

# Proposed Beneficial Uses and Mercury Provisions

State Water Resources Control Board



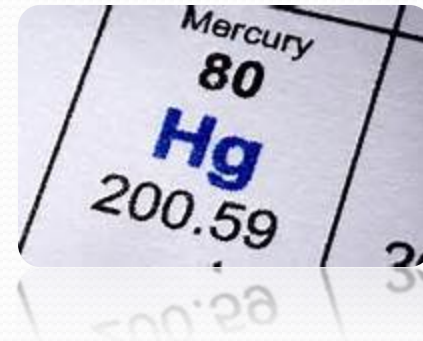
Public Workshop  
January 9, 2017



# Proposed Statewide Mercury Provisions

# Agenda

- Purpose of today's workshop
- Background & introduction
- Mercury provisions
  1. Water quality objectives
  2. Implementation program
- Next steps



# Purpose of Workshop

- Explain draft regulatory language
- Answer clarifying questions
- Facilitate public comments

# When & Where to Submit Comments

- In person:
  - February 7, 2017, Public Hearing to receive oral comments, in Sacramento
- In writing:
  - until February 17, 2017 (at noon)
  - [commentletters@waterboards.ca.gov](mailto:commentletters@waterboards.ca.gov)
    - Please indicate in the subject line: “Comment Letter -- Beneficial Uses and Mercury Objectives”

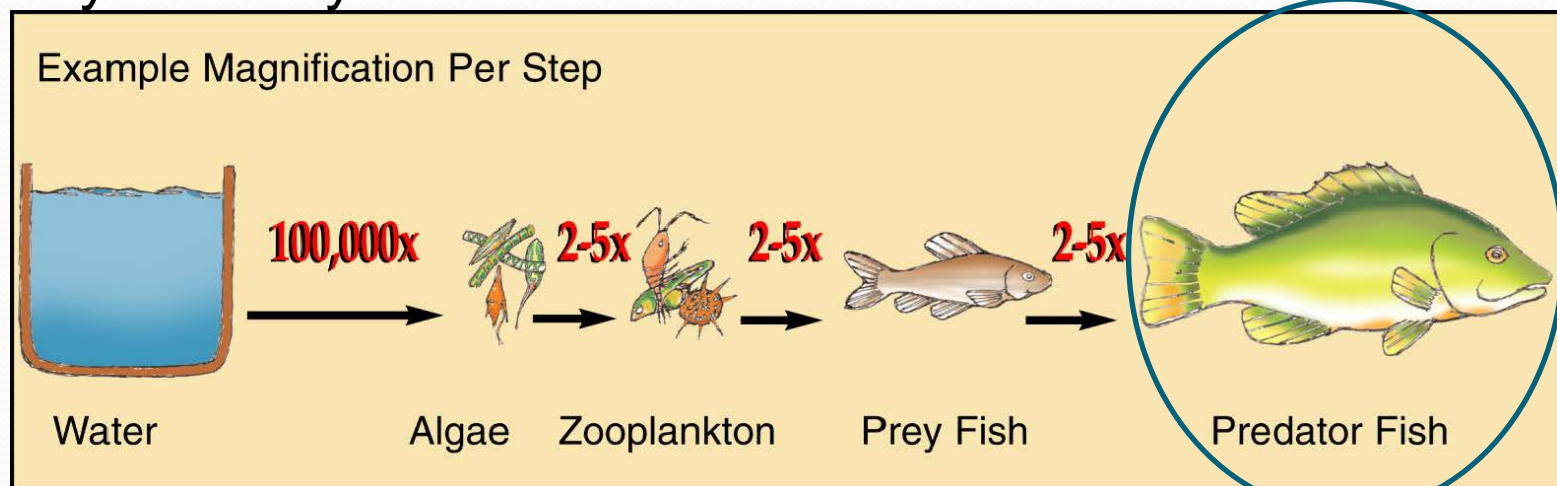
# Background

## Methylmercury:

- is a form of mercury
- is a potent brain and nerve toxin
- accumulates in fish tissue



## Methylmercury Bioaccumulation



# Background-Mercury sources

- Naturally mercury enriched soils
- ★ • Gold and mercury mining legacy
- Atmospheric deposition
- Mercury containing items
- Conversion of mercury to methylmercury

