[9] At this Maine lake, the DEP issued a WQC to applicant FPL Energy under a new and novel interpretation of Maine Class GPA standards (the 'what you see is what you get' standard). On appeal by several citizens groups, the Maine BEP reversed the DEP's WQC order on grounds that the DEP, when writing the WQC, re-interpreted Class GPA standards so as to create a new and less stringent sub-category of water quality standards specific to Flagstaff Lake. The BEP found this new sub-category had not been formally approved and reviewed by US EPA as required by the U.S. Clean Water Act. On appeal by the dam owner, FPL Energy, the Maine Superior Court and Supreme Court affirmed the BEP decision.

The DEP's interpretation of Class A water quality standards in this Draft WQC is similar to its actions in the *Flagstaff* case. Here the DEP has re-interpreted and re-written Class A standards for the Eel Weir Reach to omit the narrative standard of 'natural' and the general standard requiring the river reach be suitable habitat for all naturally self-sustaining populations of its indigenous fish species, including native brook trout and Atlantic salmon. This interpretation stands opposite to the DEP and BEP's interpretation of these same standards in the 2003 WQC for Warren's other Presumpscot River dams, wherein the DEP and BEP stated (and Maine's highest court affirmed) that fish passage at these S.D. Warren dams is necessary to ensure the river reaches above and below these dams are capable of supporting all of their indigenous fish species, including Atlantic salmon, American eel, shad and river herring as required by the Class A, B, C and GPA standards for these river reaches. In the *Flagstaff* case, the BEP and Maine's courts made clear that DEP cannot arbitrarily create less stringent sub-categories of water quality standards for a specific waterbody without first seeking approval from the BEP, the Maine Legislature and US EPA.

The legal and procedural bar erected by the Court in the *Flagstaff* case has four levels.[10] First, the DEP cannot, through a WQC, re-interpret a water quality standard so broadly that its plain language

9 FPL v. Maine BEP. 2007 ME 97, 926 A.2d 1197. (Me. 2007).

10 In the *Flagstaff* case, Maine DEP attempted to re-interpret Class GPA and Class C standards at Flagstaff Lake so that the legal standards for the lake were deemed identical to whatever condition the lake was in at the time of WQC issuance, ie. "what you see is what you get." The BEP and Maine Courts rejected this as circular logic since it nullified the entire meaning and purpose of a water quality standard.

and intent is rendered a nullity. Second, if the DEP wishes to establish a new and less stringent interpretation of an existing legal standard at a waterbody, it must first seek BEP approval for this change. Third, the BEP must seek Legislative approval for the change. Last, if the Legislature approves the change, it must then be submitted to US EPA for approval before it goes into effect.

Here, the DEP in its WQC attempts to re-write Class A water quality standards for the Eel Weir Reach by omitting from the statute the 'natural' standard and the requirement the river be able to support all of its indigenous fish species in a natural, self-sustaining condition. This is especially disconcerting because the statutory requirement that a river be able to support all of its indigenous species is an integral part of *all* of the state's water quality classifications, including Class AA, A, B, C, GPA, SA, SB and SC.

The U.S. Clean Water Act, particularly its anti-degradation requirement, mandates a 'one-way street' as it respects the states' latitude in interpreting water quality standards in a WQC. The CWA allows and encourages states to continually adopt more stringent and more protective water quality standards and interpretations of them to further Congress' goal in enacting the CWA, ie. "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). In contrast, the CWA forbids the states from devising new and novel re-interpretations of the CWA and state water quality laws which confound and prevent achievement of this national goal. If states wish to downgrade or lower the existing legal standards of a waterbody, the CWA prescribes a very specific procedure for doing so, which ultimately requires submission of these changes to US EPA for final approval and, in the case of downgrades, the mandatory completion of a Use Attainability Analysis (UAA) by the state. The DEP has not done this.

G. Reservation of Authority to Require Future Fish Passage is an Inadequate and Unlawful Substitute for Immediate Fish Passage.

The 'reservation of authority' in the WQC at 53 which allows for possible, future passage for native salmon at the Eel Weir Dam is an inadequate and unlawful substitute for immediate passage for several reasons.

First is that native salmon require this passage *now* in order to re-inhabit their indigenous home in the upper Presumpscot River *now* so that the Class A 'natural' standard of the river is attained *now*.

Second is that the use of this 're-opener' in the future is at the sole discretion of the DEP. Once the WQC has been issued, citizens cannot legally compel the DEP to use it even if abundant evidence shows it should be used. This is because under Maine law, a decision by the DEP to *not* exercise a discretionary reservation of authority in a WQC cannot be reviewed by Maine's courts. *FOMB et al. v. Maine BEP* (2008); *Dumont v. Speers* (1968). Third, the re-opener states that a decision by DEP to exercise this re-opener in the future must be accompanied by formal notice to the licensee, a public hearing, and opportunity for the licensee to challenge the DEP's use of the re-opener to Superior Court. By the Court's ruling in *FOMB et al.*, it is highly doubtful whether citizens would even have standing in court in the event the licensee legally challenged a DEP decision to use the re-opener. The sum of all these effects is that the reservation of authority to the DEP via a 're-opener' strips Maine citizens of any and all of their legal rights in the future regarding the provision of fish passage for native salmon at the dam.

Lastly, the use of this re-opener misconstrues the purpose and intent of the WQC, which is to ensure the dam is not violating applicable state water quality laws at the time of WQC issuance. This 're-opener' cannot be conflated with the re-opener required in the 2003 WQC for the lower Presumpscot River dams. In that WQC, the DEP requires S.D. Warren to monitor dissolved oxygen levels in the lower river during the summer and *immediately* increase spill at the dams if dissolved oxygen standards are being violated. The purpose of the 're-opener' in the Presumpscot WQC is to allow the DEP to craft alternative methods for ensuring DO attainment in the future if the specific methods immediately prescribed at WQC issuance prove to be ineffective. The 're-opener' for fish passage at Eel Weir is the opposite in form and function to the DO re-opener on the lower Presumpscot. The Eel Weir re-opener allows an *existing and ongoing* violation of Class A standards in the upper Presumpscot River to continue indefinitely unless and until the DEP decides at some time in the future to fix it, and only then after a public hearing and opportunity by the licensee to challenge the decision to Superior Court. If the 2003 Presumpscot WQC were styled in this manner it would allow ongoing DO violations in the Presumpscot River to continue in perpetuity unless and until the DEP 'decided' they should be fixed. This is antithetical to the entire legislative purpose of a WQC, which is to ensure the licensed activity is not causing violations *now*.

H. Salmon and Trout in Maine will use fishways -- when they are provided for them.

This is shown clearly in recent data collected at the Lockwood Dam fishway on the Kennebec River in

Waterville, Maine, which began operation in 2006:

Lockwood Dam Fishway Count -- Non Sea-Run Fish Species: 2007-2011

Species	2011	2010	2009	2008	2007
LLS	95	481	405	172	222
SMB	110	117	126	185	80
BT	22	271	21	40	413
LMB	10	6	8	66	6
BKT	3	14	10	7	10
RBT	4	2	3	7	5
SPL	1	1	1	2	0
LT	0	0	1	0	0
Total counted	261	923	590	519	777

Code: LLS = non-anadromous ('landlocked') Atlantic salmon; SMB = smallmouth bass; BT = brown trout; LMB = largemouth bass; BKT = brook trout; RBT = rainbow trout; SPL = splake; LT = lake trout. *Data source*: NextEra Energy annual reports filed with FERC.

I. The provision of downstream passage for American eels will require upstream passage for salmon and trout anyways.

A logistical issue the WQC fails to consider or address is that the included requirement for downstream passage facilities at the Eel Weir Dam for outmigrating American eels will necessarily require upstream fish passage facilities at the dam for trout and salmon and other fish species. This is because salmon and trout migrate toward the outlet of Sebago Lake to seek spawning habitat in the upper Presumpscot River at the same time during the fall as adult eels migrate through the outlet on their journey to the mid-Atlantic Ocean to spawn. This behavior is confirmed by MDIFW's request for a 'flow-cap' of 1,000 cfs at the outlet during the fall, which ironically is intended to dissuade salmon and trout from migrating to the lake outlet to spawn. Given this situation, the downstream sluiceway and/or passage facility required in the WQC for adult American eels is also going to be inevitably used by trout and salmon at exactly the same time. And since adult eels and adult trout and salmon have the same general body size and girth, there is no effective way to only allow eels to pass downstream, but not trout and salmon. The problem, of course, is that once the trout and salmon migrate from Sebago Lake into the Eel Weir bypass reach to spawn in the fall, they will have no way to return to Sebago Lake after spawning since there is no upstream fish passage at the Eel Weir Dam for them. This will mean these adult salmon and trout will be effectively 'lost' to the Sebago Lake population. FOSL and the appellant have repeatedly pointed this fact out to MDIFW, MDMR and MDEP in our written comments during the past seven years and have received no coherent response. As best as we can

gather, MDIFW and MDMR biological staff have never discussed together how effective downstream passage for adult American eels can be provided at the Eel Weir Dam during the fall *without* also causing significant numbers of salmon and trout to take advantage of the same downstream passage facilities at the same time. The only physical solution would be for S.D. Warren to construct and operate a downstream fish passage sorting facility wherein downstream migrants would be collected and hand-sorted by S.D. Warren biological staff (which Warren does not have) or consultants hired specifically for the task by S.D. Warren. This would have to occur on a daily basis throughout the Sept. 1 to Nov. 15 eel out-migration season and it would be exhorbitantly time-consuming and expensive. The only other option would be to design a volitional downstream passage system for adult American eels which basically doesn't work -- or for the fisheries agencies and S.D. Warren to mutually seek a license amendment to *not* provide effective downstream passage for adult American eels.

It is for the above reason, among others, that the WQC requirements for the provision of downstream eel and fish passage at the Eel Weir Dam are inherently unworkable and are guaranteed to create a 'train wreck' once an attempt is made to implement them. The WQC states at 56 that the MDEP reserves authority to require downstream passage for native fish other than eels during the license term; but is only requiring downstream passage for eels at the present time. This is unworkable in practice since it requires that (a) other fish species will not use the same downstream passage facilities provided for the use of adult eels; or (b) that there is some workable method by which downstream passage for eels can be provided at the dam while excluding all other fish species from using the same facility. Both of these assumptions are false, since other fish species will use the passage device; and the only method which could prevent this use would require S.D. Warren to construct and manually operate an exhorbitantly expensive downstream trap and sort facility at the dam every day each fall for the entire license term. As FOSL and the appellant have previously noted in written comments, it would be far less expensive to S.D. Warren to construct an Alaskan steep pass fishway at the Eel Weir Dam spillway than to attempt to operate a downstream 'trap and sort' facility to physically prevent all fish species except adult eels from using the required downstream eel fishway.

J. The reason MDIFW opposes an upstream fishway at Eel Weir is because it would be a financial burden on the applicant.

Very early in this proceeding, c. 2000, FOSL and the appellant inquired of MDIFW biological staff why they were not supportive of an upstream fishway at the Eel Weir Dam. We were told that they

were opposed to an upstream fishway at the Eel Weir Dam because it would be a financial burden on S.D. Warren. Our response to MDIFW, which went unanswered, is that MDIFW has no authority or obligation to fashion its FERC license or WQC recommendations based upon how much they might cost the applicant. That financial balancing is the responsibility of FERC, as it regards the federal license, and has no place in a Clean Water Act water quality certification proceeding, since even the MDEP has no authority in a WQC to use cost to the applicant as a consideration.

Since this early date (c. 2000), the only other reason offered by MDIFW for its opposition to an upstream fishway at the Eel Weir Dam was stated in a Nov. 2, 2005 letter to FERC and MDEP, which as summarized in the WQC at 34, fn. 78, states that MDIFW opposes an upstream fishway at the Eel Weir Dam because an upstream fishway would 'interfere with current landlocked salmon management plans.' The WQC fails to note that this 2005 letter has been superceded by MDIFW's 2011 comments to the FERC, which states that MDIFW *doesn't have* a 'landlocked salmon management plan' for the Eel Weir bypass (See MDIFW letter to FERC, June 17, 2011: "Existing flow provisions were developed to accommodate the development of a self-sustaining salmon fishery. This effort has not proved successful and the bypass is currently managed principally for brook trout, although some salmon and browns are also stocked to diversify angling opportunity.") The biological reason has MDIFW has now abandoned its earlier 'landlocked salmon management plan' for the bypass is stated in an MDIFW management report (Brautigam 1997): "Water temperatures and the lack of a smelt forage limits salmon growth potential in the bypass."

As MDIFW been aware since the mid-1980s, the sole reason that 'smelt forage limits salmon growth potential in the bypass reach,' is because salmon in the bypass reach cannot back swim into Sebago Lake to eat rainbow smelt due to the lack of a fishway at the Eel Weir Dam. (*See*: Ritzi, 1986: ""With availability of smelt uncertain, it is unlikely that the bypass channel could support this many salmon. Growth rate would be poor and kelts (and many of the Sebago dropdowns would be spawners) would not recondition well. Most important, it does not appear at all certain that there is adequate food (smelt forage) available in the bypass channel or North Gorham Pond: (1) to grow bypass-channel-produced juvenile salmon to 17-20 inches (or even to legal size (14 inches)); (2) to maintain condition of adult salmon; or (3) to allow the reconditioning of kelts.")

To understand this 25-year tragicomedy of errors, one must scroll back to 1984, when the FERC issued its existing license to S.D. Warren for the Eel Weir Dam. At this time the Eel Weir bypass had

been nearly dry for 80 years and the MDIFW and USFWS wished to compel S.D. Warren to re-water the river reach. In pursuit of this goal, MDIFW wrote a formal management plan to restore native Sebago Lake Atlantic salmon to the Eel Weir Reach to create a high quality recreational fishery for large, lake-origin salmon (Pierce 1985). Sebago salmon would be provided to the reach by a downstream passage way at the dam and/or via stocking. *Id.* S.D. Warren, which opposed having to put any water into the Eel Weir Reach, hired Charles Ritzi as its expert consultant. Mr. Ritzi was a long-time fisheries biologist with MDIFW who had recently left the agency to do independent, private consulting for dam owners. On behalf of S.D. Warren, Mr. Ritzi wrote and submitted to FERC a rebuttal to the MDIFW re-watering proposal, which among other things, stated that the MDIFW plan to create a fishery for Sebago Lake Atlantic salmon in the Eel Weir bypass would not work because the adult salmon would require access back into Sebago Lake to feed on rainbow smelt, which is their sole food as adults, and there was no upstream fishway at the Eel Weir Dam for salmon to use. In saying this, Mr. Ritzi was stating a biological fact known to all MDIFW fisheries biologists familiar with the species (*See*: Decker 1967; Everhart 1976; Havey & Warner 1970). MDIFW's response was that 'perhaps' there were rainbow smelt in the shallow, artificial impoundment of the North Gorham Dam, immediately downstream of the Eel Weir Reach that salmon could feed on.

