

Chapter 587 In-stream Flow and Water Level Standards

SUMMARY: Establishes instream flow and water level standards to protect natural aquatic life and other designated uses in Maine's waters. Instream flow standards 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 standards 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. Instream flows and water levels may be established by 3 methods: (1) standard allowable alteration, (2) by a site-specific flow designation developed through a Water Flow Plan or Water Level Plan, or (3) as part of a new or existing regulatory permit.

- 1. Applicability.** The standards established herein apply to all non-tidal fresh surface waters of the State. Notwithstanding this, the flows and water levels established in this chapter do not apply to the following circumstances.
 - A. Public emergency.** Alteration of flow or water level for the purpose of protecting public health, safety, and welfare due to a sudden catastrophic event, such as for fire control. This includes water withdrawals for emergency preparedness.
 - B. Storage ponds.** Ponds constructed outside of a natural stream channel for the purpose of storing water for later use, such as irrigation or snowmaking, or other man-made ponds not classified GPA under 38 M.R.S.A. Section 465-A.
 - C. Nonconsumptive use.** Nonconsumptive use of water is defined in 38 M.R.S.A. Section 470-A. Notwithstanding this, an existing (as of the effective date of this chapter) point of return flow to contiguous water greater than ¼ mile from the point of withdrawal and that otherwise meets the definition of nonconsumptive use in 38 M.R.S.A. Section 470-A, is also deemed to be a nonconsumptive use. For the purposes of this chapter, non-consumptive use is determined to have no measurable effect on flows or water levels. 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. Activities that constitute a nonconsumptive use may occur during all flow and water level conditions.
 - D. Existing Community Water Systems operating with a Community Water System Withdrawal Certificate.** Community Water Systems must comply with the applicable flow and water level standards established in sections 4, 5, 6, 7 or 8 of this chapter. Notwithstanding this, and for the purpose of any enforcement action under this chapter,

these standards will not apply to an existing Community Water System operating within its system design capacity providing that (1) the Community Water System, so operating, cannot attain the applicable standard, and (2) the Community Water System has received, and is operating in accordance with, or is otherwise satisfying the requirements of, a Community Water System Withdrawal Certificate issued by the Department. A Community Water System Withdrawal Certificate will be issued by the Department to any existing Community Water System that demonstrates that it cannot operate within its system design capacity and attain the applicable flow or water level standards of this chapter. Existing Community Water Systems are those systems that are operating and withdrawing water for customer use as of the effective date of this rule. A certificate shall include appropriate conditions that take into account the economic and technical feasibility of maintaining, and restoring to the extent feasible, all water quality standards affected by the Community Water System, including all designated uses and characteristics of the assigned classification, the provisions of their Legislative charter or other authority, and the financial viability of the Community Water System. Any conditions included in a Community Water System Withdrawal Certificate will be reviewed by the Drinking Water Program at the Department of Health and Human Services and the Public Utilities Commission to assure they are economically and technically feasible, and will not jeopardize the safety, dependability, or the financial viability of the Community Water System. All water quality standards, including flows and water levels established pursuant to this chapter, remain applicable to the waters affected by the Community Water System, and will be used to assess water quality in those waters for all other purposes.

The Department may issue an amended Community Water System Withdrawal Certificate for an existing Community Water System planning a new or modified source that increases its system design capacity. Any amended certificate shall contain conditions ensuring that all water quality standards affected by the Community Water System, including designated uses and characteristics of the assigned classification, shall be maintained, or improved to the extent practicable if they were not previously in attainment. Any conditions included in an amended Community Water System Withdrawal Certificate must be reviewed and approved by the Drinking Water Program at the Department of Health and Human Services and the Public Utilities Commission to assure they are economically and technically feasible, and will not jeopardize the safety, dependability, or the financial viability of the Community Water System.

2. Definitions

- A. Natural drought condition.** “Natural drought condition” means moisture conditions as measured by the Palmer Drought Severity Index with values of negative 2.0 or less.
- B. Natural variation of flow.** “Natural variation of flow” in rivers and streams is the expected dynamic fluctuation in flow that naturally occurs daily, seasonally and inter-annually that provides for physical characteristics of depth, volume, and velocity necessary to (1) provide habitat conditions for all life stages of indigenous aquatic organisms, (2) provide water exchange and aeration including the interstitial water, substrate scouring and sorting, temperature moderation, wetland replenishment, sediment erosion and deposition, and channel formation, and (3) maintain biological processes of ingress and egress to habitats, migration, drift, insect emergence, organic matter and nutrient cycling, and wetlands maintenance. In establishing alternative flows other than the standard allowable alteration, flow variation of a magnitude, rate of change, seasonal timing, and annual occurrence, including provision for infrequent passage or release of

flood flows, must be sufficient to adequately provide for the conditions and processes identified above.

