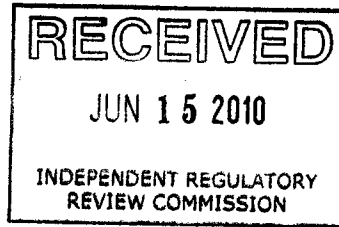




Pennsylvania Fish & Boat Commission

Bureau of Fisheries
Division of Environmental Services
450 Robinson Lane
Bellefonte, PA 16823
814-359-5115
June 11, 2010



RECEIVED

JUN 14 2010

2841
Environmental Quality Board
P.O. Box 8477
Harrisburg, PA 17105-8477

ENVIRONMENTAL QUALITY BOARD

Re: Ambient Water Quality Criterion-Chloride
Proposed Rulemaking
25 PA Code Chapter 93

Honorable EQB Members:

The Pennsylvania Fish and Boat Commission (PFBC) appreciate the opportunity to review the proposed rulemaking ambient water quality criterion for chloride. The Department of Environmental Protection (DEP) is proposing to implement the 1988 National Criteria generated by the Environmental Protection Agency (EPA) based on "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic organisms and Their Uses." Two important caveats were incorporated into the justification of the development of the National Water Quality Criteria for chloride. First, the EPA indicated that, "the criterion probably will not be adequately protective when the chloride is associated with potassium, calcium, or magnesium, rather than sodium; secondly, that the four day average concentration of dissolved chloride, when associated with sodium, does not exceed 230 mg/l more than once every three years on the average and if the one-hour average concentration does not exceed 860 mg/l more than once every three years on the average." Furthermore, the EPA states, "because freshwater animals have a narrow range of acute susceptibilities to chloride, excursions above this criterion might affect a substantial number of species."

Chloride is one of the most commonly found anions in ambient and in wastewater sources. Chloride is an essential element for the maintenance of normal physiological functions in all freshwater aquatic organisms. However, elevated levels of chloride in water can disrupt osmoregulatory processes in aquatic organisms and lead to impaired physiological functions. Several associated chemical parameters such as hardness, sulfates, temperature, and exposure time can also influence chloride toxicity. The scientific literature continues to advance the understanding of chloride interactions in the aquatic environment. It has been recently documented that benthic macroinvertebrate fauna show a greater sensitivity than fish to increased chloride levels and that hardness and sulfate concentrations appear to be empirically important in the calculation of a chloride criterion.

Our Mission:

www.fish.state.pa.us

To protect, conserve and enhance the Commonwealth's aquatic resources and provide fishing and boating opportunities.

EQB

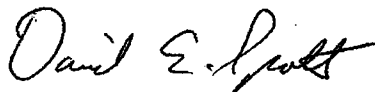
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The PFBC believes that a chloride criterion will add a greater degree of water quality protection to aquatic organisms and augment the existing osmotic pressure criterion. The PFBC supports a chloride criterion to provide additional and necessary water quality protection for aquatic organisms in light of the developing natural gas extraction industry in Pennsylvania. Chloride analyses in Pennsylvania gas well waste water has shown to include barium chloride, lithium chloride, calcium chloride, magnesium chloride, and strontium chloride. The majority of our surrounding states have adopted the National Criteria for chloride for their respective water quality standard programs. The state of Iowa and the province of British Columbia have adopted more stringent 1-hour average chloride criterion based upon the findings of current literature. According to the DEP Water Quality Antidegradation Implementation Guidance (2003), Threatened & Endangered (T&E) Species Protection Measures State "DEP will ensure that all water quality-related activities it permits or approves will protect and not impair a T&E species, its critical aquatic habitats, or any surface water upon which it critically depends." Given this guidance, the DEP should consider a more stringent 1-hour average chloride criterion.

The PFBC supports DEP's recommended four-day average chloride criteria of 230 mg/l for CWF, WWF, TSF, MF critical uses. However, we recommend that DEP reconsiders the 1-hour average 860 mg/l for CWF, WWF, TSF, MF critical uses based upon recent data in the scientific literature. The PFBC recognizes that data gaps do exist within the literature but we are concerned that to fully justify the proposed 1-hour average chloride criterion, additional research is necessary and may warrant consideration of a more conservative value to protect the fresh water resources of the Commonwealth.

Sincerely,



David E. Spotts, Chief
Watershed Analysis Section