After nearly six years of legal battles before FERC, in 1992 the FERC ordered S.D. Warren to re-water the Eel Weir bypass at a flow of 50 cfs in spring, summer and fall and 25 cfs in the winter. (American Journal 1992). Between 1985 and 1992, MDIFW and USFWS abandoned their plan for a downstream fishway at Eel Weir to allow Sebago salmon to swim into the bypass reach. Instead, MDIFW decided to physically stock hatchery-reared salmon of 'catchable' size (ie. 10-12 inches) into the Eel Weir reach several times a year for anglers to catch. After five years of this practice, MDIFW (Brautigam 1997) reported that Charles Ritzi's 1986 prediction was correct: without free access to and from their natal habitat in Sebago Lake, landlocked salmon do not survive in the Eel Weir bypass due to a lack of access to rainbow smelt, their sole adult food source. But instead of using the 2004 re-licensing of the Eel Weir Dam to ask the FERC to require an upstream fishway at the Eel Weir Dam for salmon, MDIFW instead decided to give up having a salmon population or salmon fishery in the Eel Weir bypass reach (MDIFW 2011). And, during the course of the 10-year relicensing process, MDIFW has repeatedly stated its *opposition* to FOSL and the appellant's repeated requests for free passage for salmon at the dam, which is the one measure which all parties admit would allow MDIFW to achieve its original 1985 fisheries management goals for the reach.

Now enter the Maine DEP and its legal requirement to issue or deny a water quality certification for the Eel Weir Dam, which includes certifying that the Eel Weir Reach can support all of its indigenous fish species, including Sebago Lake Atlantic salmon. All of the record documents in the above summary have been previously submitted to the MDEP and are part of the administrative record for the WQC. FOSL and the appellant, by now, have submitted to MDEP a voluminous and fairly complete history of Atlantic salmon at Sebago Lake from the last Ice Age to present. But in the WQC the MDEP ignores, without reference or comment, all of the factual and historic data presented by FOSL and the appellant in the record on this topic. Instead, the MDEP simply says that it will not require an upstream fishway for salmon and trout at the Eel Weir Dam because the MDIFW wrote them a letter seven years ago which said they would not prefer it.

Since the MDEP's entire stated factual basis in the WQC for not requiring a fishway at the Eel Weir dam for salmon and trout (while doing so for juvenile American eels) is based on a single letter from MDIFW dated Nov. 2, 2005, the MDIFW's stated reasoning in this letter for opposing a fishway is the only factual matter available for the BEP to review in this proceeding.[11] As the above summary of record evidence shows, the MDIFW has failed to present the MDEP or anyone else with a factual basis for its opposition to a fishway. As the above record summary shows, the MDIFW's 'position' on this issue is so fundamentally detrimental to its own stated 'management goals' for Sebago Lake Atlantic salmon that it deserves no consideration or deference by the MDEP or the BEP. It literally makes no sense -- unless the original reason given by MDIFW in 2000 is true -- that building a fishway at Eel Weir would be a 'financial burden' to S.D. Warren.

J. The WQC's requirement of eel passage but not for any other native fish species has no factual or legal basis.

The WQC requirement for immediate and full upstream and downstream passage for native American eel (*Anguilla rostrata*) at the Eel Weir Dam is fully supported by science, history, the factual record and controlling law. WQC at 55-56. Presumably, the MDEP has made this legal requirement in the WQC based on evidence in the administrative record which shows that immediate and full passage for eels at the dam is required for Sebago Lake and its receiving water to be in attainment of their legal

11 The MDIFW's claimed concern in its Nov. 2, 2005 letter about 'invasive species' is unavailing since the letter fails to identify any 'invasive species' presently in the Eel Weir Reach which are not already present in Sebago Lake; and because MDIFW and MDMR routinely require fishway operators at nearly all dams in Maine to physically 'trap and sort' fish passing at upstream fish ladders in order to remove harmful, non-native invasive fish species. There is no reason this same routine practice could not also be required at a fishway at the Eel Weir Dam.

water quality classification, standards and designated uses. But actually, the WQC states this is *not* the case. The only facts or reasoning offered in the WQC for requiring eel passage at the Eel Weir Dam is that the Maine Dept. of Marine Fisheries (MDMR) has recommended it to the MDEP.

As the MDEP and the BEP and Maine's courts have stated, in both the *Scribner's Mills* decision and the *S.D. Warren* decision, the recommendations by the state's fisheries agencies have no binding legal effect in a water quality certification proceeding. The state's fisheries agencies and their staff have, at best, a "limited advisory role" in the water quality certification process. *Scribners Mills* at 15. (Written comments and plans submitted by state fisheries agencies to DEP are treated with no greater deference than any other evidence the Department considers in a WQC or permitting proceeding.) In this case, the MDIFW has not submitted any scientific or historic evidence to the record showing Sebago Lake Atlantic salmon are not native and indigenous to the Eel Weir reach bypass. MDIFW has said that they don't care if native salmon ever again live in this section of the Presumpscot River. Regarding the American eel, the MDMR has told the MDEP that they *do care* that eels are restored to a condition of health in Sebago Lake and the Presumpscot River. Good for them. But that doesn't mean it's okay and legal for the MDEP to deny the same benefits and protections for salmon and trout simply because their 'client' state agency, MDIFW, has said they *don't* care about them. But this is the only rationale the WQC states for not requiring passage for salmon and trout at the Eel Weir Dam but requiring passage for the American eel. The U.S. Clean Water Act is not a popularity contest.

CLAIM NINE

A. The WQC requirement for S.D. Warren to achieve a 'target' at Sebago Lake of 266.65 feet msl is unlawful because this level is well above the natural high water level of Sebago Lake.

Watts (2010) and others have reviewed existing historic records and documents to discern the natural high water mark of Sebago Lake. These records indicate that the level of the lake which is now considered 'full pond' by Maine DEP and the applicant is measurably higher than the lake's natural high water mark. The present day 'full pond' level of Sebago Lake is generally assigned to be 266.65 feet mean sea level as measured at the USGS gage station at Sebago Lake at White's Bridge in Standish using the USGS 1927 datum. As best as can be determined by historic records, the natural high water mark of Sebago Lake is somewhat lower, ie. approx. 265 feet msl as measured at White's Bridge. This is about 1.5 feet lower than the generally accepted 'full pond' level of 266.65 msl.

The most complete and compelling evidence for this difference was compiled by Sebago Lake historian Ernest Harmon Knight (Knight 1978).[1] Using late 19th century photographs and informants from that era, Mr. Knight cataloged a number of discrete changes which occurred along the shoreline of Sebago Lake after the last 'raising' of the outlet dam at Eel Weir in 1879 and the purchase of flowage easements by the Presumpscot Water Power Co. in 1884. These changes are also corroborated by statements of damages incurred by lakefront landowners after a singular flowage incursion in 1884 and the settlement of these one-time damages by the Presumpscot Water Power Company in Sept. 1884, which was the immediate predecessor owner of the outlet dam before S.D. Warren Company. The description and payment by PWP Co. for these damages are recorded in flowage easements granted to PWP by lakefront landowners in the Cumberland County Registry of Deeds.[2]

Under Maine law, riparian landowners on a great pond retain property rights to their land at and above the natural high water mark.[3] Any artificial incursions above this point created by a dam owner

1 Mr. Knight, a life-long resident of Raymond, Maine, died in 2007 at the age of 101 years. His date of birth (1906) allowed him unique access to local informants who were present on Sebago Lake before the last time the outlet dam was raised at Sebago Lake in 1879.

2 Easement instruments on file at Cumberland County Registry of Deeds. Book 511, pages 461-560.

3 See: Wood v. Kelley, 30 Me. 47 (1849), aff'd in Stevens v. King, 76 Me. 197 (1884). (Riparian landowners own their land to the low water mark of a lake unless otherwise limited.) In Stevens, the Court ruled: "Lands bounded on freshwater lakes and ponds extend only to the low water mark. Of course they may be bounded to the high water mark. But, in the absence of a clearly expressed intention to the contrary, the presumption is that they extend to the low water mark. This is the settled law of the state."

require the negotiation and purchase of flowage easements and the payment of damages. Deed records from Sept. 1884 show the predecessor owner of the Eel Weir dam negotiated and paid for flowage easements at Sebago Lake to riparian owners. These flowage easements stipulate the granting by the landowners to the dam owner a right to flow their land up to, but not to exceed, the maximum level the lake reached in 1884.[4] This level is not quantitatively stipulated in the easement instruments. During the 20th century the upper bounds of these 1884 flowage easements has been informally agreed to be approx. 267.15 feet msl as measured at the White's Bridge gage in Standish.

The WQC at 52 grants to S.D. Warren permission under the U.S. Clean Water Act to seasonally raise the level of Sebago Lake up to the 'full pond' height, which DEP estimates at 266.65 msl. The physical damages and impacts described by Knight (1978) along Sebago Lake resulting from the seasonal raising of the lake to this height after 1879 show that the 'full pond' height of 266.65 msl is 1.5 - 2 feet above the lake's natural high water mark. Records in Knight (1978) and Watts (2010) indicate the natural high water mark of Sebago Lake is no higher than 265 msl and is most likely in the range of 264-265 msl.[5]

Most compelling are Knight's statements and photographic documentation showing that after the 'raising' of the lake in 1879, a number of long-standing buildings on the lake shore had to be removed because their foundations were undermined by the higher lake level. This included a large barn at Frye Island and the main building of a summer camp, "The Venice," on an island in Raymond. Knight further references a large stand of mature white pine forest along the shoreline in Raymond which was cut down after the trees' root systems were flooded by the 1879 raising of the outlet dam. The abandonment and loss of these structures and mature forested land soon after the 'raising' of the lake in 1879 is clear evidence the seasonal lake level as maintained at the outlet dam since 1879 is above the lake's natural high water mark.[6]

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4 The September 1884 easement instruments convey a right to PWP Co. to flow lakefront land in a zone defined as the "height of the dam and the flashboards now existing"; and up to "any height or extent that same have been flowed during the current year of 1884;" and grant PWP Co., "the unrestricted right of maintaining and using, at its present height, the dam over and across the Presumpscot River, at the outlet of Sebago Lake, estimated according to the height of the dam and the flashboards now existing."

5 In some years, insufficient spring precipitation and snowmelt run-off cause Sebago Lake to *not* rise to anywhere close to its natural high water mark. At this writing (April 13, 2012), the level of Sebago Lake is approx. 2.5 feet below its 'full pond' level. This is a function of natural intra-annual variation which occurs in large, natural lakes such as Sebago.

6 *See*: Ernest Harmon Knight. 1978. "Raymond: Then and Now." Raymond Woman's Club, Raymond, Maine at p. 14, 36, 50 and 113.

The lack of any documented shoreline changes at Sebago Lake prior to 1879 and the lack of any flowage easements executed prior to 1884 indicates that the previous dams at the lake outlet did not raise the lake above its natural high water mark. The first raising of the lake above its natural high water mark occurred in 1879 by the Presumpscot Water Power Company, which received in 1878 a legislative charter to raise the existing 1857 outlet dam by 'up to' five feet. Records show the dam was completed in 1879 and for the next five years no legal complaints were raised by lakefront property owners. In 1884 an incursion above the natural high water mark of Sebago Lake caused lakefront landowners to seek financial damages from the PWP Co. and for PWP Co. to pay damages to the landowners and execute flowage easements.

The breadth of existing historic records indicate the agreed upon natural high water mark of Sebago Lake was approx. 264-265 feet as measured at White's Bridge in Standish. This is supported by a statement in the late 1860s by George Hammond, the superintendent for the paper mill at Cumberland Mills in Westbrook, that an increase of four feet at the 1857 outlet dam would only result in "a trifling damage for flowage." (Wells 1869). Based on records in Wells (1869) the four foot increase in the 1857 outlet dam proposed at the time by George Hammond would have increased the maximum spillway height at the dam to approx. 264-265 feet msl. In 1878, the Maine Legislature granted a charter to the Presumpscot Water Power Company, allowing it to increase the height of the existing 1857 outlet dam by "up to" five feet. In 1879 the PWP Co. completed its raising of the dam to within the legislatively authorized height of "up to" five feet above the height of the 1857 dam. No legislative authorization has been subsequently granted for raising the dam beyond that approved in 1878. Records show that no legal actions by lakefront property owners resulted from the 1879 raising of the lake -- until 1884. That year PWP Co. paid out cash damages and executed approx. 100 flowage easements by which it acquired flowage rights from lakefront property owners 'up to' the highest level the lake reached in 1884 -- a level not quantitatively described in the easement instruments.

Descriptions of damages in the 1884 easement instruments indicate that the water level of the lake rose above its natural high water mark that year and that the PWP Co. accepted financial liability for the incursion and damages caused. Review of the 100 easement instruments show only a small number include payments for actual damages. Typical is that for Samuel Garey, who was paid for the "loss of four cords of birch wood and five cords of poplar washed from Haskell's Landing." (Book 511, Page 486); and to Joshua Plummer for "loss of slabs and edges on our wharves." (Book 511, Page 512). Damages were also paid for two flooded cellars. The largest cash payment was to William Dillingham

($1,600) for lands flowed along the Crooked River from its mouth at Sebago Lake to the Songo Locks (Book 511, Page 512). The loss of lumber products stored on wharves is informative because it is assumed that lakefront property owners calibrated the height of their docks and wharves to the known natural high water mark of the lake prior to the raising of the outlet dam in 1879. The 1884 incursion, for the first time, caused the lake to rise above the level of the wharves and caused lumber stored on the wharves to float and wash away. Late 19th century photographs in Knight (1978) show several lakefront wharves from that era at mid-summer water levels, with the lake level 3-5 feet below the top level of the wharves. Knight's catalog of shorefront buildings which had to be either moved, abandoned or dismantled after the '1880s' raising of the lake is corroborated by the 1884 description of damage claims by paid by PWP Co. for flooded cellars of several buildings along the lake. Like the height of commercial wharves, it is assumed that these buildings were purposefully constructed well above the natural high water mark of the lake and only became inundated after the 1879 raising of the outlet dam.

