



# **Public Hearing for the Proposed Aquatic Life and Aquatic-Dependent Wildlife Selenium Criteria for the San Francisco Bay and Delta, California**

**Monday, August 22, 2016  
6:00 – 8:00 p.m. Pacific Time**



# Virtual Public Hearing Logistics

- **If you hear an echo** – Close all browser windows except the webcast presentation and/or mute the presentation using the speaker icon in the lower left corner of the screen.
- **If you experience technical difficulties** – Type your issue in the text box located at the bottom of your screen, and click on the Ask button. You may need to use the scroll bar to see the response below.
- **If you cannot see the Ask a Question box at the bottom of your screen** – Change your screen resolution by clicking on Tools in your web browser and selecting Zoom out.
- **To make a public comment** – You will need to call into the conference phone line and mute your computer speakers. Call-in details will be provided when the line is opened.



# Overview of Public Hearing

- Introduction and Housekeeping Items
- Overview of the Proposed Rule
- Public Comments



Bay Bridge Credit: Tiffany Heitz/ USFWS



## EPA Staff

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## Proposed Federal Aquatic Life and Aquatic-Dependent Wildlife Selenium Criteria for the San Francisco Bay and Delta

- On July 15, 2016, the EPA published a proposed rule that would establish federal Clean Water Act (CWA) water quality criteria applicable to the salt and estuarine waters in the [San Francisco Bay and Delta](#) to protect [aquatic life and aquatic-dependent wildlife](#) from the toxic effects of [selenium](#).



Credit: NOAA, Dept of Commerce;  
Crew & Officers of NOAA  
Ship MILLER FREEMAN



## Proposed Federal Aquatic Life and Aquatic-Dependent Wildlife Selenium Criteria for the San Francisco Bay and Delta

- Proposed criteria were developed to ensure protection for federally listed Threatened and Endangered Species including green sturgeon, Chinook salmon, steelhead, delta smelt, & California Ridgway's rail.



Rainbow/Steelhead Credit: Robert Pos/USFWS



Ridgway's Rail Credit: Lee Karney/USFWS

- Proposed criteria will apply to waters in Bay & Delta with greater than 1 part per thousand (ppt) salinity, 95% or more of the time.



## Background

- CWA § 101(a)(2) establishes the national goal that water quality should provide for the protection and propagation of fish, shellfish, and wildlife, and recreation in and on the water.
- To protect aquatic life from harmful effects from pollutants in waterbodies, states must establish aquatic life criteria for their waters.
- EPA periodically publishes criteria recommendations under CWA § 304(a) for states to consider using to meet these CWA goals.



## Background

- In 1992, as part of the National Toxics Rule (40 CFR Part 131.36 et seq.), EPA promulgated selenium criteria for the protection of aquatic life to limit adverse effects in the San Francisco Bay and Delta.
- The criteria in the NTR are based on the CWA § 304(a) recommended water quality criteria in effect at that time.
- EPA recently noticed the availability of a revised CWA § 304(a) selenium criterion for the protection of aquatic life in freshwaters (June 2016).
- The revised CWA § 304(a) selenium criterion includes fish tissue elements to better reflect bioaccumulation into the food web.





## Background

- The CWA directs EPA to propose water quality standards whenever determined necessary to meet the requirements of the CWA (CWA § 303(c)(4)(B)).
- EPA has determined that the selenium criteria promulgated in the NTR are not protective of the designated uses for aquatic life and aquatic-dependent wildlife in the San Francisco Bay and Delta.



Delta Smelt Credit: Peter Johnsen/USFWS



Greater Scaup Credit: Gary Kramer/USFWS



## Background

- Therefore, EPA is proposing site-specific selenium water quality criteria for the San Francisco Bay and Delta for the protection of aquatic life and aquatic-dependent wildlife.

White Sturgeon from San Francisco Bay.  
Circa 1980s.  
Credit: NOAA, Dept. of Commerce;  
NMFS File Photo.





