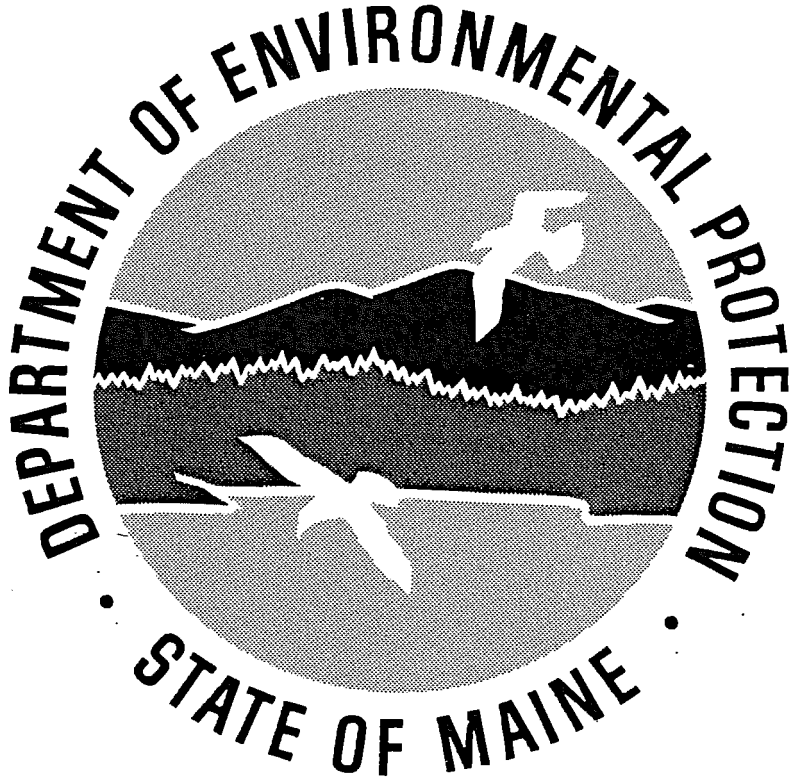
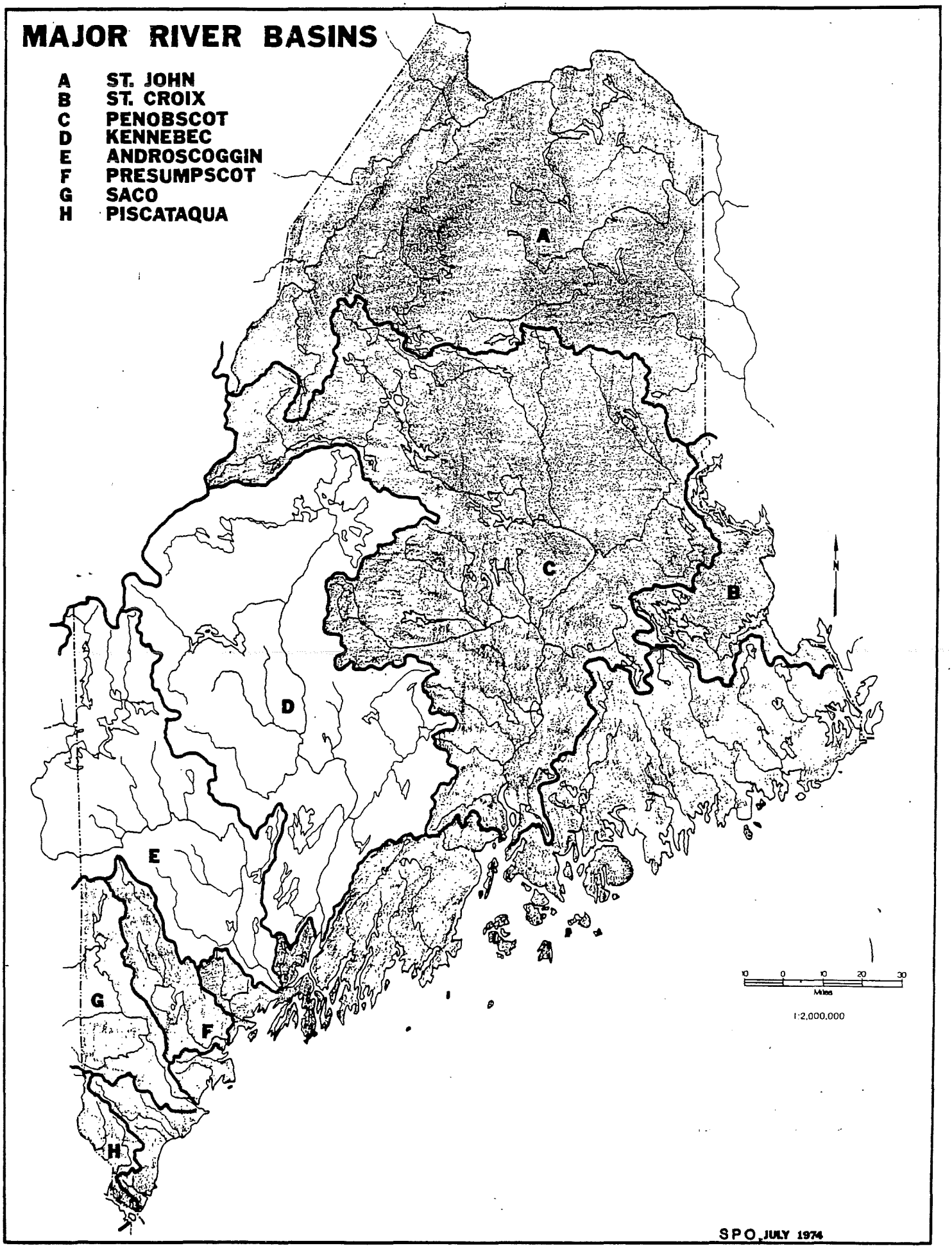
PROPOSED CHANGES IN CLASSIFICATION FOR WATERS IN THE ANDROSCOGGIN AND KENNEBEC RIVER BASINS