B. Boating Interests and Expectations

It is settled law in Maine that boaters and riparian landowners do not have a legal right in a water quality certification proceeding to expect a great pond to be seasonally maintained at a level which is higher than its natural high water mark. *Save our Sebasticook v. Maine BEP* (2007 ME 102) at ¶34-35. Under Maine's GPA classification, the only applicable standard regarding water levels of a great pond is the 'natural' standard, which states the water body must be 'in, or as if in, a state of nature not measurably affected by human activity.'

As discussed by the Maine Supreme Court in *SOS v. Maine BEP*, the fact that a waterbody has been maintained in the past at a level higher than its natural high water mark is not relevant in a water quality certification proceeding; nor does past practice confer any legal right or expectation by boaters and riparian property owners that an artificial elevation of a great pond in the past constitutes an 'existing use' which must be 'protected and maintained' through a water quality certification issued by the Maine DEP pursuant to its authority under the U.S. Clean Water Act.[7]

By the same ruling and for the same reason, the Maine DEP has no legal authority in a water

7 See *SOS v. Maine BEP* at ¶34: "As the Board correctly notes, if SOS's interpretation of the antidegradation policy were to be adopted, then no existing use could ever be limited, and no dam could ever be removed, because portions of habitat for certain types of species would always be destroyed, and certain recreational uses would always be changed, as would the use of current hydroelectric power generators."

quality certification proceeding to mandate or permit the maintenance of a great pond at a level above its natural high water mark, since the applicable water quality standard (Class GPA) states the habitat of the lake shall be 'natural.'

C. The DEP upper target level for Sebago Lake of 266.65 feet msl has no basis in fact or law.

The Maine DEP cannot be called a 'reliable witness' regarding the natural high water mark of Sebago Lake, since in this same proceeding its staff has asserted that the existing Eel Weir outlet dam raised the natural level of Sebago Lake by *nine feet*. This claim is refuted by existing historic records and has been aggressively disputed by the Eel Weir dam owner, S.D. Warren. Records reviewed above, which largely agree with S.D. Warren's conclusions based on the same records, indicate the natural high water mark of Sebago Lake is in the range of 264-265 feet msl as measured at White's Bridge in Standish.

As a matter of law, the DEP cannot in a water quality certification proceeding compel a dam owner to annually raise the level of a natural great pond well above its natural high water mark. This is a violation the Maine Class GPA standard of 'natural,' ie. 'in, or as if in, a state of nature not measurably affected by human activity.' The only enforcement authority DEP has in a U.S Clean Water Act water quality certification proceeding regarding lake levels on a natural lake is to require the dam owner to operate the dam so that the lake is maintained within its natural level, ie. as if there was no dam at its outlet and no efforts were undertaken to artificially alter the lake's outflow from its natural, seasonal variation.

In the WQC the Maine DEP cites to no historic evidence showing its target level of 266.65 feet msl represents the natural high water mark of Sebago Lake. Extensive historic evidence shows otherwise (Knight 1978; Watts 2010). Furthermore, the 'natural high water mark' of a lake is not normally achieved each and every year. In many years, such as the present one, insufficient spring precipitation and snowmelt run-off causes the lake to not come close to its natural high water mark.

The WQC order at 52 requires S.D. Warren to make substantial, artificial reductions to the outflow of Sebago Lake each and every year in order to *force* the lake to reach a static 'high water mark' of 266 feet msl each and every year.[8] During years with very dry springs, such as this one, this

8 *See*: WQC at 52: "Lake levels shall be maintained within a target range of 266.65 feet msl and 262.0 feet msl, with lake

goal is unachievable since there is not enough inflow to the lake during the spring to cause it rise to 266 msl. More important, such a requirement conflicts with the 'natural' standard for the lake under Class GPA standards, since the requirement compels S.D. Warren, as dam owner, to attempt to force the lake to reach an arbitrarily specified high water mark each and every year, which *never* happens under natural conditions. Even if the upper target level of 266.65 msl was equivalent to the lake's natural high water mark, which it is not, forcing Warren to achieve this level each and every year causes Sebago Lake to not vary and function naturally as required by Class GPA standards.

C. The DEP allowable legal upper level for Sebago Lake of 266.65 feet msl makes the 'target' level of 266.0 msl unenforceable and meaningless.

The WQC at 52 makes two regulatory requirements regarding the upper bounds of lake levels at Sebago. The first is that Warren is required to maintain lake levels at all times below 266.65 msl, which is the "tippy-top" of the spillway crest at the Eel Weir dam structure. The WQC then instructs Warren to raise the lake to a 'target' level of 266.0 msl each year between May 1 and June 15. Simple math shows that 266.65 msl is 0.65 feet higher than 266.0 msl. In a lake the size of Sebago (~30 square miles), this difference equates to approx. 90,000 acre-feet of water. Regulatory prudence dictates that if the DEP's upper 'target' level is 266.0 msl, then the maximum *allowable* level should be no higher. The WQC gives Warren license to raise the lake up to 266.65 msl each and every year, thus rendering the 'target' level of 266.0 msl unenforceable and meaningless. If the DEP truly wishes Warren to adhere each year to the upper target level of 266.0 msl, this also has to be the maximum *allowable* level. The design and configuration of the Eel Weir Dam provides Warren with ample opportunity to ensure the lake does not rise above 266.0 msl at any time, since this level is well above the lake's natural level of 264-265 msl.

D. The only lawful regulatory nexus for the DEP's upper allowable and target levels of Sebago Lake is the lake's natural high water mark.

Nothing in the assembled historic and evidentiary record asserts or claims a property damage caused by Sebago Lake being artificially maintained *below* its natural high water mark. The only damages in the record occurred from the lake being raised above its natural high water mark. A recent example of such property damage occurred on Frye Island in Sebago Lake. In a January 27, 1998

levels above or below this range triggering increased or decreased flow releases, respectively, from the the project dam, and with the goal of achieving a level of 266.0 feet msl (0.65 feet below spillway crest elevation) between May 1 and June 15 annually."

Maine DEP Permit, L-195-4-2A-B-N, for a Gabion Retaining Wall to Geoffrey I. Rice of Frye Island, the Maine DEP stated:[9]

> "The applicant purchased this property in 1983 and at that time no significant erosion problems existed. In the late 1980's, the lake management plan was revised resulting in higher lake levels. As a result the western shore of Frye Island, including the applicant's property, has developed widespread erosion problems. On the applicant's property the existing sand surface layer has washed away exposing a clay sub layer. The exposed clay bluff continues to erode and slump into the lake. For several years the applicant has tried to stabilize the eroding slope with vegetation. Repeated attempts to establish a stable slope have failed due to failure of the toe of the slope. Stable vegetation is lost when large chunks of the clay bluff slump into the lake."

Nothing in the instant WQC Order provides evidence that the maximum *allowable* lake levels authorized to S.D. Warren and the maximum 'target levels' ordered for Warren will prevent future shoreline erosion of the type and scope suffered by Mr. Rice on Frye Island. Instead, the maximum allowable lake levels in the WQC are numerically indistinguishable from those in place during the 1990s, which according to the Maine DEP caused the 'widespread erosion problems' at Frye Island and caused Mr. Rice the loss of the entire front of his shoreline property.

On February 25, 1993, Herbert Hartman, the Director of the Maine Bureau of Parks and Recreation, stated in a letter to the FERC and Maine DEP:

> "Lake water levels in recent years, particularly after 1986, have been higher for longer periods of time in the summer and fall (Attachment #3). We believe this had three effects on the state park day-use area: a loss of beach width from the historic 25 foot to 30 foot to the recent 5 foot to 10 foot (Attachment #4); erosion of the shoreline and undercutting and loss of shoreline trees (Attachment #5); and loss of sand volume as water levels have not been low enough during the summer and fall to permit progradation of beach sand .... It is the Bureau's belief that a substantial departure from the lake water level management of the 80 year period has occurred resulting in substantial alterations to use of project lands in the period from 1987 to present and occurs under S.D. Warren's management from 1987 to 1990 and under the Maine Department of Environmental Protection's recommendations of 1991 and 1992 ... S.D. Warren spokesmen have indicated at public meetings that summer and fall levels were raised in 1987 to benefit two users of project lands and waters: private marina and boating interests which experienced reduced activity during the previous drought season, and the Company itself which could store summer and fall water to generate and sell more power in the winter under recently increased winter rates. However benign its intent, this decision ignored other users of project lands and waters with adverse effects such as beach loss and erosion. Moreover,

9 This 1998 DEP Order was obtained by Friends of Sebago Lake through a legal document request to Maine DEP under the Maine Right to Know Law.

> the Company's decision granted a primacy to private marina and boating interests in the recreational use of the lake which neither existed nor was proposed in the application which the Company submitted to the Bureau for review in 1979."

Nothing in the instant WQC Order provides evidence that the maximum *allowable* lake levels authorized to S.D. Warren and the maximum 'target levels' ordered for Warren will prevent future shoreline erosion of the type and scope described by Maine Parks and Recreation Director Hartman in 1993 at Songo Beach at Sebago Lake State Park. Instead, the maximum allowable lake levels in the WQC are numerically indistinguishable from those in place when Mr. Hartman wrote this letter in 1993.

A letter dated February 20, 1992 from Cindy Bastey of the Maine Bureau of Parks and Recreation to the FERC and Maine DEP states:

> "Recent information, together with Portland Water District historical water level records and the recollections of Bureau personnel who have worked at the park over the years provide a reasonable basis to suggest that the beaches were wider by perhaps as much as 15-25 feet in the past .... We believe the beach configuration is *not the same* as it was in earlier years and that a *considerable* amount of sand has eroded away. This is supported not only by the recollections of park employees but by photographs of the area in question." [emphasis in original letter].

Nothing in the instant WQC Order provides evidence that the maximum *allowable* lake levels authorized to S.D. Warren and the maximum 'target levels' ordered for Warren will prevent future shoreline erosion of the type and scope described by Maine Parks and Recreation employee Cindy Bastey in 1992 at Songo Beach at Sebago Lake State Park. Instead, the maximum allowable lake levels in the WQC are numerically indistinguishable from those in place when Ms. Bastey wrote this letter in 1992.

A letter dated November 3, 1994 from Maine Bureau of Parks and Recreation director Herbert Hartman to Mr. William Foley of S.D. Warren states:

> "That BPR has lost a substantial amount of beach at Songo Beach at Sebago Lake State Park has been acknowledged by a number sources identified in our original presentation to you. We believe a water level management plan which closely mirrors the historic lake level conditions under which the beach was maintained for many years will be the least costly form of mitigation of beach loss."

Nothing in the instant WQC Order provides evidence that the maximum allowable lake levels authorized to S.D. Warren and the maximum 'target levels' ordered for Warren will prevent future shoreline erosion of the type and scope described by Maine Parks and Recreation Director Hartman in 1994 at Songo Beach at Sebago Lake State Park. Instead, the maximum allowable lake levels in the WQC are numerically indistinguishable from those in place when Mr. Hartman wrote this letter in 1994.

A March 27, 1992 Maine DEP report titled "Report on Sebago Lake Water Levels" states at page 10:

> "It is obvious that the Park beach [Songo Beach] has lost a significant amount of sand in the past. This loss of sand has exacerbated high water levels on the beach, resulting in less useable beach today than was available historically during July and August. The critical need for lower than average water levels in early summer for the beach conflicts with the need to maintain adequate summer levels throughout the boating season. The current water level plan may or may not stabilize the existing beach. The feasibility of restoring the Park beach through the addition of sand should be evaluated as a partial solution to the problem of maintaining a useable beach during the primary recreation season (July and August), especially during wet years."

Nothing in the instant WQC Order provides evidence that the maximum lake levels authorized to S.D. Warren and the maximum 'target levels' ordered for Warren will prevent future shoreline erosion of the type and scope described in this 1992 Maine DEP report at Songo Beach at Sebago Lake State Park. Instead, the maximum allowable lake levels in the WQC are numerically indistinguishable from those in place when the Maine DEP published this report in 1992.

CLAIM TEN

A. The WQC requirement of the lower bounds of the lake level target range of 262.0 msl has no basis in fact or law and is harmful to natural beach accretion and natural beach re-building.

The WQC at 52 states: "Lake levels shall be maintained within a target range of 266.65 feet msl and 262.0 feet msl, with lake levels above or below this range triggering increased or decreased flow releases, respectively, from the the project dam, and with the goal of achieving a level of 266.0 feet msl (0.65 feet below spillway crest elevation) between May 1 and June 15 annually."

The 1910-2011 gage record for Sebago Lake shows many years where lake levels have gone well below 262.0 feet msl. The gage record further shows that the natural seasonal range in levels at Sebago Lake is approx. 7-8 feet, ie. from lows of 258 feet msl up to a 'full pond' level of 265 feet msl as measured at the White's Bridge gage. This documented inter-annual and seasonal variation in range is well recognized and accepted by all parties.

B. The 262.0 feet msl lower target bounds in the WQC is inconsistent with the expert opinion and testimony of the Maine Geological Survey.

