

EXECUTIVE SUMMARY
AMBIENT WATER QUALITY CRITERION - CHLORIDE (Ch)
Proposed Rulemaking

This proposed rulemaking is being made under the authority of Sections 5(b)(1) and 402 of The Clean Streams Law (35 P.S. §§ 691.5(b)(1) and 691.402), which authorize the Board to develop and adopt rules and regulations to implement the provisions of The Clean Streams Law, and Section 1920-A of the Administrative Code of 1929 (71 P.S. § 510-20), which grants to the Board the power and duty to formulate, adopt, and promulgate rules and regulations for the proper performance of the work of the Department. In addition, Section 303 of the Federal Clean Water Act (33 U.S.C. § 1313) sets forth requirements for water quality standards and the federal regulation at 40 CFR 131.32 sets forth certain requirements for portions of this Commonwealth's antidegradation program.

As part of its continuing water quality management program and ongoing review of water quality standards, the Department of Environmental Protection (Department) recommends that the Environmental Quality Board (Board) adopt the following amendments to 25 Pa. Code Chapter 93, Section 93.7 as set forth in Annex A of this proposed rulemaking and summarized below:

Change the symbol for the existing chloride criterion (from Ch to Ch₁) and add a new aquatic life criterion for chloride (Ch₂) to Table 3 at § 93.7 (relating to specific water quality criteria).

Table 3

<i>Parameter</i>	<i>Symbol</i>	<i>Criteria</i>	<i>Critical Use*</i>

Chloride	Ch ₁	Maximum 250 mg/l.	PWS
	Ch ₂	Four-day average 230 mg/l; 1-hour average 860 mg/l	CWF, WWF, TSF, MF

The basis for this evaluation is that the existing chloride criterion (referred to above as Ch₁) was developed primarily for the protection of potable water supplies. Although this criterion may be protective of instream aquatic life uses when applied, it is not applied in all waters of this Commonwealth, pursuant to 25 Pa. Code § 96.3(d). Therefore, the Department is recommending additional chloride criteria to be applied in all waters for the protection of aquatic life. The current potable water supply (PWS) chloride criterion (referred to above as Ch₁) is included in Table 3 at Section 93.7 in Chapter 93 (relating to water quality standards) of the Pennsylvania Code Title 25 and establishes a maximum level of 250 milligrams of chloride per liter of water, applicable only at the point of all existing or planned surface potable water supply withdrawals, unless otherwise specified. Prior to December 14, 2002, the chloride criterion was applicable statewide, rather than only at the point of withdrawal.

Freshwater fish and aquatic communities cannot survive in elevated concentrations of chlorides. Maintaining a proper salt-to-water balance in a fresh water environment challenges most aquatic life and, in particular, aquatic insects. Macroinvertebrates maintain an internal ionic concentration that is higher than the surrounding environment by actively transporting ions in and out of their bodies through a process called osmoregulation. Osmoregulation can be disrupted by large increases in certain ions (including chloride). This disruption in water balance and ion exchange is capable of causing stress or death to the organism.

EPA published *Ambient Water Quality Criteria for Chloride* in February 1988, which summarized the published toxicity data for chlorides on freshwater plant and animal species. The acute and chronic effects of chlorides on aquatic animals were documented, along with the chronic effects of chloride on aquatic plants. EPA developed the chloride criteria given below for protection against adverse acute and chronic impacts on freshwater aquatic life based on its established guidelines.

The 4-day average (CCC) criterion = 230 mg/l

The 1-hour average (CMC) criterion = 860 mg/l

The Department has reviewed the EPA ambient water quality criteria development document for chloride and agrees with the data analysis, interpretation, and methods used to develop the criteria. The Department recommends adopting these national chloride criteria for protection of aquatic life.

The proposed water quality criterion for chloride will be implemented through the Department's permit and approval actions. For example, the NPDES permitting program bases effluent limitations on the applicable criteria and protected uses of the stream.

The Department recommends that these revisions be adopted by the Board and published in the *Pennsylvania Bulletin* as proposed rulemaking with a 45-day public comment period. Public hearings and/or meetings will be scheduled at appropriate locations if sufficient interest is shown during the public comment period.