Maine Department of Environmental Protection
Bureau of Water Quality Control
October 1, 1987

MAJOR RIVER BASINS



SPO JULY 1974

INTRODUCTION

Water quality management in Maine is entering a new era. Important legislative changes were made to Maine's water quality standards in 1986 (see pages 4 - 6 of this report for the new water quality standards for inland waters). To best employ these new standards, a reclassification of many Maine waters is required. This is the first comprehensive revision of Maine's water classification in over twenty years, a period when considerable improvements in water quality have occurred statewide. The classifications provide specific directions to the DEP about how Maine's waters will be managed in the future and play an important role in deciding what types of developments can occur on each waterbody, the size of industrial or community expansions, changes in land use, or where additional wastewater treatment may be required.

The new set of water quality laws (see pages 12 - 14 for a detailed explanation of the classification program) designate uses and standards to maintain those uses for each class of water. This was done to bring Maine law into conformance with Federal laws, to make it consistent with other Maine laws (especially the newly enacted Maine Rivers Act), and to provide the most up-to-date scientific basis for management of our waters (see pages 14 - 16 of this report for an explanation of the scientific basis of the standards). As a consequence, new classes were created (B & AA) and other classes were deleted (B-1, B-2, D & GPB). As a result of revising the classification system, the old classifications assigned to waters do not necessarily fit well. Also, its obvious that in recent years our water quality has improved dramatically and public use has increased substantially. It has been found that the present uses of our waters often do not conform with the classifications presently assigned. Therefore, we

need to review the present and potential use of each waterbody and assign an appropriate classification to it. The classes broadly outline the uses which each water will have and the standards required to maintain those uses. The important feature of the classification system is that it describes not the present state of the water but rather that it establishes the goal toward which future management is directed. This requires an open public discussion.

Under Maine law, the DEP is charged with holding hearings to obtain public comments about what class each water should be. The Board of Environmental Protection will then consider these comments and make classification recommendations to the Legislature. The Legislature will consider these recommendations and make the final determination of which classification will be assigned to each waterbody. It is the DEP's responsibility to then appropriately manage the waters and attain the goals set by the Legislature.

The classification system proposed in this document for the two river basins which empty into Merrymeeting Bay, the Androscoggin (pages 6 - 8) and Kennebec (pages 8 - 12), provides what the DEP considers to be essentially a "no added cost" proposal. That is, the class specified for each waterbody or segment represents the highest class which a waterbody is known to attain with the present level of wastewater treatment or which it is expected to attain once planned treatment facilities are completed. These suggested classes are based on extensive sampling done in the two watersheds since 1982 and the use of water quality computer models which predict water quality at various flows and wasteloads.

Water quality management goals need not rely on the present quality of the water. Classes may be raised or lowered to reflect the public's desire for high quality recreational waters in one area or lower quality water to

accomodate economic growth in another area. No new economic development, however, is permitted to lower water quality below the minimum levels of quality (Class C) necessary to support the uses of swimming and fishing.

The purpose of classification hearings is to establish what the future management of our waters will be. It should be noted that an additional aspect of the November 3 hearing will be the presentation of the Use Attainability Analysis for impoundments on the Androscoggin River between Lewiston Falls and Turner. Because this segment is not expected to attain Class C standards, segment-specific standards must be established for this river segment (see pages 6 & 7 for further explanation).