## Scope of the Proposed Rule

- Criteria take into account the best available science, EPA policies, guidance, and legal requirements to protect the uses of the estuary.
- Proposed criteria are consistent with EPA's revised CWA § 304(a) recommended water quality criterion for selenium (June 2016).
- For more information on EPA's 304(a) criterion recommendation, see: <https://www.epa.gov/wqc/aquatic-life-criterion-selenium#freshwater>

## Scope of the Proposed Rule

- Selenium is nutritionally essential in small amounts, but toxic at higher concentrations. It bioaccumulates in the aquatic food chain and can cause reproductive impairments as well as adversely affect juvenile growth and development.



Left: Red Shiner: Spinal Deformity (Scoliosis) vs Normal  
Credit: A. Dennis Lemly



Bluegill with Deformed Mouth and Craniofacial Structure (Teratogenic Effects) vs. Normal.  
Credit: A. Dennis Lemly



## Scope of the Proposed Rule

- After careful analyses of the species living in the San Francisco estuary, EPA is proposing the national recommended whole body and muscle fish tissue criterion elements for the estuary.
- EPA is also proposing dissolved and particulate water column and clam tissue criteria developed using the USGS Ecosystem-Scale Selenium Bioaccumulation model.



Surf Scoter Credit: Gary Kramer/USFWS



Chinook Salmon Credit: Ryan Hagerty/USFWS



## Scope of Proposed Rule

- Ecosystem-Scale Selenium Model uses species-specific and environment-specific data.
- Environment-specific data includes:
  - Water Year Type and Flow Season
  - Partitioning Coefficients ( $K_d$  Values)

Chinook (King) Salmon  
Credit: Dan Cox/USFWS





## Scope of Proposed Rule

- Species-specific data includes:
  - Target Species & Critical Life Stages
    - Food Web and Diet Mix of Target Species @ Critical Life Stage
    - Trophic Transfer Factors for Dietary Components
  - Benchmark Effect Concentrations (Endpoint)

White Sturgeon on Columbia River, OR.  
Circa ?

Credit: NOAA, Dept of Commerce;  
Archival Photographer Stefan Claesson;  
Golf of Maine Cod Project, NOAA  
National Marine Sanctuaries;  
Courtesy of National Archives.





## Scope of Proposed Rule

- EPA modeled 2 food chains, 4 consumption patterns:
  - Clam-eating fish (e.g., sturgeon and splittail);
  - Clam-eating diving birds (e.g., scoter & scaup);
  - Clam-eating littoral birds (e.g., California Ridgway's Rail);
  - Insect-eating fish (e.g., Chinook salmon, steelhead trout, and delta smelt).
- Model Endpoints were 10% Effect Concentration (EC10) values:
  - 8.5  $\mu\text{g/g}$  dw whole body in fish
  - 12.5  $\mu\text{g/g}$  dw egg tissue in birds





## Scope of the Proposed Rule

- Based on EPA modeling, EPA is proposing the following criteria for the salt and estuarine waters of the San Francisco Bay and Delta:
  - Fish Tissue Whole Body value of 8.5  $\mu\text{g/g dw}$ ; or
  - Fish Tissue Muscle value of 11.3  $\mu\text{g/g dw}$ ;
  - Chronic Dissolved Water Column value of 0.2  $\mu\text{g/L}$ ;
  - Chronic Particulate Water Column value of 1  $\mu\text{g/g dw}$ ;
  - Clam Tissue value of 15  $\mu\text{g/g dw}$ ; and
  - Intermittent Exposure Dissolved Water Column value (equation)



## Implementation of the Proposed Rule

- California has considerable discretion to implement criteria, once finalized.
  
- Implementation mechanisms include:
  - Use of Compliance Schedules in NPDES permits in accordance with State's Policy for Compliance Schedules;
  - Development of Site-Specific criteria for added precision where appropriate;
  - Development of Variances (time-limited designated uses and supporting criteria);
  - Others.



## Further Information

- To access the proposed rule and supporting documents, visit EPA's Water Quality Standards website at:

<https://www.epa.gov/wqs-tech/water-quality-standards-establishment-revised-numeric-criteria-selenium-san-francisco-bay>

- Written comments must be received on or before **September 13, 2016.**



# Rule Manager Contact Information

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## To Make a Written Comment

- **Online:** [www.regulations.gov](http://www.regulations.gov) and reference Docket ID No. EPA-HQ-OW-2015-0392.
- **Email:** [OW-docket@epa.gov](mailto:OW-docket@epa.gov) and reference Docket ID No. EPA-HQ-OW-2015-0392.
- **Mail to:** Water Docket, U.S. Environmental Protection Agency, Mail code: 2822T, 1200 Pennsylvania Avenue, NW, Washington, DC 20460, Attention: Docket ID No. EPA-HQ-OW-2015-0392.
- **Hand Delivery:** EPA Docket Center, WJC West Building Room 3334, 1301 Constitution Avenue, NW, Washington, DC 20004, Attention Docket ID No. EPA-HQ-OW-2015-0392.
  - Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

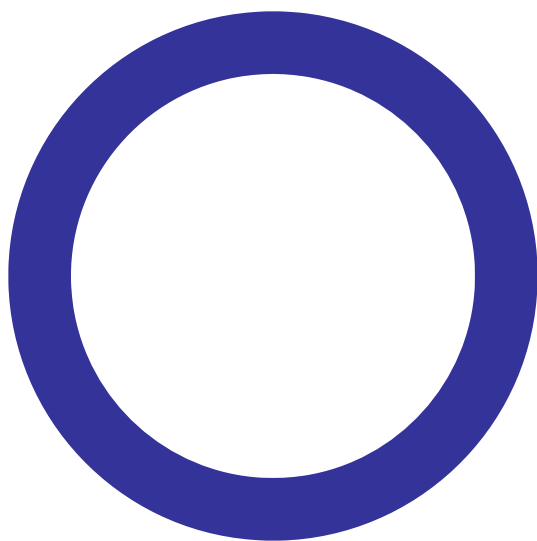


## To Make an Oral Comment

- Dial: 877-407-4035
- Enter Pass Code: 13639795
- Once you have joined the conference, **press \*1** to be placed in queue to speak. **You may need to wait a few seconds before pressing \*1** to be placed in the queue to speak.
- When prompted, record your name and organization/affiliation.
- You may have to wait in queue. When your line has been opened, the operator will announce your name. Make sure that your name/affiliation are correct when announced by the operator.
- You will have exactly three minutes to make your comment.
- Once three minutes has passed, your line will be automatically disconnected.



## Less than 3 Minutes Remain



Each caller will have three minutes to provide a public comment. The diagram on this slide will show approximate time elapsed. The caller will be automatically disconnected at three minutes.

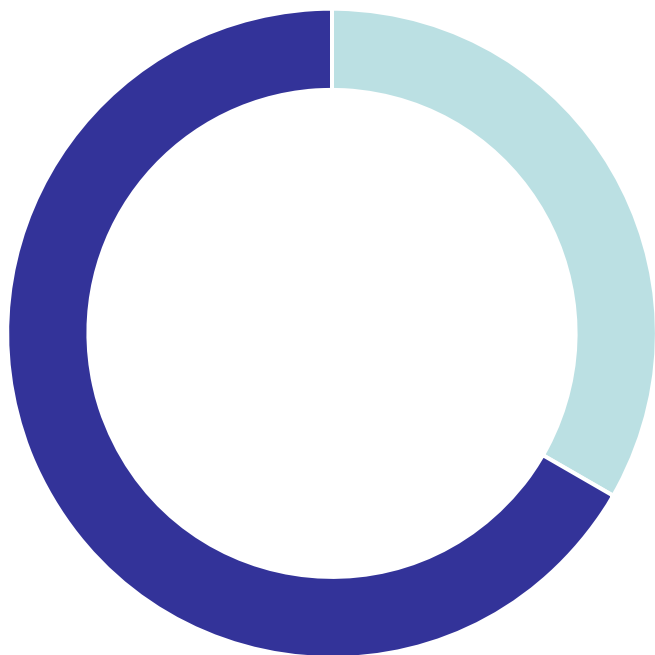
If you would like to make a public comment please call:

877-407-4035, **code** 13639795

Once you have joined the conference, **press \*1** to be placed in queue to speak.



## Less than 2 Minutes Remain



Each caller will have three minutes to provide a public comment. The diagram on this slide will show approximate time elapsed. The caller will be automatically disconnected at three minutes.

If you would like to make a public comment please call:

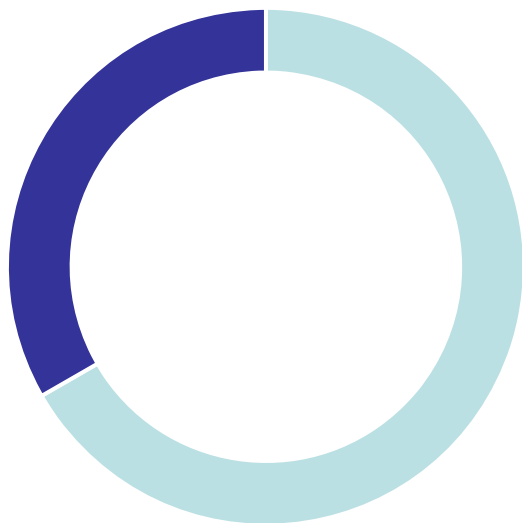
877-407-4035, **code** 13639795

Once you have joined the conference, **press \*1** to be placed in queue to speak.





## Less than 1 Minute Remains



Each caller will have three minutes to provide a public comment. The diagram on this slide will show approximate time elapsed. The caller will be automatically disconnected at three minutes.

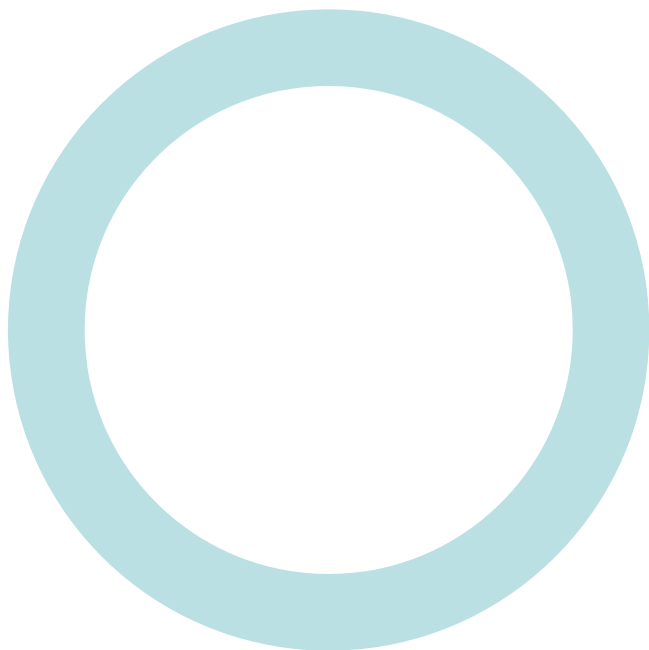
If you would like to make a public comment please call:

877-407-4035, **code** 13639795

Once you have joined the conference, **press \*1** to be placed in queue to speak.



## Time is Up



Each caller will have three minutes to provide a public comment. The diagram on this slide will show approximate time elapsed. The caller will be automatically disconnected at three minutes.

If you would like to make a public comment please call:

877-407-4035, **code** 13639795

Once you have joined the conference, **press \*1** to be placed in queue to speak.



**You may hear silence.**

**Currently There Are No Callers in the Queue.**

**To Make an Oral Comment Now:**

- Dial 877-407-4035
- Enter Pass Code: 13639795
- Once you have joined the conference, **press \*1** to be placed in queue to speak. **You may need to wait a few seconds before pressing \*1** to be placed in the queue to speak.
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