# Why is new regulation needed?



## Current statewide criteria for mercury (California Toxics Rule, 2000)

- Not protective of threatened and endangered species
  - Lawsuit against U.S. EPA
  - June 30, 2017 deadline
- Do not reflect the U.S. EPA 2001 methylmercury criterion for human health

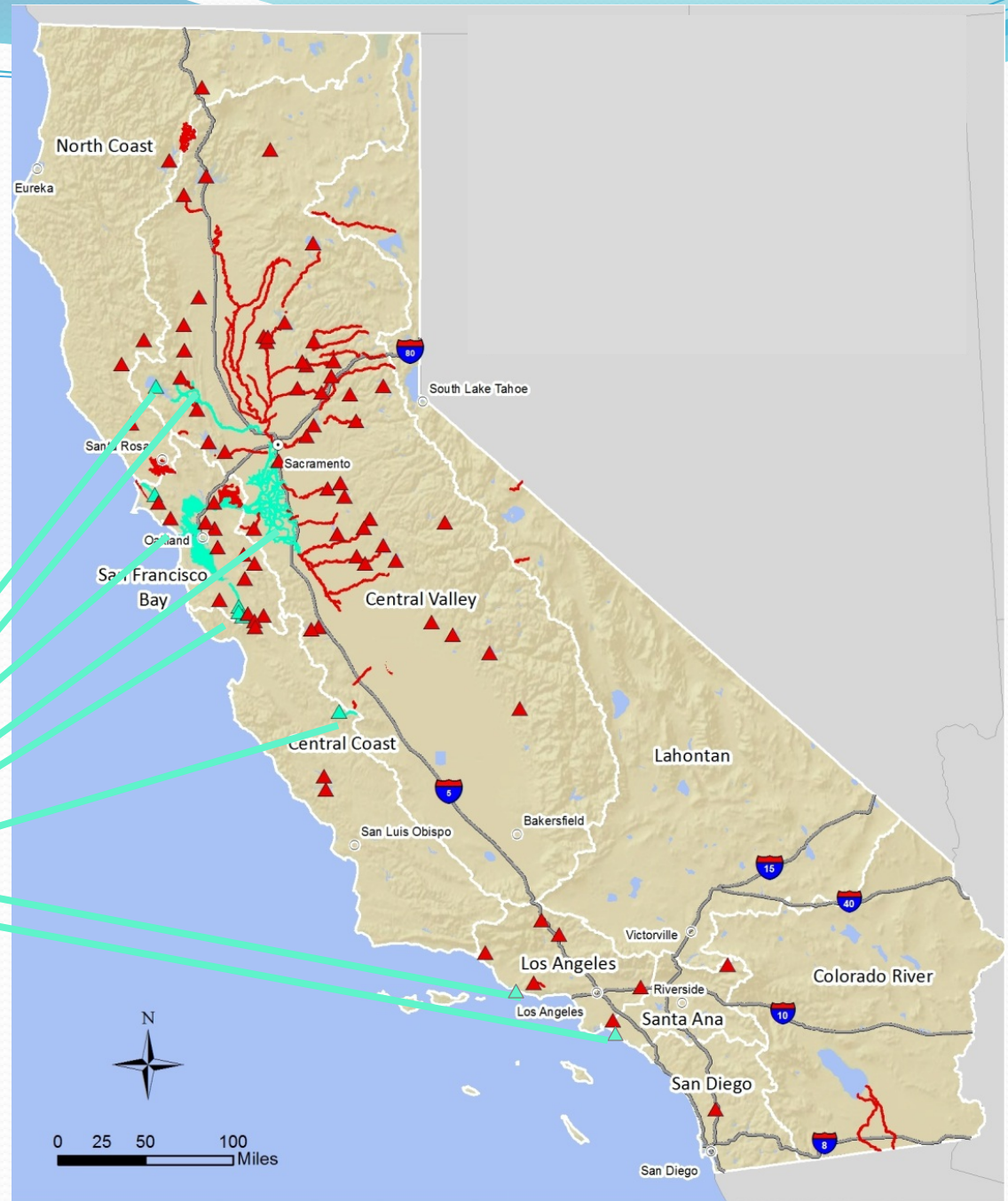


# Current status

Mercury-impaired waters, as of 2010



Impaired waters being addressed by a control plan (a TMDL)