Public hearings will he held at the following locations:

November 2	Rumford High School	7:00PM	Androscoggin Basin
November 3	Room 15 CMVTI-Auburn	7:00PM	Androscoggin Basin and UAA
November 4	DEP Board Room-Augusta	7:00PM	Kennebec Basin
November 5	Madison High School	7:00PM	Kennebec Basin

The public is invited to attend these hearings and present information about what the current uses are and what future uses should be. Written comments will also be received until December 7, 1987 and can be addressed to:

Stephen Groves, Director
Bureau of Water Quality Control
Dept. of Environmental Protection
State House STA #17
Augusta, Maine 04333

Anyone interested in reviewing specific water quality data may contact either David Courtemanch of Terry McGovern at the DEP Office in Augusta (289-3901).

38 MRSA §465 MAINE'S STANDARDS FOR CLASSIFICATION OF FRESH SURFACE WATERS

The board shall have 4 standards for the classification of fresh surface waters which are not classified as great ponds.

1. **Class AA waters.** Class AA shall be the highest classification and shall be applied to waters which are outstanding natural resources and which should be preserved because of their ecological, social, scenic or recreational importance.

A. Class AA waters shall be of such quality that they are suitable for the designated uses of drinking water after disinfection, fishing, recreation in and on the water and navigation and as habitat for fish and other aquatic life. The habitat shall be characterized as free flowing and natural.

B. The aquatic life, dissolved oxygen and bacteria content of Class AA waters shall be as naturally occurs.

C. There shall be no direct discharge of pollutants to Class AA waters.

2. **Class A waters.** Class A shall be the 2nd highest classification.

A. Class A waters shall be of such quality that they are suitable for the designated uses of drinking water after disinfection; fishing; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; and navigation; and as habitat for fish and other aquatic life. The habitat shall be characterized as natural.

B. The dissolved oxygen content of Class A waters shall be not less than 7 parts per million or 75% of saturation, whichever is higher. The aquatic life and bacteria content of Class A waters shall be as naturally occurs.

C. Direct discharges to these waters licensed after January 1, 1986, shall be permitted only if, in addition to satisfying all the requirements of this article, the discharged effluent will be equal to or better than the existing water quality of the receiving waters. Prior to issuing a discharge license, the board shall require the applicant to objectively demonstrate to the board's satisfaction that the discharge is necessary and that there are no other reasonable alternatives available. Discharges into waters of this classification which were licensed prior to January 1, 1986, shall be allowed to continue only until practical alternatives exist. There shall be no deposits of any material on the banks of these waters in any manner so that transfer of pollutants into the waters is likely.

3. **Class B waters.** Class B shall be the 3rd highest classification.

A. Class B waters shall be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; recreation in and on the water; industrial process and cooling water

supply; hydroelectric power generation, except as prohibited under Title 12, section 403; and navigation; and as habitat for fish and other aquatic life. The habitat shall be characterized as unimpaired.

B. The dissolved oxygen content of Class B waters shall be not less than 7 parts per million or 75% of saturation, whichever is higher, except that for the period from October 1st to May 14th, in order to ensure spawning and egg incubation of indigenous fish species, the 7-day mean dissolved oxygen concentration shall not be less than 9.5 parts per million and the 1-day minimum dissolved oxygen concentration shall not be less than 8.0 parts per million in indentified fish spawning areas. Between May 15th and September 30th, the number of Escherichia coli bacteria of human origin in these waters may not exceed a geometric mean of 64 per 100 milliliters or an instantaneous level of 427 per 100 milliliters.

C. Discharges to Class B waters shall not cause adverse impact to aquatic life in that the receiving waters shall be of sufficient quality to support all aquatic species indigenous to the receiving water without detrimental changes in the resident biological community.

4. **Class C waters.** Class C shall be the 4th highest classification.

A. Class C waters shall be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation, except as prohibited under Title 12, section 403; and navigation; and as a habitat for fish and other aquatic life.

B. The dissolved oxygen content of Class C water shall be not less than 5 parts per million or 60% of saturation, whichever is higher, except that in identified salmonid spawning areas where water quality is sufficient to ensure spawning, egg incubation and survival of early life stages, that water quality sufficient for these purposes shall be maintained. Between May 15th and September 30th, the number of Escherichia coli bacteria of human origin in these waters may not exceed a geometric mean of 142 per 100 milliliters or an instantaneous level of 949 per 100 milliliters. The department shall promulgate rules governing the procedure for designation of spawning areas. Those rules shall include provision for periodic review of designated spawning areas and consultation with affected persons prior to designation of a stretch of water as a spawning area.