- C. Natural variation of water level.** “Natural variation of water level” in lakes and ponds is the expected dynamic fluctuation in water level that occurs seasonally and inter-annually that provides for physical characteristics of depth and volume necessary to (1) provide habitat conditions for all life stages of indigenous aquatic organisms, (2) provide water levels sufficient to support important physical processes including thermal stratification, temperature moderation, wetland replenishment, sediment erosion and deposition, (3) maintain biological processes of ingress and egress to habitats, maintenance of primary production, migration and movement of organisms, organic matter and nutrient cycling, and wetlands maintenance. In establishing alternative water levels other than the standard allowable alteration, variation of a magnitude, rate of change, seasonal timing, and annual occurrence, including provision for infrequent flood levels, must be sufficient to adequately provide for the conditions and processes identified above.
- D. Normal high water.** "Normal high water " means that elevation determined from a line along the shore of a Class GPA waterbody which is apparent from visible markings, changes in the character of soils due to prolonged action of the water, or from changes in vegetation and which distinguishes between predominantly aquatic and predominantly terrestrial habitat.
- E. Seasonal aquatic base flow.** “Seasonal aquatic base flow” is a median flow value for the following seasons: winter (January 1 to March 15), spring (March 16 to May 15), early summer (May 16 to June 30), summer (July 1 to September 15), fall (September 16 to November 15), and early winter (November 16 to December 31). Seasonal aquatic base flows are established as follows.
- (1) For the winter season January 1 to March 15: a flow equal to the February median monthly flow as determined according to section 3 of this chapter.
 - (2) For the spring season March 16 to May 15: a flow equal to the April median monthly flow as determined according to section 3 of this chapter.
 - (3) For the early summer season May 16 to June 30: a flow equal to the June median monthly flow as determined according to section 3 of this chapter.
 - (4) For the summer season July 1 to September 15: a flow equal to the August median monthly flow as determined according to section 3 of this chapter.
 - (5) For the fall season September 16 to November 15: a flow equal to the October median monthly flow as determined according to section 3 of this chapter.
 - (6) For the early winter season November 16 to December 31: a flow equal to the December median monthly flow as determined according to section 3 of this chapter.
- F. System Design Capacity.** “System design capacity” for authorized Community Water Systems withdrawing from surface waters shall be determined by the Department of Health and Human Services as the amount of water that is available for Community Water System purposes based on actual documented annual withdrawal, and the

investments in and limits of the existing system infrastructure, that provides a safe and dependable supply of water for public use. Existing system infrastructure includes pump systems, treatment works, distribution lines and other structures that determine how much water can be safely and dependably supplied that is present or in the process of being acquired such as through an investment bond, contractual agreement, or purchase order as of the effective date of this chapter.

3. Calculation of seasonal aquatic base flow values

A. Using flow records. Seasonal aquatic base flow is determined using flow records where adequate flow records are available for a specific waterbody. “Adequate flow records” means a minimum of 10 years of U.S. Geological Survey gauging records, or other equivalent flow records of good quality from unregulated waters, except as follows or as approved by the department.

- (1) Where the period of flow record is at least 1 year, the available flow records may be extended by means of flow data from a nearby watershed with similar hydrologic characteristics and a minimum of 10 years of U.S. Geological Survey gauging records or other equivalent flow records.
- (2) Where flow records are unavailable, flow records may be established by using a drainage area adjustment ratio for records from other gauged sites within the same drainage with at least a ten year period of record, and where the drainage areas of the gauged and ungauged sites differ by no more than 50%.

B. Without using flow records. Estimates of seasonal aquatic base flow may be calculated using the most appropriate of the following publications, or by use of a regional flow study to establish seasonal median flows for rivers and streams within a region. An adequate regional flow study should be based on a minimum of 20 stations where at least 10 independent base flow measurements have been made for each site. Where conditions, such as watershed area, fall outside of the conditions by which these estimates were calculated, estimates of seasonal aquatic base flow are considered as interim estimates and may be refined as new site-specific data is obtained.