# Draft Mercury Provisions

- Part of the Inland Surface Water Enclosed Bays and Estuaries Plan
  1. Water quality objectives
  2. Implementation program
- Not to supersede site-specific control plans (TMDLs)
- (Separate project to address reservoirs)

# Draft Water Quality Objectives

**Five water quality objectives, to protect human health and wildlife:**

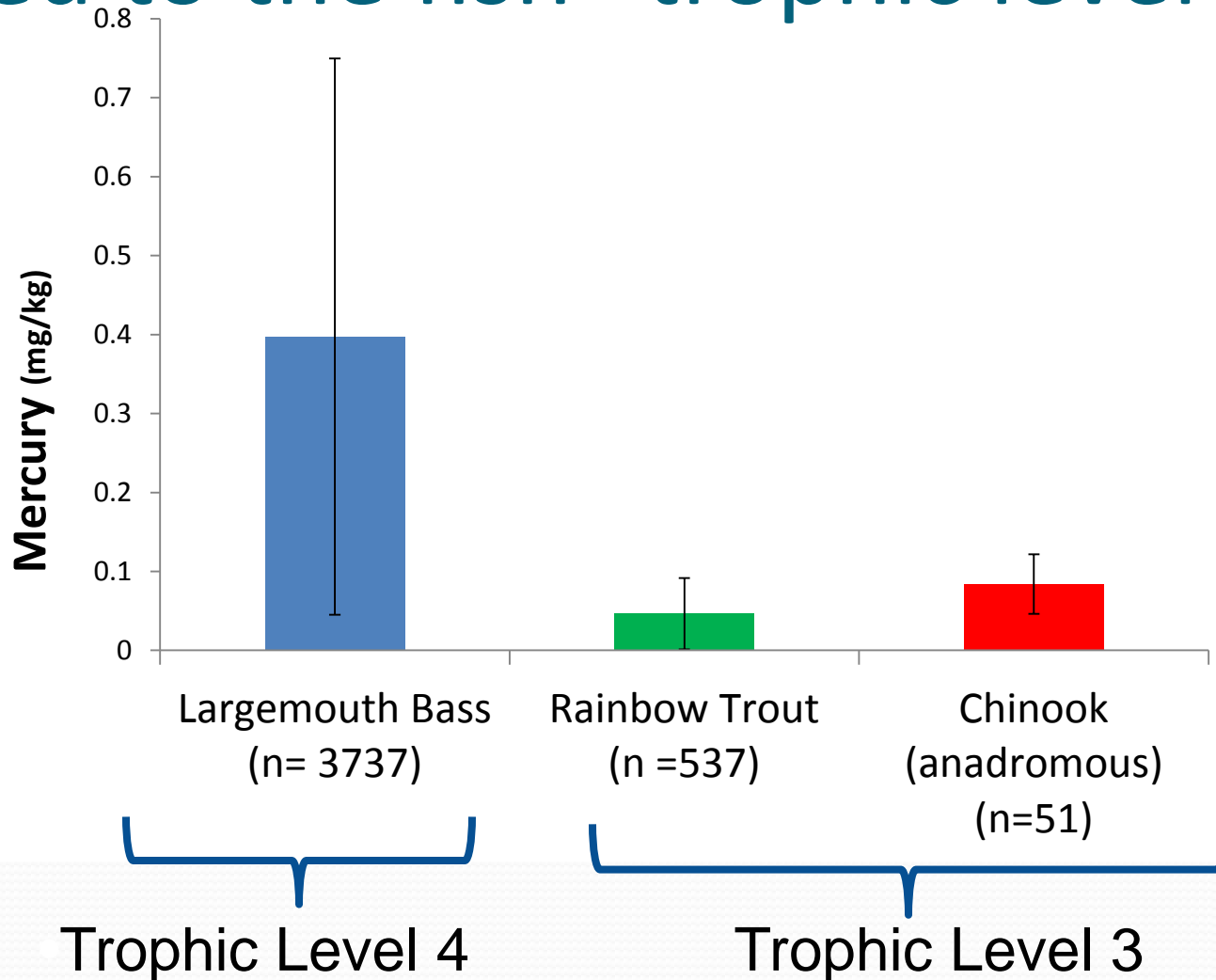
1. Sport Fish
2. Tribal Subsistence Fishing
3. Subsistence Fishing
4. Prey Fish
5. California Least Tern Prey Fish

# Water Quality Objectives linked to the fish “trophic level”

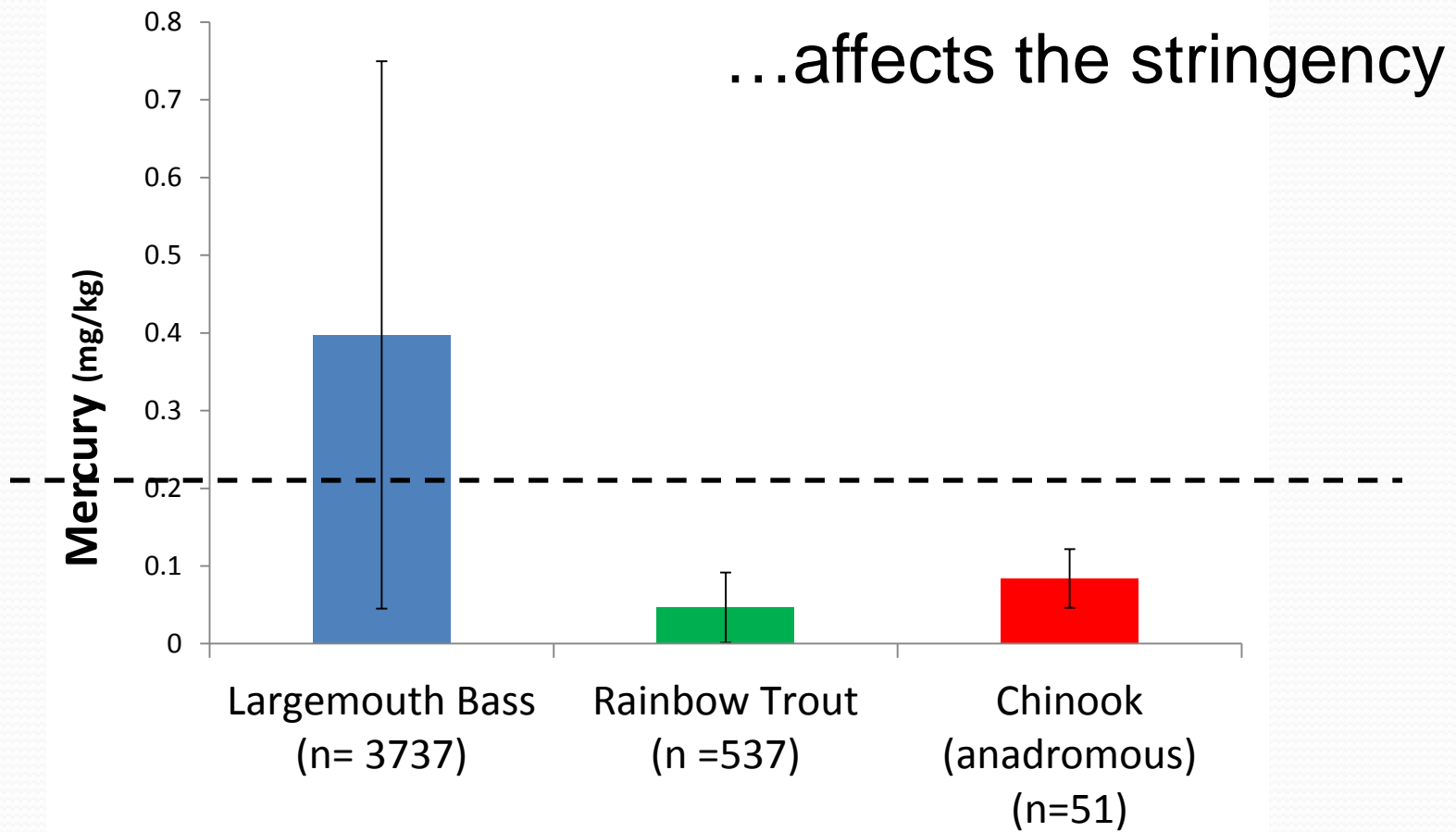
Highest mercury levels in trophic level 4

<b>Trophic Level</b>	<b>Explanation</b>	<b>Example</b>
1	Primary producers	algae
2	Feeds on trophic level 1	zooplankton
3	Fish that feed on trophic level 1 & 2	trout, salmon, prey fish
4	Fish that feed on trophic level 3	black bass, striped bass