C. Discharges to Class C waters may cause some changes to aquatic life, provided that the receiving waters shall be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community.

38 MRSA §465-A STANDARDS FOR CLASSIFICATION OF LAKES AND PONDS

The board shall have one standard for the classification of great ponds and natural lakes and ponds less than 10 acres in size. Impoundments of rivers that are defined as great ponds pursuant to section 392 shall be

classified as GPA or as specifically provided in section 467 and 468.

1. Class GPA waters. Class GPA shall be the sole classification of great ponds and natural ponds and lakes less than 10 acres in size.

A. Class GPA waters shall be of such quality that they are suitable for the designated uses of drinking water after disinfection, recreation in and on the water, fishing, industrial process and cooling water supply, hydroelectric power generation and navigation and as habitat for fish and other aquatic life. The habitat shall be characterized as natural.

B. Class GPA waters shall be described by their trophic state based on measures of the chlorophyll "a" content, Secchi disk transparency, total phosphorus content and other appropriate criteria. Class GPA waters shall have a stable or decreasing trophic state, subject only to natural fluctuations and shall be free of culturally induced algal blooms which impair their use and enjoyment. The number of Escherichia coli bacteria of human origin in these waters may not exceed a geometric mean of 29 per 100 milliliters or an instantaneous level of 194 per 100 milliliters.

C. There shall be no new direct discharge of pollutants into Class GPA waters. Aquatic pesticide treatments or chemical treatments for the purpose of restoring water quality approved by the board shall be exempt from the no-discharge provision. Discharges into these waters which were licensed prior to January 1, 1986, shall be allowed to continue only until practical alternatives exist. No materials may 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 therefrom may flow or leach into those waters, except as permitted pursuant to section 391. No change of land use in the watershed of a Class GPA water body may, by itself or in combination with other activities, cause water quality degradation which would impair the characteristics and designated uses of downstream GPA waters or cause an increase in the trophic state of those GPA waters.

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PROPOSED CLASSIFICATIONS FOR ANDROSCOGGIN AND KENNEBEC RIVER BASINS.

Tributaries not otherwise classified are Class B waters.

1. Androscoggin River Basin.

A. Androscoggin River, main stem, including all impoundments.

(1) From the Maine-New Hampshire boundary in Gilead to its confluence with the Ellis River-Class B. **(Upgraded from Class C)**

(2) From its confluence with the Ellis River to its confluence with the Nezinscot River - Class C.

(3) From its confluence with the Nezinscot River to the Lewiston Falls dam - Class C. **(Because this segment of the Androscoggin River does not meet Class C standards even though upstream discharges impacting it are receiving best practical treatment, a Use Attainability Analysis (UAA) is being performed. A UAA is an analysis to determine what are the current aquatic uses, what are potential uses and what are the causes,** present or

historic, of impairment. Specific economic and social factors are also presented in a public forum for comment and debate. Through a UAA, segment-specific designated uses and water quality standards will be developed subsequent to public hearing and Legislative action subject to approval by the U.S. Environmental Protection Agency.)

(4) From the Lewiston Falls dam to a line formed by the extension of the Bath-Brunswick boundary across Merrymeeting Bay in a northwesterly direction - Class C.

B. Little Androscoggin River Drainage.

(1) Little Androscoggin River, main stem.

(a) From the outlet of Bryant Pond to the Maine Central Railroad bridge in South Paris - Class B. (The segment between 0.25 mile above the bridge at West Paris and Andrews Brook and the segment betweean the upper Route 26 bridge and the railroad bridge are upgraded from Class C.)

(b) From the Maine Central Railroad bridge in South Paris to its confluence with the Androscoggin River - Class C.

(1) Little Androscoggin River, tributaries

(a) Bird Brook (Norway) - Class C.

(b) Davis Brook (Poland) - Class C.

(c) Outlet of Thompson Lake (Oxford) - Class C.

(d) Pennesseewassee Lake Outlet (Norway) - Class C.

(e) Unnamed Brook (Auburn) which enters the Little Androscoggin River from the north about 1.3 miles east of Minot Village - Class C.

C. Androscoggin River, Upper Drainage; that portion within the State of Maine lying above the river's most upstream crossing on the Maine-New Hampshire boundary.

(1) All waters of the Androscoggin River, Upper Drainage which are not otherwise classified - Class A. (Except for the Magalloway River which is already Class A, these waters are upgraded from Class B).

(2) Cupsuptic River and its tributaries - Class AA. (Upgraded from Class A).

(3) Kennebago Lake Tributaries - Class AA. (Upgraded from Class A).