“Estimating Monthly, Annual, and Low 7-Day, 10-Year Streamflows for Ungaged Rivers in Maine”, USGS Scientific Investigations Report 2004-5026

"August Median Streamflow on Ungaged Streams in Eastern Aroostook County, Maine" USGS Water Resources Investigations Report 2003-4225

“August Median Streamflow on Ungaged Streams in Eastern Coastal Maine”, USGS Scientific Investigations Report 2004-5157

4. Flow standards for Class AA waters.

A. Narrative standard for Class AA waters. Flows in Class AA waters shall be maintained as they naturally occur. Withdrawal or other direct or indirect removal (e.g. groundwater extraction), diversion, or use of these waters that causes the natural flow to be altered may occur as provided in paragraph 4-B below.

B. Flow established by standard allowable alteration for Class AA waters. Flow in Class AA waters may not be less than the amounts defined in subparagraphs (1), (2) and (3) below, except when natural conditions alone cause those flows to be less, or as provided by a Water Flow Plan or regulatory permit as established in sections 7 or 8 of this chapter.

(1) When natural flow exceeds the spring aquatic base flow, 90% of the total natural flow shall be maintained.

(2) When natural flow during the early winter season exceeds the early winter aquatic base flow, 90% of the total natural flow shall be maintained. .

(3) When natural flow in any other season, except as described in (1) and (2) above exceeds 1.1 times the seasonal aquatic base flow and exceeds 1.5 times seasonal aquatic base flow if aquatic base flow was calculated from methods in paragraph 3-B, 90% of the total natural flow shall be maintained.

5. Flow standards for Class A, B, and C waters.

A. Narrative standard for Class A, B, and C waters. Flows in Class A, B, or C waters must be sufficient to protect all water quality standards including all designated uses and characteristics of the assigned class unless as a naturally occurring condition. When flow alteration occurs in Class A, B, or C waters that drain to a downstream Class AA water, the Class AA flow standards, provided in section 4 of this chapter, shall be protected. Withdrawal or other direct or indirect removal (e.g. groundwater extraction), diversion, or use of these waters that causes the natural flow to be altered shall occur as provided in paragraphs 5-B or 5-C below.

B. Flow established by standard allowable alteration for Class A waters. Flow in Class A waters may not be less than the seasonal aquatic base flow as defined, except when natural conditions alone cause those flows to be less. Withdrawal or other direct or indirect removal (e.g. groundwater extraction), diversion, or use of Class A waters may not occur for more than two consecutive seasons. The Commissioner may determine, as established in sections 7 or 8 of this chapter, that site-specific flows may be established that are protective of all water quality standards, including all designated uses and characteristics of those waters.

C. Flow established by standard allowable alteration for Class B and C waters. Flow in Class B and C waters may not be less than the seasonal aquatic base flow as defined, except when natural conditions alone cause those flows to be less. The Commissioner may determine, as established in sections 7 or 8 of this chapter, that site-specific flows may be established that are protective of all water quality standards, including all designated uses and characteristics of those waters.

6. Water level standards for Class GPA waters. Water levels in Class GPA waters shall be maintained as they naturally occur. Withdrawal or other direct or indirect removal (e.g. groundwater extraction), diversion, or use of these waters that causes the natural water level to be altered shall occur as provided in paragraph 6-A below.

A. Water level established by standard allowable alteration. Water levels in Class GPA waters may not be less than the levels defined in subparagraphs A(1-3) below, except

when natural conditions alone cause those levels to be less, or where the Commissioner has determined, as established in sections 7 or 8 of this chapter, that site-specific water levels may be established that are protective of all water quality standards, including all designated uses and characteristics of those waters.

- (1) Class GPA waters without a natural surface water outlet. Water levels must be maintained within the seasonal levels listed below, unless as a naturally occurring condition:
 - (a) within 1.0 foot of the normal high water from April 1 to July 31; and,
 - (b) within 2.0 feet of the normal high water from August 1 until March 31.

- (2) Class GPA waters with a natural surface water outlet, including beaver dams. Water level must be maintained within the seasonal levels listed below, unless as a naturally occurring condition:
 - (a) within 1.0 foot of normal high water from April 1 to July 31; and,
 - (b) within 2.0 feet of normal high water from August 1 to March 31.Flow in the outlet stream must be sufficient to maintain seasonal aquatic base flow, as defined in sections 4, 5, 7, or 8 of this chapter with adjustment for evaporation loss from the Class GPA water, or the natural inflow minus evaporation, whichever is less.

