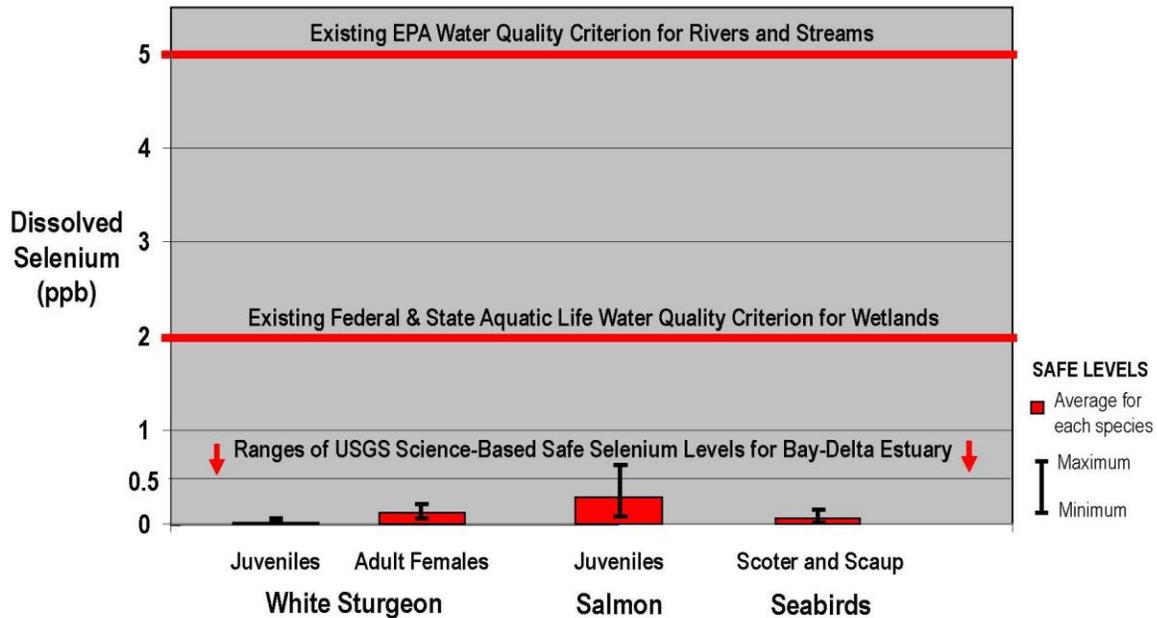


## Existing Selenium Water-Quality Standards Do Not Protect Bay-Delta Species:

A new USGS study, which will be used by EPA to revise standards, shows that much lower levels of selenium will be required to protect critical species.



### Critical Bay-Delta Estuary Species

Since 2002, under the Clean Water Act, Section 303, and the Endangered Species Act, the United States Environmental Protection Agency (EPA) has been required to adopt acute and chronic aquatic life criteria for Selenium taking into account the bioaccumulation of this contaminant as it magnifies throughout the food chain often causing reproductive failure, teratogenic effects and death. The terms and conditions also included reevaluating and revising selenium criteria for the protection of semi-aquatic wildlife. The just released peer reviewed United States Geological Survey (USGS) study, also part of the terms and conditions, models the fate and transport of selenium in the San Francisco Bay-Delta Estuary and as agreed, the report will serve as the basis for revised water quality criteria for the protection of wildlife species. <http://www.epa.gov/region9/water/ctr/>

\*\*\* The above graph prepared by CSPA & CWIN is directly based on the results from the U.S. Geological Survey (USGS) study. [http://www.epa.gov/region9/water/ctr/selenium-modeling\\_admin-report.pdf](http://www.epa.gov/region9/water/ctr/selenium-modeling_admin-report.pdf) The USGS study evaluated a series of selenium exposure scenarios using a set of specific guidelines and modeling choices from the range of temporal hydrodynamic conditions, geographic locations, food webs, and allowable dissolved, particulate, and prey Se concentrations (which we have referred to as "safe levels"). According to the USGS, "The specificity of these scenarios demonstrates that enough is known about the biotransfer of Se and the interconnectedness of habitats and species to set a range of limits

*and establish an understanding of the conditions, biological responses, and ecological risks critical to management of the Bay-Delta”.*

*The following scenarios were evaluated by USGS for a range of hydrologic conditions and residence times (See Tables 17, 18 and 19 in the USGS report):*

- Predicted allowed dissolved Se concentrations for Bay-Delta transects at different effect guidelines and associated levels of protection (USFWS, 2009b) for a suspended particulate material>C. amurensis>sturgeon food web.*
- Predicted allowed dissolved Se concentrations for Bay-Delta transects at different effect guidelines and associated levels of protection (USFWS, 2009b) for a suspended particulate material>C. amurensis>clam-eating bird species food web.*
- Predicted allowed dissolved Se concentrations for landward transects at different effect guidelines and associated levels of protection (USFWS, 2009b) for a suspended particulate material>aquatic insect>juvenile salmon food web.*

*The CSPA-CWIN summary graphic of this data shows the results for critical Bay-Delta species, aggregated across all combinations of target tissues (eg. Whole body, eggs, or diets) that have known levels of concerns, as summarized by the U.S. Fish and Wildlife Service. Results are also combined across all hydrologic conditions for each species.*

*The ranges of “allowable” or safe levels of dissolved selenium clearly show that, although EPA will need to specify exact safety levels, flow conditions, and species, new standards for the Bay-Delta will need to be substantially less than 0.5 parts per billion dissolved selenium to be protective.*