(4) Kennebago River from Mahoney dam to its confluence with the impoundment of the Kennebago Falls dam - Class AA. (Upgraded from Class A).

(5) Kennebago River from a point located 1000 feet downstream of the Kennebago Falls dam to its confluence with Mooselookmeguntic Lake - Class AA. **(Upgraded from Class A).**

(6) Rapid River, from Middle dam to a point located 1000 feet downstream of Middle dam - Class A. **(Upgraded from Class B).**

(7) Rapid River, from a point located 1000 feet downstream of Middle dam to its confluence with Umbagog Lake - Class AA. **(Upgraded from Class B)**

D. Androscogggin River, minor tributaries. **(The lower portion of the Swift River is upgraded from Class C to Class B)**

(1) All tributaries of the Androscoggin River which enter between the Maine-New Hampshire boundary in Gilead and its confluence with the Ellis River and which are not otherwise classified - Class A. **(Except for Chapman Brook in Bethel which is already Class A, these waters are upgraded from Class B.)**

(2) Austin Brook (Mexico) from Fourth Street to its confluence with the Androscoggin River - Class C.

(3) Bean Brook (Rumford) - Class C.

(4) Bear River - Class AA. **(Upgraded from Class B)**

(5) Gully Brook (Lewiston) below Lisbon Street - Class C. **(Downgraded from Class B)**

(6) Jepson Brook (Lewiston) below Morris Avenue - Class C. **(Downgraded from Class B)**

(7) Logan Brook (Auburn) - Class C.

(8) No Name Brook (Lewiston) - Class C.

(9) Penley Brook (Auburn) - Class C.

(10) Sabattus River - Class C. **(Segment from Lisbon to the Androscoggin River is downgraded from Class B)**

(11) Spears Stream (Peru) below the Ridge Road bridge - Class C.

(12) Stetson Brook (Lewiston) below Main Street - Class C. **(Downgraded from Class B)**

(13) Webb River - Class A. **(Upgraded from Class B and Class C)**

4. Kennebec River Basin.

A. Kennebec River, main stem.

(1) From Moosehead Lake (including East and West Outlets to its confluence with Indian Pond - Class A **(Upgraded from Class B)**

(2) From Harris dam to a point located 1000 feet downstream of Harris dam - Class A. (**Upgraded from Class B**)

(3) From a point located 1000 feet downstream of Harris dam to its confluence with the Dead River - Class AA. (**Upgraded from Class B**)

(4) From its confluence with the Dead River to its confluence with Wyman Lake - Class A. (**Upgraded from Class B**)

(5) From Wyman Dam to the Fairfield-Skowhegan boundary including all impoundments - Class B. (**Segment between the Great Eddy in Skowhegan and the Fairfield-Skowhegan boundary is upgraded from Class C**)

(6) From the Fairfield-Skowhegan boundary to the Curran Bridge in Augusta, including all impoundments - Class C.

(7) From the Curran Bridge in Augusta to a line across the southwesterly arm of Merrymeeting Bay formed by an extension of the Bath-Brunswick boundary across the bay in a northwesterly direction and to a line drawn from Chop Point in Woolwich to West Chop Point in Bath - Class C. Further, the Legislature finds that the free flowing habitat of this river segment provides irreplaceable social and economic benefits and that this use shall be maintained. (**The second sentence has been added to aid implementation of the Maine Rivers Policy 12 MRSA, Sections 401-406.**)

B. Carrabassett River Drainage.

(1) Carrabassett River, main stem.

(a) From its origin in Carrabassett Valley to a point located 0.25 mile above the railroad bridge in North Anson - Class A.

(b) From a point located 0.25 mile above the railroad bridge in North Anson to its confluence with the Kennebec River - Class B. (**Upgraded from Class C**).

(2) Carrabassett River , tributaries

(a) All tributaries entering above the Wire bridge in New Portland - Class A. (**Tributaries entering between the West Branch and the Wire bridge except for Stanley Stream which is already Claass A, have been upgraded from Class B. Mill Stream in Anson has been upgraded from Class C to Class B. Harris Brook in New Portland has been downgraded from Class A to Class B.**)

C. Cobbosseecontee Stream Drainage.

(1) Cobbosseecontee Stream, main stem.

(a) From the outlet of Cobbosseecontee Lake to its confluence with Pleasant Pond - Class B.

(b) From the outlet of Pleasant Pond to its confluence with the Kennebec River - Class B. **(Upgraded from Class C).**

(2) Cobbosseecontee Stream, tributaries

(a) Unnamed Stream (Manchester) entering Cobbosseecontee Lake through golf course from immediately south of Manchester Village - Class C.

D. Dead River Drainage.

(1) Dead River, main stem.

