



THE STATE
of **ALASKA**
GOVERNOR SEAN PARNELL

Department of Fish and Game

DIVISION OF HABITAT
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February 8, 2013

Senator Kevin Meyer
Co-Chair, Senate Finance Committee
Alaska State Capitol, Room 518
Juneau, AK 99801-1182

Dear Co-Chair Senator Meyer:

During the Senate Finance Committee hearing on February 7th on House Bill 80, the Alaska Department of Fish and Game (ADF&G) was asked to provide information and perspective on treated wastewater discharges from cruise ships.

Background on Water Quality Standards

Under the federal Clean Water Act, the Department of Environmental Conservation (DEC) is required to conduct routine reviews of its water quality criteria to make sure they continue to reflect the latest science and will continue to protect aquatic life. ADF&G participates in those reviews.

In 2009, DEC was conducting a routine review of the copper criteria. As a part of ADF&G's participation and evaluation of that copper criteria review, the ADF&G contracted with Scannell Technical Services for a literature review on the effects of copper on aquatic species. Dr. Phyllis Weber Scannell, a retired ADF&G Habitat biologist, conducted a literature review and prepared the report which was published by ADF&G as "Habitat Technical Report 09-04, Effects of Copper on Aquatic Species: A review of the literature. Scannell, Phyllis Weber, 2009, Fairbanks." That report provided a brief discussion of the US Environmental Protection Agency (USEPA) and the State of Alaska Water Quality (AWQ) acute and chronic copper criteria for aquatic life, and published scientific literature was reviewed to address concerns from the state and federal agencies and the public that the AWQ acute and chronic copper criteria may not adequately protect aquatic life. The report included a discussion on the effects of copper to fish, aquatic invertebrates, aquatic plants, and algae. The conclusion in the Executive Summary of the report states that "In most natural water systems, the AWQ acute and chronic criteria should provide adequate protection to most aquatic species." Based in large part on this report, ADF&G did not recommend and DEC did not propose changes to the copper criteria for protection of aquatic life.

Concern has been expressed in legislative hearings about olfactory response effects on salmon in salt water and reference to a 2007 NOAA study was made. That study addressed and identified some behavioral responses of juvenile coho salmon to copper in fresh waters, but noted that "... copper's effect on salmonid olfaction in saltwater environments remains a recognized data gap and it is presently uncertain whether the BMC [benchmark concentrations] thresholds derived in

this document apply to salt water environments... While the physiological basis for salmonid olfaction is well characterized, the transition to saltwater may involve important changes in olfactory receptor neuron function that ultimately influence the expression of the as yet unidentified ligands for dCu [dissolved copper].”

The ADF&G and DEC believe that based on current science, the water quality criteria for copper for marine waters are protective of aquatic life. Both agencies are aware that additional research is being conducted and will be evaluating the results of that data when it is available. Only when there is sufficient and credible data that can withstand EPA and public scrutiny, will DEC propose changes to the water quality criteria.

Heavy Metals Analysis

The ADF&G has been supporting an ongoing DEC project to collect fish tissue samples throughout the state and from multiple species. Those samples are tested for heavy metals, including copper. Results of that work can be found at: <http://dec.alaska.gov/eh/vet/fish.htm>.

Cruise Ship Mixing Zones

Under the current DEC permit, only 7 large commercial passenger vessels (cruise ships) are allowed to discharge while in port. The mixing zones authorized by the permit are very small and all AWQ standards are expected to be met at the edge of the mixing zone. The only “exposure” of fish to the water within the mixing zone would be brief and we wouldn’t expect any toxic effects to fish due to the limited exposure time. Because water quality standards are modeled to be met so close to the vessels, we would not expect any toxic effects to benthic organisms and therefore have not recommended biomonitoring.

As proposed, and because the AWQ standards are met at the edge of the mixing zones, ADF&G does not have any fishery, harvest, or habitat conflict concerns with the changes that would be enacted through the passage of this legislation.

Sincerely,



Randy Bates
Director

cc: Cora Campbell, Commissioner, ADF&G