On Sept. 9, 2005, Dr. Robert Marvinney, state geologist and director of the Maine Geological Survey, submitted comments on behalf of the State of Maine to the FERC regarding the need for Sebago Lake to intermittently achieve fall lake levels of 261.0 feet msl or lower in order to allow for the accretion and re-building of the natural beaches of Sebago Lake. Dr. Marvinney's comments to FERC were in response to comments filed by the license applicant, S.D. Warren Company. Page two of Dr. Marvinney's comments state (emphasis in original):

> **Page 29. S.D. Warren:**
>
> (a) "the theory of beach accretion during a drawdown level of 261.0 feet is unsupported and not beneficial to the constituents of Sebago Lake as a whole;"
>
> Comment: This statement points out a major misperception regarding accretion. Many critics of the concept of drawdown to promote accretion of sand from lower profile levels apparently believe that accretion is an instantaneous process that will show remarkable improvement to beaches following one or two cycles of drawdown to 261.0 feet. This process will likely require many cycles to show significant long-term improvement. The March 2002 accretion event is encouraging. The photograph shows a berm of sand moving up beach in advance of rising water levels. The profile for the same beach shows a significant sand accumulation up-profile from the rising water. **The 2-in-9 year 261.0 foot fall level is the only measure in the LLMP aimed at improving beaches rather than just maintaining status quo.**[10]

In 2003, several years prior to the above 2005 comments to the FERC and Maine DEP, Dr. Marvinney was asked by Maine DEP technical staff and the Commissioner of the Maine Dept. of

10 In its November 29, 2005 Final Environmental Assessment of the Eel Weir Project, the FERC concurred with Dr. Marvinney's 2003 and 2005 opinions on this point, stating: "**C. Unavoidable Adverse Effects**: Operation of the project, as proposed by S. D. Warren, would continue to contribute to localized erosion along the shorelines of Sebago Lake. Maintaining higher water levels, particularly during the fall and early winter, would exacerbate on-going erosion of the upper shore profile. Maintaining lower levels during the same period would reduce the effects of storm events on the shoreline, with a commensurate reduction in erosion and an increase in accretion."

Conservation to provide his expert opinion on the need and benefit of allowing Sebago Lake to reach levels in the fall of 261.0 feet msl or lower to encourage natural beach accretion. Dr. Marvinney's e-mail reply states in pertinent part:

> "Beach accretion is a slow process. In the late winter and early spring of 2002, we saw significant accumulations of sand that moved at least part way up the beaches in response to rising water and waves. This was following the fall and winter low lake level that bottomed out at 260.8 feet. Accretion works but it needs to be given a chance. A one-time effort will not work. Eliminating the provision to drop the level to 261 feet periodically will drastically reduce the effectiveness of the accretion process. Personally, I think the catastrophic lows, well below 261 feet, have benefited the beaches the most, much in the way the catastrophic highs have caused the most damage. But I have no direct data to support this viewpoint ... What to do? A. Don't give up on the 261 level. It's the only thing that promotes accretion of sand."[11]

The question asked of Dr. Marvinney in 2003 (and again in 2005) was in regards to the so-called "2 in 9" requirement instituted by the FERC in 1997 at the Eel Weir dam. This rule, which was agreed to by all parties in 1996 including the State of Maine and S.D. Warren, states that twice every nine years S.D. Warren shall allow the level of Sebago Lake to reach 261.0 feet msl or lower during the fall to encourage accretion and re-building of the lake's natural beaches, particularly those at Sebago Lake State Park. The "2 in 9" frequency was based upon the 1910-1986 lake level record which shows that, on average, the lake fell to 261.0 feet msl during the fall in two years out of nine years. The explicit purpose of the "2 in 9" rule is to replicate the natural frequency at which Sebago Lake fell below 261.0 feet msl in the fall during the 20th century. Dr. Marvinney's comments in 2003 and in 2005 iterate his expert opinion that allowing the lake to naturally drop to 261.0 feet msl during the fall on a frequency of twice every nine years is critical to natural beach accretion; and that physical evidence from 2002, the season after the lake was lowered to 260.8 feet msl in fall 2001, showed that the 2 in 9 rule was having the desired effect of encouraging beach accretion and rebuilding.

On July 8, 2011 Dr. Marvinney submitted comments to the FERC on behalf of the Maine Dept. of Conservation and the Maine Geological survey regarding S.D. Warren's 2011 modified lake management proposal. These comments state in pertinent part:

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11 This Dec. 20, 2003 e-mail by Dr. Marvinney was obtained by Friends of Sebago Lake in June 2004 via a formal request to the Maine DEP and the Maine Dept. of Conservation under the Maine Right to Know Law. In this same public document request, FOSL obtained a January 5, 2004 email response to Dr. Marvinney by Dana P. Murch of the Maine DEP, who wrote: "I agree with Bob Marvinney's analysis. In the end, I don't seen any compelling reason to change the plan that is currently in place. And I agree with the Bob's recommendations, with the following additional comments: A. Keeping the periodic low fall level of 261 in place makes sense, at least until we can determine whether or not it results in sand being restored to the beaches."

> "The 2-in-9 year requirement in the current LLMP to lower the fall lake level to 261 feet MSL should be eliminated. The intention of this requirement was to promote transport of sand up the beach from deeper areas around the shoreline as water levels rose during spring snowmelt. In practice, this target has been elusive for a number of reasons, not the least of which has been the frequency of significant late fall rain events in the past ten years. Furthermore, while the Maine Department of Conservation's Maine Geological Survey (MGS) has noted sand run-up on Sebago Lake State Park beaches following successful lowering of the lake to the 261-foot target, the volume of sand so moved has been insufficient to have a significant impact on the beaches of Sebago Lake State Park."[12]

Dr. Marvinney's comments to the FERC in 2011 cannot be factually squared with the analysis he provided internally to DEP and DOC staff via e-mail in 2003 and formally to the FERC on this same topic in 2005. Taken at face value, Dr. Marvinney's 2011 comments equate to the State of Maine completely 'giving up' on attempting to restore the natural beaches of Sebago Lake to their pre-1987 condition of size and health. His recommendation in 2011 to eliminate the '2 in 9' rule because it has not yet fully produced the desired result of full beach re-building is directly contradicted by his scientific counsel to DEP and DOC staff in 2003, which states:

> "Beach accretion is a slow process. In the late winter and early spring of 2002, we saw significant accumulations of sand that moved at least part way up the beaches in response to rising water and waves. This was following the fall and winter low lake level that bottomed out at 260.8 feet. Accretion works but it needs to be given a chance. A one-time effort will not work. Eliminating the provision to drop the level to 261 feet periodically will drastically reduce the effectiveness of the accretion process. Personally, I think the catastrophic lows, well below 261 feet, have benefited the beaches the most, much in the way the catastrophic highs have caused the most damage. But I have no direct data to support this viewpoint ... What to do? A. Don't give up on the 261 level. It's the only thing that promotes accretion of sand."

The above analysis by Dr. Marvinney in Dec. 2003 was made via private, inter-agency email and was only intended to be seen and read by DEP and DOC staff. This email was only made public after Friends of Sebago Lake submitted a formal legal request to the Maine DEP and DOC through Maine's Right to Know Law to release all inter-agency staff correspondence regarding the Eel Weir dam re-licensing during 2003. Dr. Marvinney in Dec. 2003 was 'talking turkey' and giving DEP and DOC staff

12 This statement is directly contradicted by Dr. Marvinney's 2005 letter to FERC, in which he said of the same accretion event: "The March 2002 accretion event is encouraging. The photograph shows a berm of sand moving up beach in advance of rising water levels. The profile for the same beach shows a *significant* sand accumulation up-profile from the rising water." One cannot call an event "significant" and later call it "not significant."

his frank scientific assessment on the topic of the physical process of beach accretion..

Dr. Marvinney's conclusions made via letter to FERC in 2011, which are the opposite of what he wrote in 2003 and 2005, fail scientifically. As Dr. Marvinney correctly states in 2003 and 2005, the only known physical mechanism which allows for natural beach accretion in inland lakes is the periodic and intermittent natural reduction in lake levels during the fall to the lower bounds of their historic, natural range. This is why he wrote in 2003, "Don't give up on the 261 level. It's the only thing that promotes the accretion of sand," and, "Eliminating the provision to drop the level to 261 feet periodically will drastically reduce the effectiveness of the accretion process," and, "Accretion works but it needs to be given a chance. A one-time effort will not work." In 2005, Dr. Marvinney re-iterated these same expert opinions to the FERC in an official comment letter in which he strongly disagreed with S.D. Warren's assertion that lowering lake levels to 261.0 feet msl had no beneficial effect on beach accretion, in which he stated:

> **Page 29. S.D. Warren:**
>
> (a) "the theory of beach accretion during a drawdown level of 261.0 feet is unsupported and not beneficial to the constituents of Sebago Lake as a whole;"
>
> Comment: This statement points out a major misperception regarding accretion. Many critics of the concept of drawdown to promote accretion of sand from lower profile levels apparently believe that accretion is an instantaneous process that will show remarkable improvement to beaches following one or two cycles of drawdown to 261.0 feet. This process will likely require many cycles to show significant long-term improvement. The March 2002 accretion event is encouraging. The photograph shows a berm of sand moving up beach in advance of rising water levels. The profile for the same beach shows a significant sand accumulation up-profile from the rising water. **The 2-in-9 year 261.0 foot fall level is the only measure in the LLMP aimed at improving beaches rather than just maintaining status quo.**

Dr. Marvinney's statements from 2011 on this subject cannot be factually squared with those he made in 2003 and in 2005 on this topic unless the fundamental laws of physics and sedimentary geology radically changed at some time between 2003 and 2011. It is important to distinguish in Dr. Marvinney's statements which statement was made in his role as a scientific expert and which was made in his role as a politically-appointed policy-maker, since these two roles are significantly different. As a politically appointed policy-maker, Dr. Marvinney is free to advocate any public policy he wishes for any reason he wishes. At Sebago Lake, he could advocate raising the lake by 30 feet or lowering it by 30 feet or paving it all over. But in his role as a geologist and scientist he is ethically

and professionally bound to ensure that his statements and conclusions in a public forum are consistent with accepted science and scientific data.

In his role as State Geologist of Maine, Dr. Marvinney asserted in 2003 and 2005 that the physical process of beach accretion at Sebago Lake requires intermittent, periodic low levels in the fall. This conclusion is fully supported by accepted geological science. His assertion in 2011 that this physical restoration mechanism 'isn't worth trying anymore' at Sebago Lake is not a conclusion of science -- it is a public policy decision. Public policy decisions are not required to be based on accepted science; often they run completely counter to accepted science.

The conclusions made by Dr. Marvinney in his July 2011 letter regarding the efficacy of periodically lowering Sebago Lake to 261.0 feet msl in the fall to promote beach accretion have no scientific basis for a number of reasons. The first is that what he said in 2011 is the opposite of what he said in 2003 and 2005 on the same scientific subject. In his 2011 letter, Dr. Marvinney describes no physical mechanism *other than* periodic lowerings of Sebago Lake which are capable of promoting natural beach accretion. In 2003 and 2005 he states that periodic lowerings of the lake during the fall are the *only thing* that promotes natural beach accretion. In 2011, Dr. Marvinney counseled the DEP, FERC, and the people of Maine to simply 'give up' attempting to re-build the natural Holocene beaches of Sebago Lake. In December 2003, Dr. Marvinney privately counseled his counterparts at Maine DEP and DOC: "Don't give up on the 261 level. It's the only thing that promotes accretion of sand." These two statements cannot be factually squared.

Dr. Marvinney's 2011 letter offers no ideas or solutions for rebuilding the natural beaches of Sebago Lake in the alternative to his earlier recommendations of periodic lowerings of the lake to 261.0 feet msl. Nor does he assert or present evidence that the WQC lower target level of 262.0 feet msl is sufficient to allow for natural beach accretion and will do the job as well as a periodic target level of 261.0 feet msl. Nor does he attempt to predict how much further the natural beaches of Sebago Lake will erode from their existing 'status quo' condition if the Maine DEP's target level of no lower than 262.0 feet msl is adopted.

Since the Sebago Lake LLMP was first instituted by FERC in 1997, including the '2 in 9' rule, S.D. Warren has only lowered the lake to 261.0 feet msl on one occasion: in the fall of 2001. In the ten years which have passed since the fall of 2001, S.D. Warren has not again lowered the lake in the fall to

261.0 feet msl and has not once complied with the '2 in 9' rule as instituted by FERC. As such the '2 in 9' rule has never even been scientifically tested. Dr. Marvinney's statement to FERC in July 2011 that the '2 in 9' rule *does not work* and therefore should be eliminated is factually untenable because the '2 in 9' rule has still not yet been implemented. It is scientifically implausible to conclude that evidence shows a restorative solution does not work when evidence shows the solution has never actually been implemented and tested. In his 2011 letter, Dr. Marvinney is doing exactly what he counseled against in his statements in 2003 and 2005: to 'give up' on periodic lowerings of the lake to 261.0 feet msl during the fall without ever actually implementing them (ie. "Accretion works but it needs to be given a chance. A one-time effort will not work. Eliminating the provision to drop the level to 261 feet periodically will drastically reduce the effectiveness of the accretion process."). Dr. Marvinney's own statements in 2003, 2005 and 2011 indicate that the one year (2001) in which fall lake levels were reduced to 261.0 feet msl had noticeable and measurable positive effects on beach accretion and re-building around the lake. However, in 2011 Dr. Marvinney attempts to dismiss and diminish these positive benefits by stating they only occurred for one year (2002) and did not fully restore beach profiles to their pre-1987 height and condition. But this is circular logic, since Marvinney himself said in 2003 that that a 'one-time' lowering of the lake to 261.0 feet mls 'will not work.' And that 'beach accretion takes time' and that, 'beach accretion is a slow process.' And in 2005 he stated to FERC that periodically lowering the lake to 261.0 or lower "is the only measure in the LLMP aimed at improving beaches rather than just maintaining status quo." This conveniently brings us to the subject of what is the 'status quo' of the natural beaches of Sebago Lake.

C. The natural beaches of Sebago Lake have suffered unprecedented, unnatural and severe damage since S.D. Warren's unilateral raising of lake levels beginning in 1987.

The DEP has already admitted sufficient material facts in various official permits and reports to establish that the artificially increased lake levels which have occurred at Sebago Lake since 1987 have greatly accelerated the rate of shoreline erosion compared to historic levels. *See*, e.g., January 27, 1998 Maine DEP Permit, L-195-4-2A-B-N, for a Gabion Retaining Wall to Geoffrey I. Rice of Frye Island ("The applicant purchased this property and at that time no significant erosion problems existed. In the late 1980s, the lake management plan was revised resulting in higher lake levels. As a result the western shore of Frye Island, including the applicant's property, has developed widespread erosion problems."). *See*, e.g. 1992 Maine DEP, *Report on Sebago Lake Water Levels*, ("It is obvious that the Park beach [Songo Beach] has lost a significant amount of sand in the past. This loss of sand has

exacerbated high water levels on the beach, resulting in less useable beach today than was available historically during July and August.")