(a) From the Long Falls Dam to the upstream limit of Big Eddy in T.3, R.4, B.K.P.W.K.P. - Class A. **(Upgraded from Class B)**

(b) From the upstream limit of Big Eddy in T.3, R.4, B.K.P.W.K.R. to its confluence with the Kennebec River - Class AA. **(Upgraded from Class C)**

(2) Dead River, tributaries.

(a) All tributaries of the Dead River which are not otherwise classified - Class A. **(Except for the North Branch of the Dead River which is already Class A, these waters are upgraded from Class B.)**

(b) Stratton Brook (Eustis) from the upper Route 16/27 bridge to its confluence with Flagstaff Lake - Class B.

E. Messalonskee Stream Drainage.

(1) Messalonskee Stream, main stem.
(a) From the outlet of Messalonskee Lake to its confluence with the Kennebec River - Class C.

(2) Messalonskee Stream tributaries - Class B. **(Tributaries entering below Messalonskee Lake are upgraded from Class C.)**

F. Moose River, Drainage.

(1) Moose River, main stem.

(a) Above its confluence with Number One Brook in Beattie Township - Class A.

(b) From its confluence with Number One Brook in Beattie Township to its confluence with Attean Pond - Class AA.

(c) From the outlet of Big Wood Pond to its confluence with Big Wood Pond - Class A.

(d) From the outlet of Big Wood Pond to its confluence with Moosehead Lake, excluding Long Pond and Brassua Lake - Class B. **(Segment between Big Wood Pond and Long Pond is upgraded from Class C)**

(2) Moose River tributaries - Class A. (**Tributaries entering below Big Wood Pond are upgraded from Class B.**)

G. Sandy River Drainage.

(1) Sandy River, main stem.

(a) From the outlet of Sandy River Ponds to the Route 142 bridge in Phillips - Class AA. (**Upgraded from Class A**)

(b) From the Route 142 bridge in Phillips to its confluence with the Kenebec River - Class B. (**Segment below Route 2 bridge in Farmington is upgraded from Class C**)

(2) Sandy River, tributaries. (**Bean Brook in Strong, Lemon Stream in Starks, Temple Stream and an Unnamed Stream in New Sharon are upgraded from Class C to Class B.**)

(a) All tributaries entering above the Route 142 bridge in Phillips - Class A.

(b) Meadow Brook (Wilton) - Class C.

(c) Tannery Brook (Farmington) - Class C.

(d) Valley Brook (Strong) from the most downstream Route 145 bridge to its confluence with the Sandy River - Class C.

(e) Wilson Stream, from the outlet of Wilson Pond in Wilton to its confluence with the Sandy River - Class C.

H. Sebasticook River Drainage.

(1) Sebasticook River, main stem, including all impoundments.

(a) From the confluence of the East Branch and the West Branch to its confluence with the Kennebec River - Class C. (**The segment between the most downstream point of the Pittsfield-Burnham boundary and a point located 0.5 mile above the highway bridge at Clinton and the segment between a point located 1.0 mile above the Benton Falls bridge to the CMP dam in Winslow are downgraded from Class B to Class C.**)

(2) Sebasticook River, tributaries. (**Numerous tributaries of the Sebasticook are upgraded from Class C to Class B by not listing them as exceptions to the Class B general classification.**)

(a) Brackett Brook (Palmyra and Newport) - Class C.

(b) Mill Stream (Albion) from the outlet of Lovejoy Pond to its confluence with Fifteenmile Stream - Class C.

(c) Sebasticook River, East Branch main stem, from the Corundel dam in Corinna to its confluence with the West Branch, excluding Sebasticook Lake - Class C.

(d) Sebasticook River, West Branch main stem, from the outlet of Great Moose Lake to its confluence with the East Branch, including all impoundments - Class C.

I. Kennebec River, minor tributaries. **(Currier Brook in Skowhegan, Fall Brook in Solan and an unnamed brook in Bowdoinham are upgraded from Class C to Class B.)**

(1) All tidal portions of tributaries - Class C.

(2) All tributaries entering above Wyman Lake which are not otherwise classified - Class A. **(Upgraded from Class B)**

(3) Austin Stream (Bingham) and its tributaries above a point located 0.25 mile upstream of the Route 201 bridge - Class A. **(The channelized portion of the stream in Bingham is downgraded to Class B.)**

(4) Cold Stream (West Forks Plt.) - Class AA. **(Upgraded from Class B)**

(5) Mill Stream (Norridgewock) below the upstream bridge in the village - Class C.

(6) Moxie Stream (Moxie Gore) - Class AA. **(Upgraded from Class B)**

(7) Twomile Brook (Augusta) - Class C.

(8) Unnamed Brook (Augusta) which crosses Riverside Drive near Newland Avenue - Class C.

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MAINE'S WATER CLASSIFICATION PROGRAM

The function of Maine's Water Classification Program is to provide direction to DEP from the people of Maine through the legislative process on how Maine's waters are to be managed. For example, the present law allows industrial discharges to affect water quality on rivers such as the Androscoggin, Kennebec and Penobscot but not on the Allagash River. This difference in classification is a result of the people of Maine, through the legislative process, mandating that the Allagash be maintained in its natural state while allowing some degradation of other rivers so that industries can prosper and provide employment. Another way to view this situation is that while it is important to maintain the pristine qualities of the Allagash and some other rivers, it is also important that the State allows economic development which enables people to earn a living and have leisure time to enjoy Maine's pristine waters.

The Federal Clean Water Act requires Maine to have a water quality classification system and to revise it periodically. That Act also sets minimum standards, including a provision that it shall be the goal of each State that all its waters are suitable for fishing an swimming. This prevents any State from giving its industries an unfair economic advantage by allowing discharges which violate these minimum standards. The States are allowed to establish classifications which define what portion of the maximum allowed degradation is permitted on various waters. It is the responsibility of the States to decide if they will allow all their waters to be degraded to the allowed minimum or if some waters should be given a higher level of protection. Maine's present classification system provides a higher level of protection for most of the State's waters. Because concentrated populations and industrial development affect only a small portion of Maine's waters, this protectionist management system for most of the State's waters is likely to continue.

The water quality classification procedure is actually a two-step process: 1) to establish appropriate water quality classifications which best serve the interests of the people of Maine and also meet Federal requirements and 2) to apply these classifications to the various waters of Maine in such a way that benefits to the public are maximized.

On April 16, 1986, Maine's Water Classification Program (38 MRSA, Article 4-A) was signed into law. The enactment of the Water Classification Program was the latest revision of statutes which date back to 1954 and represent the master plan for the management of Maine's water resources.

The 1986 revision of the water classification statutes included five major accomplishments:

1) elimination of those classifications (D & SD) which did not meet the minimum requirements of the Federal Clean Water Act,

2) revision of Class C and Class SC so that they meet the minimum requirements of the Federal Clean Water Act,

3) combination of those classes (B-1 & B-2 and SB-1 & SB-2) which were quite similar,

4) establishment of classes (AA & SA) which provide for the preservation of certain outstanding waters of the State and,

5) making the water quality standards such as bacteria, dissolved oxygen and aquatic life which define the nature of each classification more scientifically defensible.

The major change in the classification of lakes and ponds is that, under the new system, all lakes and ponds are assigned one classification - Class GPA. This change clarifies the intent of the old system, that it shall be the goal of the DEP that eutrophic, algae-choked waters be restored to GPA quality. The revision of the classification system also reflects increased

understanding of the factors which degrade these treasured resources. Thus, the new system is designed to increase the ability of state and local governments to limit lake pollution. As with the old system, the new one prohibits new discharges of sewage to lakes. Since phosphorus discharges pose the greatest threat to our lakes, the Water Classification Program contains provisions which can minimize the amount of phosphorus entering our lakes and ponds. Because virtually all the phosphorus discharged to a lake tributary ends up in the lake, new discharges of domestic wastewater to lake tributaries are prohibited. Similarly, changes of land use in a lake watershed are prohibited if they would degrade the water quality of lakes.

Part of the Water Classification program enacted in 1986 established procedures for the future reclassification of Maine's waters. To ensure full public participation, the Board of Environmental Protection is required to:

1) conduct studies and investigations of water quality and the socioeconomic context of water quality classifications,

2) hold public hearings in the affected areas, and

3) make recommendations for classification to the Legislature. The Legislature would then assign classifications so as to best serve the public interest.

On April 22, 1987 the Board of Environmental Protection voted to approve a motion to allow DEP staff to conduct classification studies in all of Maines river basins and established dates for completion of individual studies:

September 1, 1987 - Androscoggin and Kennebec River Basins
September 1, 1988 - St. John and Coastal River Basins
September 1, 1989 - St. Croix and Penobscot River Basins.

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SCIENTIFIC BASIS OF MAINE'S WATER QUALITY STANDARDS.

Recent advances in understanding the nature of water pollution effects and an upgrading of the scientific capabilities of the Water Bureau staff aided recognition of numerous deficiencies in the scientific basis of Maine's old classification system. The water quality criteria for dissolved oxygen were studied and the old standards required some modification. By reducing the number of classes, dissolved oxygen standards which had no biological significance were eliminated. The new dissolved oxygen standards provide three levels of protection for the fish and other aquatic life in Maine's rivers, streams and brooks. The highest classes (AA & A) provide for natural levels of dissolved oxygen and complete protection. The B Class provides a high level of protection which is necessary for an unimpaired habitat. The C class allows dissolved oxygen levels which may result in an impaired habitat but still protect the integrity of the biological community.