- (3) Class GPA waters where the water level is controlled by a dam and is not used for hydropower storage or generation. Water levels must be maintained to meet all applicable water quality standards, including all designated uses and characteristics of Class GPA waters, and flow must be provided for downstream waters that will protect all water quality standards applicable to those downstream waters. Withdrawal for agriculture, aquaculture, commercial, or industrial purposes will be limited to a volume of water that is no greater than:
 - (a) 1.0 acre-foot of water per acre of the waterbody at normal high water from April 1 to July 31. Additional volume increments may be withdrawn whenever it can be demonstrated that water replacement has occurred; and,
 - (b) a total of 2.0 acre-feet of water per acre of the waterbody at normal high water from August 1 to March 31. Additional volume increments may be withdrawn whenever it can be demonstrated that water replacement has occurred. In no case may withdrawal cause the water level to be less than the lowest water level that can be achieved through operation of the dam.

Notwithstanding the above limitations on water withdrawal amounts from GPA waters, water withdrawal may not diminish the total volume of the waterbody by more than 25%.

If a dam is removed on a Class GPA waterbody, the standard allowable alteration of water level is that alteration provided in subparagraph 6-A(2) above.

7. Flow or water level established by a Water Flow Plan or Water Level Plan. Flows or water levels may be established through a Water Flow Plan or Water Level Plan following the procedure described in paragraphs 7-A and 7-B below, that allows for withdrawal, diversion, or other use based on the results of a site-specific flow or water level study that is found by the Commissioner to be protective of all water quality standards, including all designated uses and characteristics, and taking into account the need for natural variation of flow or natural variation of water level by indigenous aquatic organisms and the processes needed to maintain those resources. The Water Flow Plan or Water Level Plan will be made

available for review by other state and federal natural resource agencies and the public before being approved by the Commissioner.

A. A water user filing a water flow or water level plan pursuant this paragraph shall use a form provided by the Department and shall include the following information in their filing.

- (1) The location of the proposed withdrawal.
- (2) The amount, duration and frequency of the proposed withdrawal.
- (3) A description of the water use, including assessment of any best management practices or water conservation practices relevant to the type of water use.
- (4) The water flows or water levels that the water user proposes to maintain at the point of withdrawal, including alternative flows or water levels and management provisions that may be implemented when natural drought conditions occur.
- (5) A plan for maintaining the proposed water flows or levels, including a monitoring plan that provides information on water use and flows or levels with a monitoring schedule reasonably sufficient to monitor compliance with the proposed flows or levels.

B. Upon receipt of a proposed water flow or water level plan, the Department will schedule a field visit to assess the water body and the potential impacts of the proposed flows or water levels on aquatic life use and all other water quality standards relating to the waterbody, taking into account the need to protect natural variation of flow or natural variation of water level. Other interested state and federal agencies will be provided notice of the filing and the scheduling of the field visit.

C. The Department shall maintain and make available all Water Flow or Water Level Plans. A Water Flow or Water Level Plan shall remain in effect until such time as a new plan is established or a regulatory permit, as provided in Section 8, is issued.

8. Flows or water levels established by regulatory permit or water level order.

A. Flows and water levels not related to hydropower projects. Flows or water levels may be established as part of any regulatory permit or water level order issued by the Department, the Land Use Regulation Commission, or as authorized by the Cobbossee Watershed District, provided they are protective of all water quality standards, including all designated uses and characteristics of that waterbody. Flows or water levels established by regulatory permit shall be based on the results of a site-specific flow or water level study, taking into account the need for natural variation of flow and natural variation of water level. Where an existing regulatory permit issued by the Department or the Land Use Regulation Commission establishes flows or water levels prior to the effective date of this chapter, those flows or levels shall continue for the effective period of the permit. Standards in this chapter apply to any subsequent reissuance of a regulatory permit by the Department or the Land Use Regulation Commission. A schedule may be assigned in any reissuance of a regulatory permit that will provide a reasonable period of time for compliance with a new flow or water level standard. In a watershed where flows or water levels have been established by a regulatory permit of the Department or the Land Use Regulation Commission, those flows or levels must be taken into account when calculating downstream flows or levels in accordance with section 7 above, during the effective term of the permit.