In this 1992 DEP report, while admitting the recent loss of a 'significant' amount of sand and beach at Sebago Lake State Park, the DEP concluded this loss of natural beach height and breadth was necessary in order to accommodate and balance the perceived needs of boating and other interests, ("The critical need for lower than average water levels in early summer for the beach conflicts with the need to maintain adequate summer levels throughout the boating season. The current water level plan may or may not stabilize the existing beach.")

The DEP in 1992 further counseled the Maine Bureau of Parks and Recreation to explore trucking in non-native sand to Sebago Lake State Park beaches to replace what was being lost ("The feasibility of restoring the Park beach through the addition of sand should be evaluated as a partial solution to the problem of maintaining a useable beach during the primary recreation season (July and August), especially during wet years.").[13] Records show the DEP's 1992 statements regarding artificial replenishment of Songo Beach at Sebago Lake State Park were in direct response to numerous letters to the FERC and the DEP by the Maine Bureau of Parks and Recreation, the state agency which operates and manages Sebago Lake State Park and its natural beaches.[14]

Since the mid 1990s, members of Friends of Sebago Lake have systematically photographed areas of Sebago Lake State Park and Sebago Lake suffering from massive shoreline erosion. Since the DEP and BEP has in the past dismissed the veracity of such photographic documentation as being 'anecdotal' and 'amateur' and untrustworthy, in 2007 the appellant and FOSL went to the offices of the Maine Geological Survey in Augusta and scanned their entire photographic database of Songo Beach and Sebago Lake State Park, which totals more than 500 images, mostly gathered during the 1990s. The photographic methods used by the MGS scientific staff are identical to those used by FOSL members (35 mm camera and color print film). The entire photographic suite encompasses a nearly continuous time series of photographs at Songo Beach of the same locations and vantage points for a 20 year-period, which FOSL has extended through the acquisition of historic, archival photographs

13 This 1992 recommendation to the Maine Bureau of Parks and Recreation is particularly ironic since the DEP has repeatedly denied permit applications by Sebago Lake property owners to replenish lost natural sand at their shorefronts via non-native sand importation; and in 2012 took enforcement action against one landowner for doing this without a DEP permit.

14 *See*: Letter of Herbert Hartman, director of Maine Bureau of Parks and Recreation, to FERC and Maine DEP, Feb. 25, 1993; Feb. 20, 1992 letter of Cindy Bastey, Maine Bureau of Parks and Recreation, to FERC and Maine DEP.

dating back to 1870. The MGS scientific staff-generated photographs are non-distinguishable from those taken by FOSL and others in terms of equipment and method. Taken together, the archival historic photos, the MGS photos, and the FOSL photo time series function as direct physical evidence of long-term temporal changes to the condition of Songo Beach. This photographic time series physically confirms the claims of post-1987 beach and tree loss at Songo Beach described by Hartman (1993) and Bastey (1992) and others. The MGS photographic time series is included as Appendix A.

CLAIM ELEVEN

A. The DEP lake level targets violate state water quality standards for waterbodies in state and national parks.

One of Maine's largest and most highly used state parks, Sebago Lake State Park, occupies a large section of the northern shoreline of Sebago Lake on both sides of the mouth of the Crooked River and includes the largest and most expansive natural beaches of the lake, Songo Beach and Songo Spit Beach. These are two of the largest inland lake beaches in the State and and possess unique Holocene beach features (Parkin and Lortie 1989). In an April, 1989 report for the Maine State Planning Office titled, *Lake Beaches in Maine's Organized Towns*, in which 900 Maine lakes were studied, authors Drew Parkin and John Lortie concluded:

> "Sebago Lake was the only lake found to have beaches that are potentially eligible for registration as Critical Areas. This lake has 9 beaches, the greatest number of beaches of any of the lakes flown .... Of all lakes surveyed, Sebago Lake was the only lake rated high for beach significance. It warranted this rating due to both the high number of beaches found along its shoreline and the high quality of individual beaches. The most striking beach is a large, broad, undeveloped shoreline beach located on the southeast lake shore. Most of this shoreline is protected from development by the Portland Water District. Sebago Lake also has an extensive spit beach, which is located on the north shore by Sebago Lake State Park. A beach on Frye Island is one of only a few significant lake inland beaches in all of Maine and the only one of significance in the organized townships .... This lake's beach resources are clearly the most significant in the organized portion of the state and compare favorably with many unorganized area lakes found to have outstanding beach features. Based on the size, shapes, and natural integrity of Sebago's beaches, as well as the concentration of beaches on the lake, Sebago Lake's beach resources are clearly of statewide significance. While other lakes have an assortment of beaches, none of them were of the caliber of the Sebago beaches or beaches rated outstanding in the earlier Jones report .... Sebago Lake was the only lake found to have outstanding beach features. This lake's beach resources are clearly the most significant in the organized portion of the state and compare favorably with many unorganized area lakes found to have outstanding beach resources. Based on the size, shapes and natural integrity of Sebago's beaches, as well as the concentration of beaches on this lake, Sebago Lake's beach resources are clearly of state-wide significance."

Regarding Sebago Lake State Park, Maine's water quality classification laws state at 38 MRSA §464(4)(1-A)(2):

> "Where high quality waters of the State constitute an outstanding national resource, that water quality must be maintained and protected. For purposes of this paragraph, the following waters are considered outstanding national resources: those water bodies in national and state parks and wildlife refuges; public reserved lands; and those water bodies classified as Class AA and SA waters pursuant to section 465, subsection 1; section 465-B, subsection 1; and listed under sections 467, 468 and 469."

Abundant photographic and physical evidence shows the post-1987 lake level management at Sebago Lake has had a disastrous impact on the condition of the natural beaches and shoreline at Sebago Lake State Park, particularly the Songo Spit Beach and Songo Beach (See Appendix 1). This damage has had great negative impacts on the public's ability to use and enjoy Sebago Lake State Park and its facilities (Hartman 1993; Bastey 1992). Unprecedented levels of beach and shoreline erosion at Songo Beach since 1987 have caused the loss of many of the old growth red pine, white pine and pitch pine trees along the front of Songo Beach due to undermining of their root systems. Many of the large trees killed were 100-150 years old. Despite the 'adjustment' made to lake levels in 1997 by the FERC, which had a specific goal of reducing shoreline erosion and beach and tree loss at Sebago Lake State Park, physical evidence shows that beach and tree loss has continued since. Beach profile studies conducted by the applicant and the MGS continue to show erosion along the profile of Songo Beach and no sign of stabilization up to the present time.

Prior to 1987 S.D. Warren managed outflows at Sebago Lake to maintain a uniform monthly outflow of approx. 500-600 cfs. This outflow regime was in close agreement with that which occurred at Sebago Lake prior to the Civil War (Wells 1869); and had the effect of allowing lake levels to vary naturally and seasonally in accordance with annual precipitation, inflow and evaporation. Weekly lake level data maintained by S.D. Warren and the Portland Water District since 1910 shows a seasonal variation in lake level of approx. 6-7 feet, with seasonal highs occuring in May and June and seasonal lows in late fall and winter. In 1987, S.D. Warren began a program of curtailing summer outflow at the lake so as to increase outflow for winter electrical generation at its downriver hydroelectric dams on the Presumpscot River. At the time, Warren received financial benefit from this change due to a premium price paid by Central Maine Power during periods of high winter electricity demand. To achieve this financial goal, Warren found it advantageous to maintain lake levels 1-3 feet higher than historic norms during the summer and fall, thus creating additional storage in the lake to allow for

greater than normal winter outflows. This increase in lake level during the summer and fall exerted a strong and immediate physical response along the shoreline of Sebago Lake, wherein large sections of formerly stable shoreline were undermined, eroded and collapsed, causing extensive property damage. This increase in lake levels caused immediate and severe erosion at Sebago Lake State Park (Hartman 1993; Bastey 1992); and also at other parts of the lake (*See e.g.*, Jan. 27, 1998 Maine DEP Permit Order, L-195-4-2A-B-N, for a Gabion Retaining Wall to Geoffrey I. Rice of Frye Island):

> "The applicant purchased this property in 1983 and at that time no significant erosion problems existed. In the late 1980's, the lake management plan was revised resulting in higher lake levels. As a result the western shore of Frye Island, including the applicant's property, has developed widespread erosion problems. On the applicant's property the existing sand surface layer has washed away exposing a clay sub layer. The exposed clay bluff continues to erode and slump into the lake. For several years the applicant has tried to stabilize the eroding slope with vegetation. Repeated attempts to establish a stable slope have failed due to failure of the toe of the slope. Stable vegetation is lost when large chunks of the clay bluff slump into the lake."

Record evidence shows this new higher summer and fall level regime was found favorable by two constituencies on Sebago Lake: private marina owners and landowners who had purchased shorefront on very shallow, marginal sections of the lake. These constituencies found the new higher levels preferable to the historic (ie. pre-1987) regime and exerted considerable political pressure on state and federal goverments and S.D. Warren to *not* revert the lake to its historic, pre-1987 condition. These constituencies went to the extreme of stating that sudden, massive old growth tree loss documented at Songo Beach at Sebago Lake State Park was caused wholly by children and other beachgoers stepping on tree roots at the State Park. In 1989 and 1990, discussions between S.D. Warren and a number of lake constituents resulted in a tentative agreement by Warren to abandon its new outflow regime and to bring summer and fall lake levels back to their historic norms.[15] On this topic, a May 22, 1990 internal memo by Mr. Jeff Dennis of the technical staff of the DEP's Land and Water Quality Bureau to Ms. Deborah Richard of the DEP stated:

> "According to the water level data which you provided the recent water level management of Sebago Lake has resulted in water levels consistently 1 to 2 or more feet higher than the normal water

15 "In 1989, Stephen M. Kasprzak, a lakefront landowner, submitted a letter to the Commission alleging that fall and winter lake levels were two to three feet higher than in the past and that this resulted in erosion during the fall and winter months on shorelines exposed to the prevailing easterly and northeasterly winds. In January 1990, S.D. Warren agreed to revert to the lake level regime used prior to 1987, and Kasprzak withdrew his complaint. The Maine Department of Environmental Protection (Maine DEP) expressed approval of the reversion to the pre-1987 lake level regime, stating that the higher lake levels could adversely affect water quality by increasing phosphorus in the lake, and algae could feed on phosphorus." (Federal Energy Regulatory Commission. Order Approving Settlement and License, 79 FERC ¶ 61,064, at 3).

level regime for 7 to 10 months of the year. I was happy to hear that S.D. Warren has agreed to return to their former, traditional water level management program, because continuation of the elevated water levels of recent years could significantly impact water quality.

"The two water quality impacts of greatest concern to us in this situation are (1) the increased potential for shoreline erosion and resultant phosphorus loading and habitat relocattion and (2) the increased potential for phosphorus contribution to the lake from marginal shoreline septic systems.

"Lake shorelines are a result of the long term cumulative effect of erosional sedimention processes. The location and character of the shoreline are a function of the water level on the lake as well as the type and distribution soil and geologic formations in the shoreline area. If a lake's water level regime remains consistent with only natural (or the equivalent) fluctuations over a long period of time, the shoreline will reach an equilibrium with that particular water level regime. This means essentially that most of the erosion which is likely to occur has already occurred and that additional significant erosion is only likely to occur if the water level regime is significantly modified, either naturally or by human manipulation. The length of time which it takes to establish this equilibrium is dependent on the nature of the shoreline's soils and parent material. A shoreline in marine clay may take a very long time to reach equilibrium and the naturally stable location of the shoreline may be a long horizontal difference from the original shoreline location. Less erodable materials will reach equilibrium quicker and result in steeper stable shorelines.

"The recent substantial increase in the average water level of Sebago Lake has exposed shoreline soils to erosional forces at a greater frequency and intensity than before, thus disturbing whatever equilibrium had been established under the previous water level regime. In portions of shoreline with the most erodable soils and greatest exposure to wave action this has no doubt resulted in substantial erosion, undercutting and destabilization of banks, failure of manmade erosion control structures (e.g. retaining walls), loss of near shore trees and their associated stabilizing root systems, suspension of finer soil particles in the water column and deposition of both coarse and fine particles in the littoral zone. Unless a very high percentage of the shoreline is either naturally resistant or artificially protected from the increased exposure to erosional forces, the resulting phosphorus loading from the eroded soil particles could be substantial. Although not all of this phosphorus is available for algal production at least some of it can be directly harvested by algae, and more will eventually become available as a result of exposure to bacteria and other metabolic processes ....

"Anything that can be done to minimize phosphorus loading to Sebago Lake, particularly something as simple as controlling water levels, should be. The other cumulative sources of phosphorus to Sebago Lake, probably our most valuable lake resource, are diverse, distributed throughout the watershed and comparatively difficult to address. It is unlikely that any other single act could benefit Sebago Lake's water quality as much as effective water level management. Such management must include an effort to minimize periods of 'abnormally' high water levels, and should be included in S.D. Warren's long term hydropower plan."

As the agreement discussed by Mr. Dennis above was being finalized, the Commissioner of the

Maine DEP, Dean Marriott, withdrew his support for Warren's proposal and instead order staff to create a series of 'compromise' lake control regimes which had the aim of 'balancing' the perceived needs of 'high water' and 'low water' constituencies at Sebago Lake. Upon implementation of these DEP-created 'compromise' lake level regimes, severe shoreline erosion continued at Sebago Lake State Park. In March 1992 the Maine DEP issued a report stating its plan 'may or may not' stop ongoing beach loss and erosion at Sebago Lake State Park, and stated that the State Park had to 'get used to' the ongoing shoreline erosion caused by its plan, and suggested the Maine Bureau of Parks and Recreation explore trucking in, at their own expense, non-native sand to replace the sand being annually lost at the natural beaches at Sebago Lake State Park.[16]

The above record evidence shows the Maine DEP has been aware since at least 1990 that the alteration of the lake's historic regime after 1987 has had a deleterious effect on the natural beaches and shoreline of Sebago Lake State Park and the various compromise 'plans' concocted by the DEP in the early 1990s were not designed or intended to arrest this ongoing damage.