Although it was once thought that adequate dissolved oxygen was all that was necessary to protect aquatic life, the discharge of toxic substances and other pollutants is now known to have potentially disasterous consequences

for aquatic ecosystems. For this reason, one standard in the new classification system is based on the end result of wastewater discharges - their effect on the aquatic and marine communities. The old classification standards for rivers stated that discharges to Class A, B-1, B-2 and C waters were not allowed to cause harm to aquatic life. We now know that this was an unrealistic goal. "Harm" can be construed to mean any change in the aquatic community. Through study of the effects of existing discharges, it has been found that almost all major discharges receiving best practical treatment cause some change to the aquatic community. The challenge then was to define what degree of change in the aquatic community is acceptable. The concept of acceptability seeks to minimize biological impact but also implies a high degree of attainment of the aquatic life standard by existing discharges. It is the opinion of DEP staff that most major discharges are able to meet the new standards for impact to aquatic life without additional wastewater treatment. The DEP utilizes the invertebrate community (primarily bottom-dwelling insect larvae) in rivers and streams to monitor their biological condition.

Since discharges to Class AA waters are prohibited and discharges to Class A waters are required to be of the same quality as the receiving water, the new standard that the aquatic life in these waters be "as naturally occurs" is both realistic and attainable. For the new B classification, discharges are allowed, provided they do not cause detrimental changes in the aquatic community. This means that a treated discharge to Class B waters may cause some non-harmful changes such as abnormally high populations (enrichment) of a certain species.

Where a discharge has a high flow relative to the flow or volume of the receiving water, that receiving water generally has to be a Class C water for the discharge to be in compliance with the classification statute. Under the new classification system, a discharge to Class C water is allowed to cause some detrimental changes to aquatic life, provided that the water remains of sufficient quality to support all indigenous species of fish and maintain the structure and function of the aquatic community. This means that the species composition, particularly for benthic invertebrates, in a Class C water may be significantly different than in waters which do not receive major discharges. Although pollution-tolerant invertebrate species are allowed to replace more sensitive species, the extent of allowed change is limited so that a healthy, diverse aquatic community is maintained. While the idea of allowing an industry or municipality to cause any degree of harm to aquatic life may be disagreeable to some people, one must remember that billions of dollars have been spent in Maine to provide the best practical treatment for wastewater. To attain the "no harm" provision of the old classification system would probably require an expenditure of an even greater magnitude. The intent of the new biological criteria is to protect the food chain necessary to provide a quality fishery, even when the water receives major discharges.

The bacteria standards which are part of the revised classification system equal the biological standards in their complexity but the main points supporting their scientific basis are as follows:

1) recent federal research determined that the old fecal coliform standard was inadequate to protect swimmer health;

2) that research showed that some swimmers will develop a relatively mild, short-term illness (gastroenteritis) even at very low bacteria levels, and

3) the indicator bacteria (E. coli) used in the new fresh water standard has a high correlation with swimmer illness and is useful for protecting public health.

Research on levels of the proposed indicator bacteria in Maine waters was performed during 1984 and yielded some interesting results. It was found that lakes generally have lower bacteria levels than even the cleanest rivers. Thus, the bacteria data indicate that lakes are more healthful for swimming than even pristine rivers. Through examination of the data, knowledge of wastewater treatment systems and use of common sense, one can also conclude that Class C rivers which receive major discharges are less healthful than rivers which do not. The new bacteria standards are based on these three levels of health risk which have been found to exist in Maine's waters. The new bacteria standard for lakes is such that persons swimming in lakes which are meeting their classification requirements can expect no risk of becoming ill as a result of swimming. Those swimming in Class B rivers have a slight risk of getting ill as a result of the experience. Swimming in Class C rivers can be more risky than swimming in Class B rivers. In those Class C rivers which have the maximum amount of bacteria allowed by the new standard, about 1 in 100 swimmers may develop gastroenteritis.

The intent of Maine's new bacteria standards is not to allow illness but rather to make the public aware of the inherent risks of swimming in various waters of the State. Despite tremendous advances in the improvement of water quality in Maine's major rivers, most Mainers would still prefer to swim in lakes. This is a case where scientific research supports common sense. Lakes are the best place to go swimming! Although technically possible, the cost of making Class C rivers as healthful for swimming as lakes would be astronomical.