- B. Flows and water levels related to hydropower projects, as defined in 38 M.R.S.A. Section 632(3).** These flows and water levels are regulated through the Water Quality Certification process pursuant to Section 401 of the United States Clean Water Act or a permit issued pursuant to the Maine Waterway Development and Conservation Act, applying all applicable water quality standards, including all designated uses and characteristics of that waterbody, and are not otherwise subject to this chapter.
- 9. Drought flow variance for Community Water Systems.** Whenever natural drought conditions, in combination with Community Water System use, cause a water quality standard to not be maintained, the Community Water System may continue to withdraw water for public need subject to any conditions the Department may impose through the issuance of a variance pursuant to 40 CFR 131.13 (2006). Such variances may last for the duration of the drought condition and shall protect all water quality standards to the extent possible, recognizing the combined effects of a natural drought and the need to provide a safe, dependable public source of water.
- 10. Implementation of water flow and water level standards.**
- A. Implementation of water flow and water level standards for existing agricultural producers.** An existing agricultural producer, as defined in Title 7 §353.2.A or §353.2.B, has 5 years from the effective date of this chapter to attain the applicable water quality standards established in sections 4, 5, 6 or 7 of this chapter. An existing agricultural producer who has, or whose predecessor had, a permit or a written voluntary agreement establishing withdrawal limits must adhere to those limits for the 5-year period or until in compliance with the standards established in this chapter. The Commissioner, upon recommendation of the Maine Agriculture Water Management Board, may grant an extension of the implementation period beyond the original 5 years for an agricultural producer who qualifies for the 5-year compliance period, if the Department determines that one or more of the conditions for a compliance extension established in Title 7 §353.4 apply.
- B. Implementation of water flow and water level standards for existing Community Water Systems.** An existing Community Water System has five years from the effective date of this chapter to obtain a Community Water System Withdrawal Certificate from the Department and to implement all feasible actions necessary to comply with, or restore to the extent feasible, the applicable water quality standards established in sections 4, 5, 6 or 7 of this chapter for the source water body and affected downstream waters. The Commissioner may grant an extension of this 5-year implementation period if it can be demonstrated that reasonable progress toward implementation of a Community Water System Withdrawal Certificate has occurred.
- 11. Watersheds most at risk from cumulative water use.** Waters which do not meet one or more water quality standard due, in whole or in part, to the impact of water withdrawals are determined to be most at risk from cumulative water use. Additionally, the following waters identified in paragraphs A, B, and C below are determined to be most at risk.

- A. Class AA river or stream watersheds most at risk from cumulative water use.** Watersheds which have direct withdrawal capacity that collectively amounts to 10% or more of any seasonal median flow for the season that withdrawal is intended.
 - B. Class A, B, or C river or stream watersheds most at risk from cumulative water use.** Watersheds which have direct withdrawal capacity that collectively amounts to 50% or more of any seasonal median flow that withdrawal is intended.
 - C. Class GPA waters most at risk from cumulative water use.** Waters which have direct withdrawal capacity that collectively amounts to 80% or more of the available water for any defined period as provided by the standard allowable alteration.
 - D.** This definition does not constitute a regulatory standard and is not intended as such. It is only intended to identify watersheds that are most at risk from cumulative water use for the purpose of directing future efforts to address water use planning.
- 12. New activities in state waters.** Any activity affecting the flow or water level of classified state waters that requires a new or renewed regulatory permit from the Department or the Land Use Regulation Commission, as of the effective date of this chapter, will be regulated according to the flow and water level standards in this chapter. A Water Flow or Water Level Plan may be incorporated in any new or renewed regulatory permit.
- 13. Certain activities prohibited in Class AA waters.** Any activity in Class AA water that causes an alteration from the naturally occurring flow must protect all water quality standards, including the free-flowing characteristic. In-stream dams or other permanent alterations of the natural stream channel are prohibited. Activities, including the construction of structures in or adjacent to a waterbody to provide water withdrawal, or temporary diversions necessary as part of approved construction activity, may be permitted according to provisions in the Natural Resources Protection Act (38 M.R.S.A. Section 480).
- 14. Legal Water Rights Not Affected.** Determinations under this chapter do not confer legal water rights or constitute a determination of reasonableness of use with respect to other existing or future water users.

AUTHORITY: 38 M.R.S.A. § 470-H

EFFECTIVE DATE: