From: Rick Johnson <richard.johnson@npgcable.com>

To: Kurt Dongoske <kdongoske@cableone.net>, Dennis Kubly <dkubly@uc.usbr.gov>, John Hamill <jhamill@usgs.gov>

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Subject: Selenium

Greetings,

I'd like to discuss having GCMRC conduct a risk assessment (similar to the recent Dreissena risk assessment) on the effects of selenium in Grand Canyon at the upcoming TWG. I will only be available on Monday the 25th, so would appreciate having the discussion on that day.

This concern was raised because of a recent paper about the potential for selenium to affect fish in Grand Canyon. Hinck et al. (2007. Chemical contaminants, health indicators, and reproductive biomarker responses in fish from the Colorado River and its tributaries. Science of the Total Environment 378:376-402) conclude that selenium concentrations exceeded toxicity thresholds for fish at sites both above and below the Grand Canyon. Given that levels of selenium in the lower basin are derived mainly from sources in the upper basin, fish in Grand Canyon presumably are also be exposed to toxic levels of selenium.

There is an extensive literature on the effects of selenium on fish, including the endangered big river fish. For example, Hamilton and Lemly (1999. Commentary. Water-sediment controversy in setting environmental standards for selenium. Ecotoxicology and Environmental Safety 44:227-235) state, "Toxic effects from selenium and other inorganics are important factors in the decline of these species [i.e., pikeminnow, razorback, bonytail & humpback] and inhibition of their recovery."

It would also be useful for GCMRC to address the recent controversy regarding EPA standards for selenium in the risk assessment.

I've attached an initial bibliography that may be useful.

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