In 2011 the S.D. Warren Company proposed to the FERC a lake outflow regime that is similar in structure and outcome to its pre-1987 regime. Warren submitted this proposal in 2011 for DEP to review for water quality certification. In the WQC the DEP reviews the proposal and makes several binding conditions on it. One of these conditions is the establishment of a lower target range for Sebago Lake of 262.0 feet msl. This lower target range does not mean that the lake can never fall below 262.0 feet msl, but that Warren is required by DEP to take certain operation steps to keep the lake above this level. Record evidence shows the lower target range is approx. two feet above the natural lower level of the lake based upon the historic 1910-1986 gage record. As such it represents an artificial raising of the lake above its historic seasonal low levels and an artifical constriction of the lake's natural seasonal variation , ie. from a natural historic variation of 6-7 feet to 4.5 feet or less. Expert scientific opinion, ie. that of the MGS, is that occasional (but not every year) levels of below 262.0 feet msl are critical to beach accretion. During the one year since 1987 where lake levels fell below 262.0 feet msl in the fall (2001), the MGS documented significant beach accretion the next

16 *See*: Responses of Maine Bureau of Parks and Recreation to 1991 DEP 'compromise' plan: "[B]ecause the fall water levels remain similar to those of the late 1980s, we have reservations that the 'compromise' will restore the beach to widths traditionally enjoyed, prevent further erosion and tree damage or foster sufficient progradation to restore the lost volume of sand to the beach." (Letter of Herbert Hartman, Maine BPR Director, to FERC, May 13, 1991). Regarding the 1992 revised DEP 'compromise' plan: "Those adversely affected by the raised levels are now asked to accept 'balanced' consideration of uses which were fostered by the unapproved departure from the license." (Letter from Herbert Hartman to Dean Marriott, Maine DEP Commissioner, April 29, 1992.)

spring and concluded that periodic lowerings of the lake in the fall at or below 261.0 feet msl were critical for beach accretion to continue occurring. These periods of accretion are especially important given the very large amount of beach loss which has occurred since 1987 due to the lack of periodic low lake levels in the fall since 1987 and the maintenance of the lake at much higher than historic levels during the summer and fall since 1987.

Regarding this issue, the WQC at 50 introduces an 'alternate' definition of this legal standard, which states: "Maine water quality standards do not require that lake levels and stream flows be as naturally occurs in order to attain Class GPA and Class A water quality standards, respectively. Rather, Class GPA and Class A standards are intended to protect and maintain the ecological functions and values of *natural* conditions for high quality waters. These standards do not require that lake levels and stream flows be unaltered." (emphasis added).

This alternate definition of Class GPA waterbodies in and adjoining State Parks is permissible so long as there is evidence that the 'alternate' standard is *equally protective* as the plain language of the Class GPA standard of 'natural,' ie. 'in, or as if in, a state of nature not measurably affected by human activity.' Record evidence indicates the lower target level of 262.0 feet msl is neither 'natural' under the plain language of Class GPA standards, nor is it *equally protective* as the plain language standard for high quality waters such as Sebago Lake set forth at 38 MRSA §464(4)(1-A)(2).

In order to substitute an alternative standard in place of the 'natural' standard, the DEP must show, through record evidence, that its alternate standard is equally protective as the natural standard. In this case, record evidence shows a lowermost target level of 262.0 feet msl is *less protective* than the 'natural ' standard because it inhibits and prevents natural beach accretion and rebuilding during the fall by artificially constraining upward Sebago Lake's natural levels during the fall to 262.0 feet msl or higher. The inhibition of natural accretion at the beaches at Sebago Lake State Park by artificially high fall lake levels, ie. above 262.0 feet msl has a direct negative impact on their health and condition. *See:* Marvinney (2003): "Eliminating the provision to drop the level to 261 feet periodically will drastically reduce the effectiveness of the accretion process ... Don't give up on the 261 level. It's the only thing that promotes accretion of sand."; and Marvinney (2005): "The March 2002 accretion event is encouraging. The photograph shows a berm of sand moving up beach in advance of rising water levels. The profile for the same beach shows a significant sand accumulation up-profile from the rising water ... The 261.0 foot fall level is the only measure in the LLMP aimed at improving beaches rather

than just maintaining status quo." [17]

B. The DEP low level of 262.0 feet msl target prevents beach accretion by ice-bulldozing and by fair-weather, longshore wave action.

In his Sept. 9, 2005 comments to FERC, Dr. Marvinney of the Maine Geological Survey discussed in detail how non-storm-related longshore wave action combined with naturally low water levels in the fall tends to accrete and prograde sand toward the upper profiles of the beaches at Sebago Lake:

> **p. 6. Section III D. 1.** Recommended changes, State of Maine "The lake would reach a target level of 266.65 feet (spillway crest) on, but not before, May 1..."
>
> **Comment:** Entirely too much emphasis has been placed on May 1 as the full pond date in this report. This is the earliest date permissible for full pond with acceptable range for full pond May 1 – June 15, and the target level is 266.65 to 266.0 feet. This focus on May 1 as a target date is also overemphasized in Section V.C. 1b.
>
> **p. 25, Section V.C.1a.** "Lake waves, during the non-storm events typically do not have the power to move sand to rebuild sandy beaches. Important beach rebuilding processes for beaches associated with a lake are typically: (1) transport by ice 'bulldozing,' typically along windward shores of the lake during ice freeze-up periods; (2) replenishment by erosion of upper beach structures; (3) sand transport along the shore from nearby areas; and (4) tributary re-supply."
>
> **Comment:** Profiles by the Maine Geological Survey (MGS) over more than 10 years demonstrate that lake waves *must* be capable of moving sand outside of storm events. MGS reports (Dickson and Johnston, 1994; Johnston and Mixon, 1998) show the nearly seasonal cycle of beach profile adjustment, most of which happens during periods which do not include significant storms. Furthermore, item 3 in the subsequent list of "important beach rebuilding processes" contradicts the opening statement. Item 3 describes longshore drift which is a process driven largely by fair weather waves.

The one item which Dr. Marvinney does not discuss in detail above is the process of 'ice-bulldozing' during the spring and its contribution to seasonally rebuilding the beaches of Sebago Lake. In this process, broken ice sections (8-30 inches thick) are pushed by wind and wave action at ice-out in such a way that they 'bulldoze' berms of sand back up the shoreline profile as during the early

17 As reviewed earlier, the MGS recommendation in 2011 to drop the '2 in 9' rule is not based on any new scientific findings or scientific analysis, but was instead a public policy decision dictated by the state's executive branch for political purposes, which is within the rights of the executive branch but is not a substitute for objective scientific analysis and evidence in a U.S. Clean Water act administrative proceeding.

spring. This process is dramatically shown in the Maine Geological Survey photo taken at Songo Beach in Sebago Lake State Park on April 1, 1992:

The above Maine Geological Survey photo shows the dramatic effect of ice-bulldozing on Sebago Lake's beaches, here at Songo Beach on April 1, 1992, where 2-3 foot berms of sand have been pushed up the beach front by pieces of lake ice pushed against shore by prevailing winds. This natural beach rebuilding mechanism can only work if late fall and winter lake levels periodically reach their historic minima, which at Sebago is in the range of 258-260.0 msl.

CLAIM TWELVE

A. The level targets in the WQC violates the anti-degradation provision of the U.S. Clean Water Act and Maine water quality standards.

The anti-degradation provision of Maine water quality standards that a legally designated use of a waterbody which actually occurred on or after Nov. 28, 1975 must be 'protected and maintained.' 38

MRSA §464 (4)(F)(1)(D, E).[18] This provision of law does not apply to uses which arise from, and are dependent upon, an artificial increase in the natural height of a waterbody. *Save our Sebasticook v. Maine BEP* (2007 ME 102) at ¶34-35. This provision solely applies to designated uses which arise from the waterbody in its natural condition. *Id.* One legally designated use of Sebago Lake is for the public to swim and recreate along the lake's natural shores and beaches in their *natural* condition. Because this public use actually occurred on and after Nov. 28, 1975 at Songo Beach at Sebago Lake State Park and other areas of the lake, it is a legally designated used which must be 'protected and maintained' under the anti-degradation provision of Maine's water quality laws.

Record evidence shows this designated use has been degraded and has not been 'protected and maintained' since S.D. Warren Company unilaterally raised the level of Sebago Lake in 1987, especially at Sebago Lake State Park. This was stated in a letter by Maine Bureau of Parks and Recreation Director Hartman in 1993:

> "Lake water levels in recent years, particularly after 1986, have been higher for longer periods of time in the summer and fall (Attachment #3). We believe this had three effects on the state park day-use area: a loss of beach width from the historic 25 foot to 30 foot to the recent 5 foot to 10 foot (Attachment #4); erosion of the shoreline and undercutting and loss of shoreline trees (Attachment #5); and loss of sand volume as water levels have not been low enough during the summer and fall to permit progradation of beach sand .... It is the Bureau's belief that a substantial departure from the lake water level management of the 80 year period has occurred resulting in substantial alterations to use of project lands in the period from 1987 to present and occurs under S.D. Warren's management from 1987 to 1990 and under the Maine Department of Environmental Protection's recommendations of 1991 and 1992 ...

A letter dated February 20, 1992 from Cindy Bastey of the Maine Bureau of Parks and Recreation to the FERC and Maine DEP states:

> "Recent information, together with Portland Water District historical water level records and the recollections of Bureau personnel who have worked at the park over the years

18 "The antidegradation policy of the State is governed by the following provisions. (1) Existing in-stream water uses and the level of water quality necessary to protect those existing uses must be maintained and protected. Existing in-stream water uses are those uses which have actually occurred on or after November 28, 1975, in or on a water body whether or not the uses are included in the standard for classification of the particular water body." Also, at 38 MRSA §464(F)(1-A)(B): "The department may only issue a waste discharge license pursuant to section 414-A, or approve a water quality certification pursuant to the United States Clean Water Act, Section 401, Public Law 92-500, as amended, when the department finds that ... (b) The existing in-stream use involves use of the water body for recreation in or on the water, fishing, water supply or commercial enterprises that depend directly on the preservation of an existing level of water quality and the applicant has demonstrated that the proposed activity would not result in significant degradation of the existing use."

> provide a reasonable basis to suggest that the beaches were wider by perhaps as much as 15-25 feet in the past .... We believe the beach configuration is *not the same* as it was in earlier years and that a *considerable* amount of sand has eroded away. This is supported not only by the recollections of park employees but by photographs of the area in question." [emphasis in original letter].

In spring 1992, Maine Bureau of Parks and Recreation Director Herbert Hartman provided the Maine DEP with his assessment of the DEP's first 'compromise' plan.

> "The [1991] compromise water levels increased the state park beach width over that in the late 1980s, and we are thankful for that improvement. However, the beach was still narrower than experienced park personnel believe it was prior to those years. The proposal for 1992 increases water levels during July and August, further reducing beach width during the busiest period of our season. It also grants higher fall water levels to marina and boating interests, altering the historic pattern of fall drawdown which may favor beach restoration. The Bureau notes that the 1991 water level was tested for only one year. We do not see what has changed during this year to invalidate the beach-related arguments that supported the 1991 levels .... Those adversely affected by the raised levels are now asked to accept 'balanced' consideration of uses which were fostered by the unapproved departure from the license." [19]

As Mr. Hartman noted in his 1992 letter, the new DEP 'compromise' plan for 1992 increased water levels above those in the 1991 plan which themselves were well above the historic, pre-1987 levels and resulted in continued beach loss, tree loss and erosion at Sebago Lake State Park. The DEP admitted this in its 1992 report at 10.[20] Despite this admission, the Maine DEP continued to advocate for much higher water levels than historic conditions (ie. pre-1987). The continued loss of natural beach and old growth shoreline trees at Sebago Lake State Park was further documented by MGS staff field study well after 1992 (Appendix 1).

The WQC correctly states that the median low level of Sebago Lake since 1910 is approx. 262.0 feet msl. However, the median is the 'middle' number in a discrete numerical sequence. A median low level of 262.0 feet msl means, in general, that in half the years since 1910 the lowest seasonal water level were below 262.0 feet msl and half were above it. By definition, for the *median* low level at

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19 Letter from Herbert Hartman, Director of the Maine Bureau of Parks, to Dean Marriott, Commissioner of the Maine Department of Environmental Protection, April 29, 1992.

20 "It is obvious that the Park beach [Songo Beach] has lost a significant amount of sand in the past. This loss of sand has exacerbated high water levels on the beach, resulting in less useable beach today than was available historically during July and August. The critical need for lower than average water levels in early summer for the beach conflicts with the need to maintain adequate summer levels throughout the boating season. The current water level plan may or may not stabilize the existing beach. The feasibility of restoring the Park beach through the addition of sand should be evaluated as a partial solution to the problem of maintaining a useable beach during the primary recreation season (July and August), especially during wet years." Maine DEP. March 27, 1992. *Report on Sebago Lake Water Levels.* At 10.

Sebago Lake to be 262.0 feet msl there had to be many years when lake levels were *below* 262.0 feet msl. The error in the WQC is that it attempts to equate the median low level with the *lowest* level allowed. If this were to actually occur, the median level would no longer be 262.0 feet msl because levels would never go below 262.0 feet msl, thus pushing the median much higher.[21] By citing to gage data showing that the median historic low water level at Sebago Lake is 262.0 feet msl, the DEP admits that in many years the *actual* low level is well below 262.0 feet msl. This is shown by the actual gage data, which shows frequent years when lake levels were 260.0 feet msl. As the MGS states, these periodic low fall levels are critical to the beach accretion and re-building process. And in 2001-2002, when lake levels fell to 260.8 feet msl, the MGS document 'significant' beach accretion and re-building, showing that the well accepted scientific explanation of beach accretion is valid at Sebago Lake. *See:* Marvinney (2003): "In the late winter and early spring of 2002, we saw significant accumulations of sand that moved at least part way up the beaches in response to rising water and waves. This was following the fall and winter low lake level that bottomed out at 260.8 feet. Accretion works but it needs to be given a chance. A one-time effort will not work."

As shown by the 'one-time effort' at Sebago Lake in 2001-2002, the periodic lowering of the lake to 261.0 feet msl or lower will work to encourage beach accretion, but it needs to be given more than a one-time chance. *See*: Marvinney (2005): "Many critics of the concept of drawdown to promote accretion of sand from lower profile levels apparently believe that accretion is an instantaneous process that will show remarkable improvement to beaches following one or two cycles of drawdown to 261.0 feet. This process will likely require many cycles to show significant long-term improvement." By definition, the only way the accretion process described by Dr. Marvinney can occur is if lake levels are periodically allowed to drop down to 261.0 feet msl level in the fall. If the median level of 262.0 feet msl is re-interpreted as the *minimum* lake level, this event will never occur.

21 The DEP's error here is like saying that because the *median* height of 9th grade students in a school class is 5 feet 4 inches, none of the students are shorter than 5 feet four inches.

CLAIM THIRTEEN

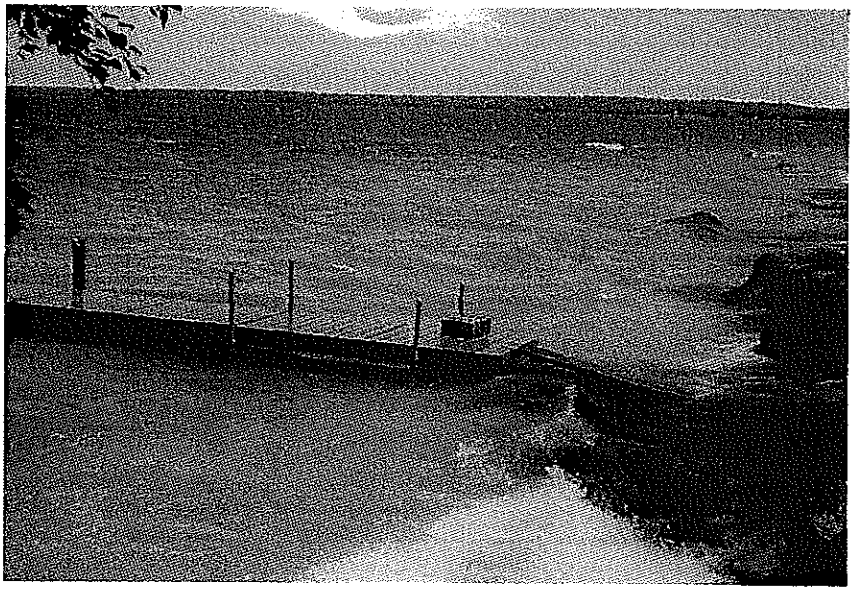
A. The WQC target levels violate Maine water quality standards by causing soil and other materials to fall and wash into Sebago Lake.

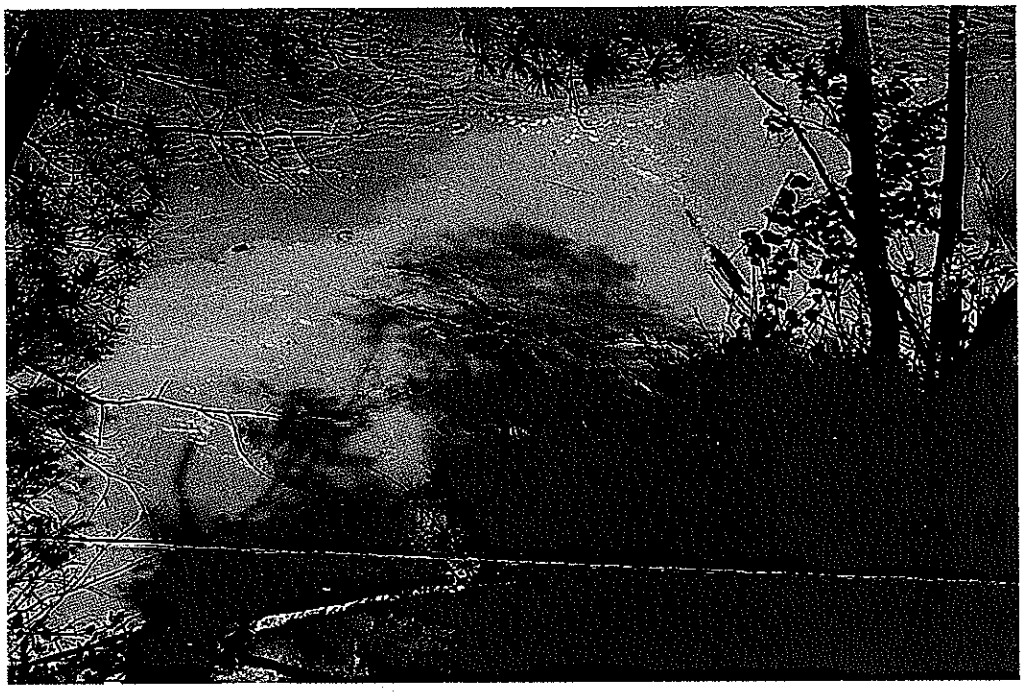
Maine Class GPA standards contain a general prohibition against soil and other materials from being washed or introduced to a Great Pond. 38 MRSA §365-A (1)(C) ("Materials may not be placed on or removed from the shores or banks of a Class GPA water body in such a manner that materials may fall or be washed into the water or that contaminated drainage may flow or leach into those waters, except as permitted pursuant to section 480-C.") Periodic and intermittent shoreline erosion and accretion are typical in a natural great pond; however, over time these two opposing forces cancel each other out, creating a shoreline that is in equilibrium. *See:* Memo of J. Dennis, MDEP, 1990:

> "Lake shorelines are a result of the long term cumulative effect of erosional sedimentation processes. The location and character of the shoreline are a function of the water level on the lake as well as the type and distribution soil and geologic formations in the shoreline area. If a lake's water level regime remains consistent with only natural (or the equivalent) fluctuations over a long period of time, the shoreline will reach an equilibrium with that particular water level regime. This means essentially that most of the erosion which is likely to occur has already occurred and that additional significant erosion is only likely to occur if the water level regime is significantly modified, either naturally or by human manipulation."
>
> And ...
>
> "The recent substantial increase in the average water level of Sebago Lake has exposed shoreline soils to erosional forces at a greater frequency and intensity than before, thus disturbing whatever equilibrium had been established under the previous water level regime. In portions of shoreline with the most erodable soils and greatest exposure to wave action this has no doubt resulted in substantial erosion, undercutting and destabilization of banks, failure of manmade erosion control structures (e.g. retaining walls), loss of near shore trees and their associated stabilizing root systems, suspension of finer soil particles in the water column and deposition of both coarse and fine particles in the littoral zone."

MDEP permitting records show numerous instances where Sebago Lake shorefront landowners have been forced to seek DEP permits to create artificial structures to prevent new and recent erosion from damaging their property. This erosion has been documented to introduce large amounts of soil and other materials into Sebago Lake. *See*: 1998 and 2002 DEP permits to Geoffrey Rice of Frye Island ("On the applicant's property the existing sand surface layer has washed away exposing a clay

sublayer. The exposed clay bluff continues to erode and slump into the lake.") This also has been documented photographically at Long Point on the southwest side of Sebago Lake in June 1998:





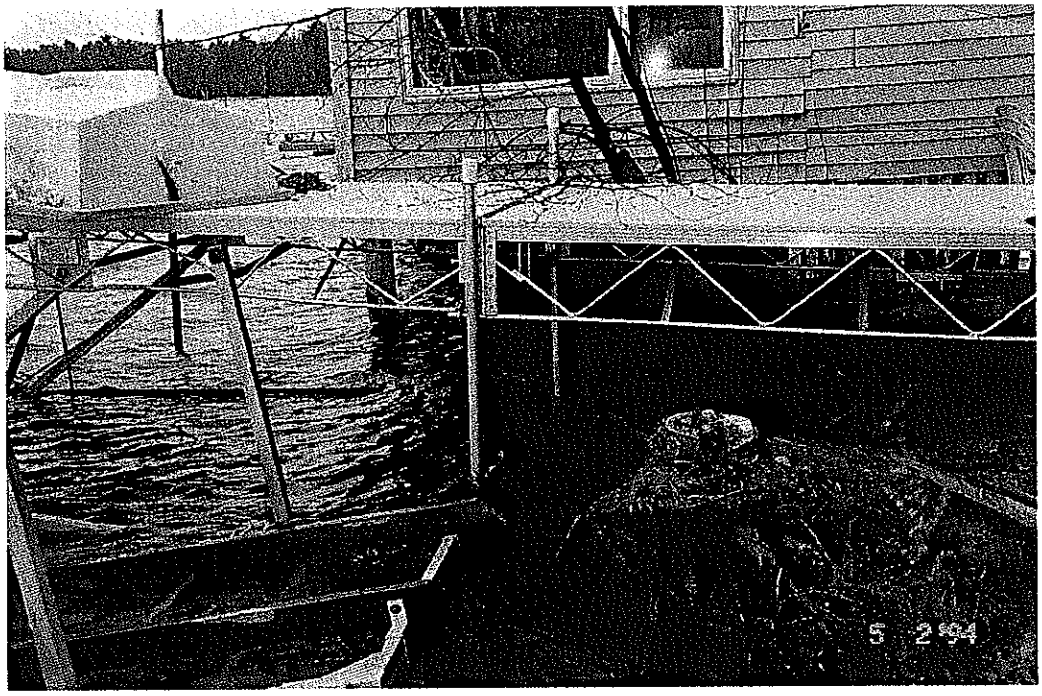
Erosion plume, Long Point, June 2004.

Erosion Plume, Long Point, 2004.

The above photo series shows large and sudden erosion plumes along the shoreline of Sebago Lake in the post-LLMP era (ie. after 1997). These erosion plumes were associated with large slumps and sudden collapses of shoreline bluffs that had been stable for a century. This large slump and bluff collapse occurred in summer 2005. Notice the large clumps of white birch trees which slid into the water and the sunfish sailboat for size perspective:

Frye Island, southwest shore, June 1998.

The Harmons Beach section of the southwest shore of Sebago Lake has been hit especially hard by unnaturally high levels of erosion, soil loss and inundation due to the raising of the lake after 1987.

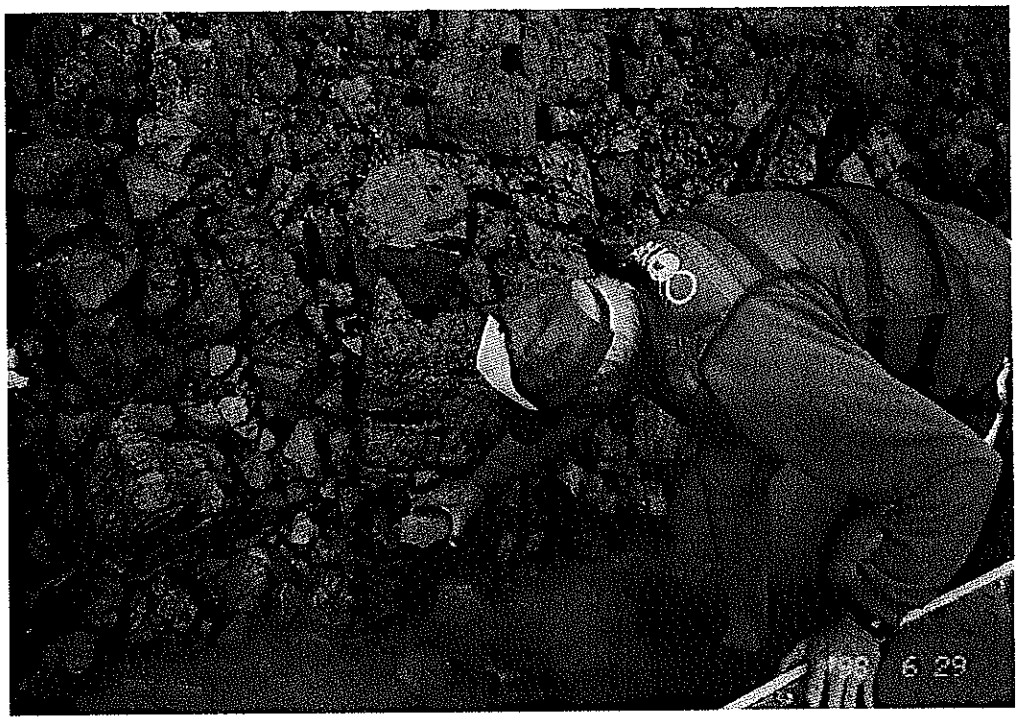


Harmons Beach, Sebago Lake, both photos taken May 2, 1994.

B. Maine Geological Survey mapping data shows the southwest side of Frye Island is underlain by glaciomarine clay which is extremely vulnerable to unnatural accelerations of shoreline erosion.

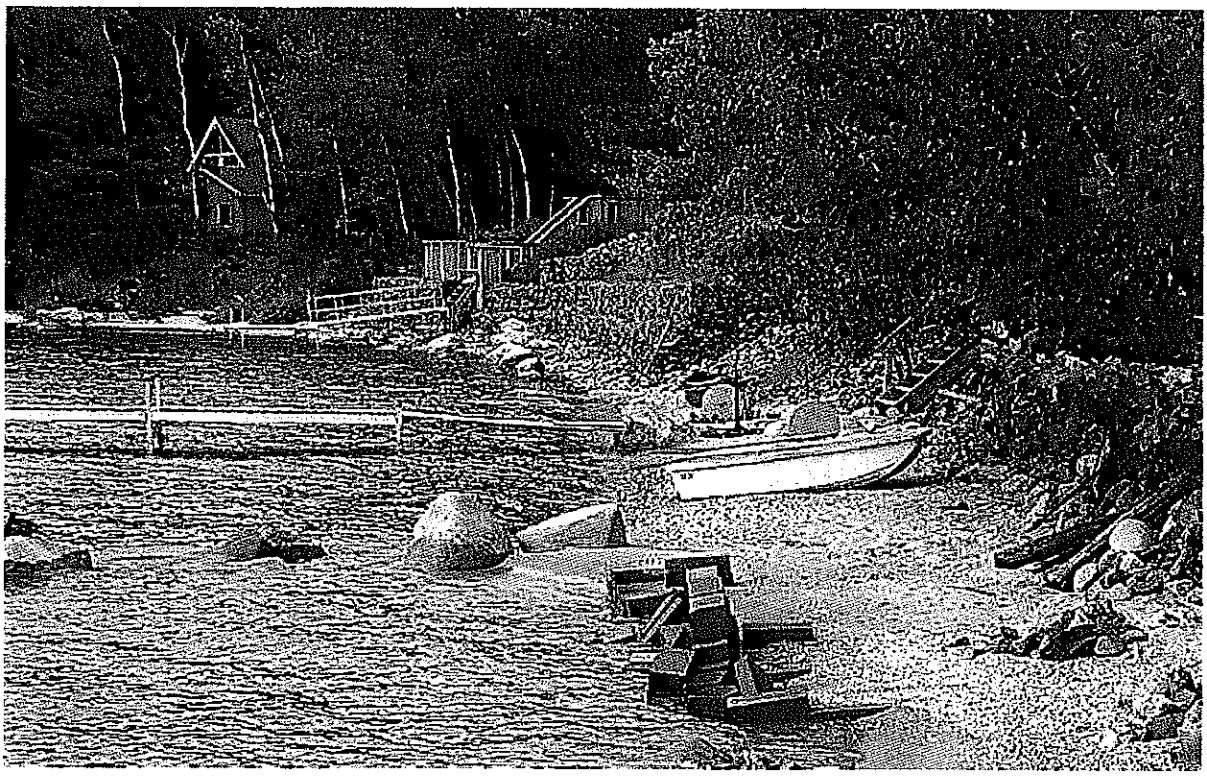
Surficial geologic mapping of Sebago Lake by the MGS (W. Thompson and H. Borns 1985) shows the southwest side of Frye Island is underlain by a lens of unconsolidated, highly erodable glaciomarine clay ('Presumpscot Formation'). Once exposed to wave action this glaciomarine clay layer becomes extremely unstable and provides no support to trees, bluffs and buildings above it. The following photos show this in detail.

Four foot lens of Presumpscot Formation glaciomarine clay at southwest side Frye Island, 2004.

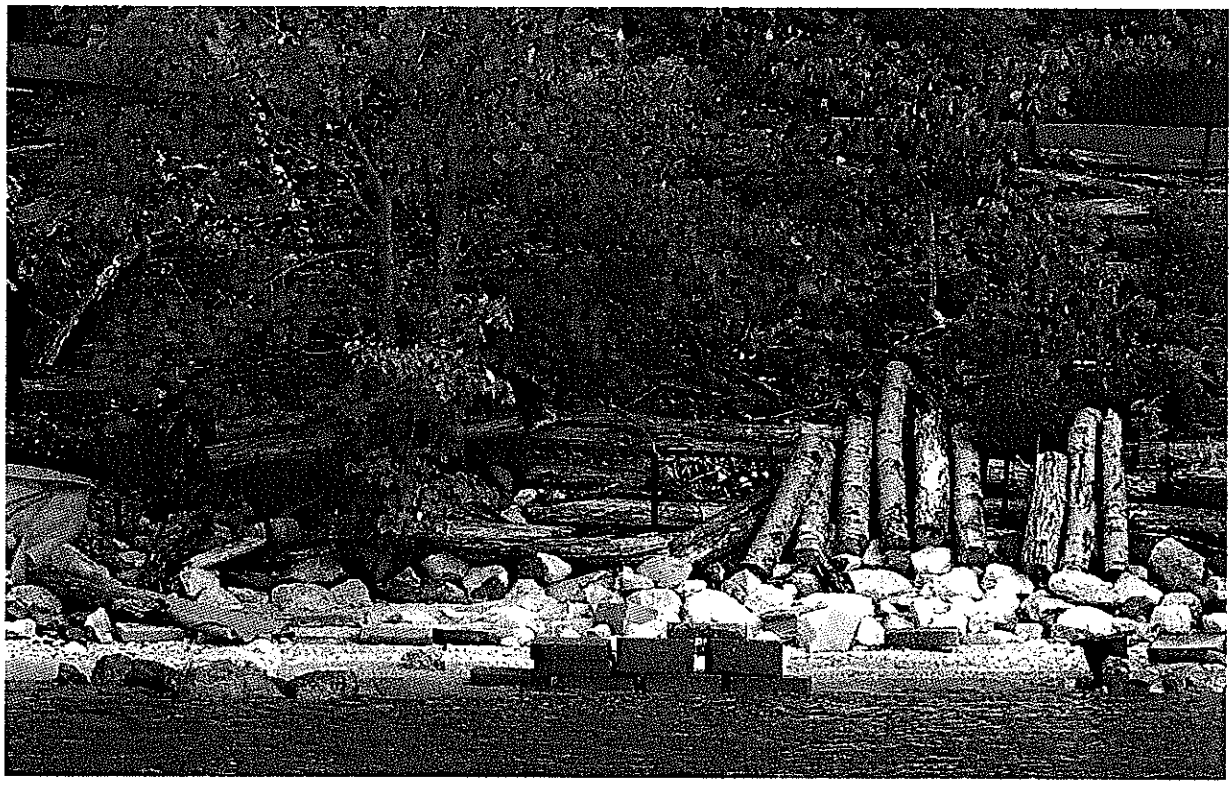


Nelson Thompson of Long Point, Sebago Lake, holding eroded, friable chunks of glaciomarine clay at bluff toe of southwest Frye Island, June 29, 1998.

Frye Island resident Ted Vanderhei and Long Point resident Nelson Thompson at toe of glaciomarine clay.



Phase two of the completed stone and wire gabion armoring at the Geoffrey Rice residence. 2004.



A makeshift attempt by a neighbor of Mr. Rice to stabilize their property on Frye Island, July 1999.

A makeshift, unpermitted and failed attempt by a landowner to armor the toe of their shoreline bluff against new erosion. Frye Island, southwest side, July 2004.

This cross-section of the highly eroded southwest side of Frye Island shows a 3-4 foot horizontal bed of glaciomarine clay topped with a 5-6 foot section of non-marine alluvium, with a 3.25 foot diameter pine tree at the top. This bluff is extremely unstable because the toe, where wave action is concentrated, consists of marine clay. This is why the homes and shorefront along this side of Frye Island have been especially vulnerable to large-scale shoreline bluff collapse and erosion since 1987. July 2004 photo.

CLAIM FIFTEEN

A. The WQC unlawfully requires an outflow cap of 1,000 cfs at the Eel Weir Dam from Oct. 16 - Nov. 16 annually to 'protect' landlocked salmon on their spawning runs.

This cap is solely at the request of biologists with the Maine Dept. of Inland Fisheries & Wildlife (MDIFW) who believe that during the fall, high natural outflows from Sebago Lake attract some number of native lake-dwelling Atlantic salmon in Sebago Lake to the lake's outlet, the Presumpscot River, and away from the MDIFW salmon broodstock collection site at Jordan River, aka Panther Run. WQC at 34.

The WQC presents no factual evidence showing that outflows higher than 1,000 cfs during the fall have any effect on the number of salmon which swim into the Jordan River vs. toward the lake's outlet from Oct. 16 to Nov. 16 of each year. This artificial flow manipulation of the entire lake and its outlet for this stated purpose from Oct. 16 to Nov. 16 does not meet the criteria of a legal condition necessary to protect the water quality of Sebago Lake or its native fisheries resources, or the native fisheries resources of the Presumpscot River.[1] The DEP has no legal basis for including this condition in the WQC because the only stated purpose for this condition is to somehow 'enhance' the operations of an artificial aquaculture facility operated by MDIFW at the Jordan River.

According to MDIFW documents, the migration by spawning, lake-dwelling Atlantic salmon to lake outlets is a natural, adaptive trait of the species (Decker 1967; Havey and Warner 1970; Everhart 1976). Sebago Lake is no exception, since it is the type locality and population of the native lake-dwelling, non-anadromous variant of Atlantic salmon in North America (ie. *Salmo salar sebago*). The 'flow cap' is a directed effort to artificially alter the natural outflow of Sebago Lake for the sole purpose of interfering with a deeply inherited trait of the species to migrate to lake outlets to spawn during the fall.

As FOSL has noted to DEP and MDIFW in previous comments, the entire perceived need by MDIFW for this outflow cap would be eliminated if the Eel Weir Dam had functioning upstream and downstream passage facilities for native Sebago Lake Atlantic salmon, which it does not. If such

1 For this to occur, MDEP would have to prove it's a 'bad' thing for native Sebago Lake Atlantic salmon to migrate to their native spawning grounds in the upper Presumpscot River during the fall to spawn as they have done for 10,000 years.

facilities were required in the license term, MDIFW could collect as many salmon broodstock as they wish at the dam or in the Presumpscot River directly below the dam. It is the *lack* of fish passage facilities at the dam that creates the perceived need for this outflow cap. The most direct and logical solution would be to install these facilities within two years of license issuance and for MDIFW to transfer its broodstock collection activities, to the extent they are even necessary, from the Jordan River to the Eel Weir Dam spillway and its tailwater at the Eel Weir Bypass. This, of course, is predicated on the assumption that all of the salmon which return to the Jordan River each year will migrate to the outlet if there is no 1,000 cfs flow cap during the fall, an assumption that neither DEP or MDIFW represent to be true, or provide any evidence suggesting it is true.

Nothing in Maine water quality standards or the Clean Water Act authorizes the Maine DEP to place conditions in a WQC solely to benefit a public or private aquaculture facility, in part because such facilities are not legally designated uses of Sebago Lake under the CWA and Maine water quality standards.

The perceived need for this outflow cap also presumes there is a water quality related need for MDIFW to collect a certain number of broodstock Sebago Lake salmon each year from the lake, and specifically, to collect them at one locality, the Jordan River. Recent MDIFW reports show the number of broodstock collected each fall at the Jordan River is quite small, on the order of 75-150 fish. Recent MDIFW stocking data shows the number of juvenile salmon released into Sebago Lake is also small, on the order of several thousand 'yearlings' per year.

There is no evidence in the record for the Draft WQC that these annual stockings produce any benefit to the health of Sebago Lake or its native salmon population; or that any disbenefits would accrue if such stockings were reduced or ceased. Recent MDIFW reports estimate that more than 70 percent of the adult salmon in Sebago Lake are produced by natural reproduction in the Crooked River watershed. Prior to the initiation of the collection of native salmon broodstock and the stocking of their progeny in Sebago, which began in earnest in the late 1800s, the native salmon population had been totally reliant on natural reproduction for 8,000 years. The Draft WQC provides no evidence for why any stocking of salmon in Sebago is necessary today, since every spawning adult removed from the lake for hatchery purposes is one that otherwise would spawn naturally in the lake.

If MDIFW or DEP had credible evidence that manmade or natural impacts on Sebago Lake

today prevent the lake from maintaining its aboriginal, wholly naturally reproduced population of salmon, then this WQC is proper regulatory venue to identify those limiting factors and correct them. To date, MDIFW or DEP has neither identified any such limiting factors nor recommended ways to cure them.

A key limiting factor on natural reproduction of native salmon on Sebago Lake is the inability of native Sebago salmon to gain access to and from their aboriginal spawning and nursery areas in the upper Presumpscot River, directly below the Eel Weir Dam. As shown in the quantitative and qualitative habitat data in the administrative record, the unimpounded section of the upper Presumpscot River (the 'Eel Weir Reach') provides copious amounts of high quality native salmon spawning and nursery habitat; and the quantity and quality of this habitat is now solely limited by the extremely low and arbitrarily imposed drought flow of water allowed to pass into this reach under the existing federal license for the Eel Weir Dam. The natural and historic flow of the Eel Weir reach would, by definition, be 100 percent of the outflow of Sebago Lake, ie. 600 cfs.

Even at *50 percent* of natural median monthly outflow (ie. 200-300 cfs) there is sufficient high quality salmon spawning and nursery habitat in the free-flowing Eel Weir Reach of the Presumpscot River to completely replace and exceed the reproductive input of juvenile salmon to the lake contributed by the 75-150 Sebago salmon that MDIFW annually collects as broodstock at the Jordan River. If these salmon were simply allowed to migrate freely back and forth into the upper Presumpscot River to spawn, as they have done for the past 10,000 years, the combined reproductive capacity of the upper Presumpscot and the Crooked River for native salmon would eliminate any perceived need for artificially attracting salmon to the Jordan River and collecting them.

B. The 'fall outflow' cap will severely diminish the effectiveness of downstream adult American eel passage at the Eel Weir Dam.

The WQC forgets that native American eel and native salmon and brook trout in Sebago Lake rely on the same seasonal and environmental cues to migrate to the lake's outlet during the fall in order to spawn, one of which is increased outflows during the 'fall rains' which normally occur beginning in late September and throughout October. This means that if the fall 'flow cap' is successful at discouraging Sebago Lake Atlantic salmon from migrating to the outlet of Sebago Lake to spawn, which is its sole intent, it will also discourage adult American eel from migrating to the outlet of Sebago Lake to spawn,

which will defeat the entire purpose of the WQC requirements for downstream passage for adult American eel at the Eel Weir Dam during their fall spawning season.

C. The 'fall outflow' cap will prevent Sebago Lake from behaving naturally in the fall and reaching its natural fall levels, thus preventing and inhibiting beach rebuilding and accretion.

As the 1910-1986 SDW/PWD gage record shows, Sebago Lake naturally falls to lower levels during autumn with a low point in January and February. This natural seasonal variation is critical to beach accretion and rebuilding (Marvinney 2003; 2005). The 'fall outflow' cap will directly prevent Sebago Lake from behaving in a natural way during the fall, thus preventing natural beach accretion and rebuilding which would occur if the lake was allowed to fall naturally during the autumn.

Remedy Requested by the Appellant

1. Amend the Final WQC Order describing immediate fish passage requirements for native American eel to include native brook trout and native, non-anadromous Atlantic salmon.

Explanation: This gives native brook trout and native Sebago Lake Atlantic salmon legal rights and passage opportunities at the Eel Weir Dam as provided for native American eel.

2. Amend the Final WQC Order to require instantaneous outflows of 270 cfs into the Eel Weir Bypass (so-called) at all times; with outflows above this level apportioned on a 50/50 basis to the Eel Weir Power Canal and the natural river channel.

Explanation: This gives the 1.25 mile free-flowing Eel Weir Reach of the Presumpscot River the same legal right to exist as the rest of the Presumpscot River below the outlet of the Eel Weir Power canal.

3. Amend that portion of the Final WQC Order describing target lake levels of 262-266 feet msl to 259-265 feet msl.

Explanation: This target range best replicates the available scientific and historic records describing the natural seasonal range of Sebago Lake.

4. Delete that portion of the Final WQC Order requiring a 1,000 cfs 'flow cap' on outflows at the Eel Weir Dam from Oct. 16-Nov. 16 annually.

Explanation: With provision of passage for native brook trout and salmon at the Eel Weir dam, this requirement is not necessary.

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