# Water Quality Objectives linked to the fish “trophic level”



# Water Quality Objectives linked to the fish “trophic level”



# Draft Water Quality Objectives

**To protect human health:**

Objective	Beneficial Uses	Objective (methylmercury in fish tissue)
<b>Sport Fish</b>	Commercial & Sport Fishing, Tribal Tradition & Culture	0.2 mg/kg in filet of the highest trophic level fish, 150-500 mm  (1 fish meal per week)
<b>Tribal Subsistence Fishing</b>	Tribal Subsistence Fishing	0.04 mg/kg, mixture (70% TL3, 30% TL4), fish 150-500 mm  (4-5 fish meals per week)
<b>Subsistence Fishing</b>	Subsistence Fishing	Narrative objective

# Draft Water Quality Objectives

To protect human health:

Objective	Beneficial Uses	Objective (methylmercury in fish tissue)
Sport Fish	Commercial & Sport Fishing, Tribal Tradition & Culture	0.2 mg/kg in filet of the highest trophic level fish, 150-500 mm  (1 fish meal per week)
Tribal Subsistence Fishing	Tribal Subsistence Fishing	0.04 mg/kg, mixture (70% TL3, 30% TL4), fish 150-500 mm  (4-5 fish meals per week)
Subsistence Fishing	Subsistence Fishing	Narrative objective

Uses not yet designated to any waters—discussed this afternoon



# Draft Water Quality Objectives

## To protect wildlife:

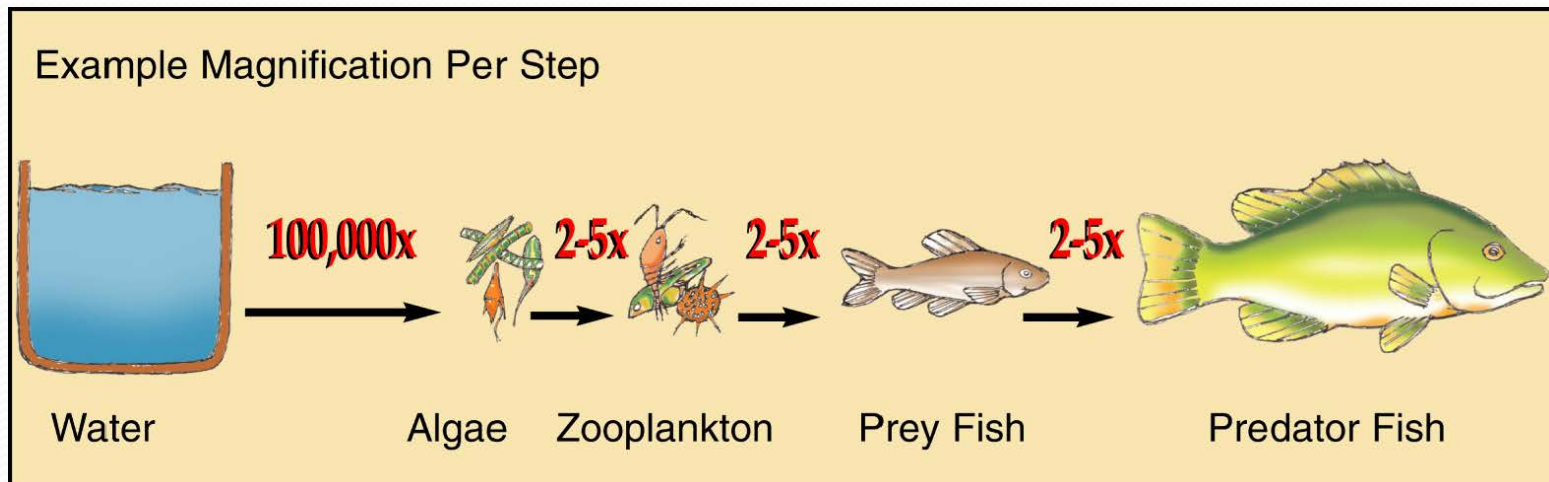
Objective	Beneficial Uses	Objective (methylmercury in fish tissue)
<b>Sport Fish</b>	Wildlife Habitat*	0.2 mg/kg in filet of the highest trophic level fish, 150-500 mm
<b>Prey Fish</b>	Wildlife Habitat* (where no trophic level 4 fish)	0.05 mg/kg, in whole fish 50-150 mm
<b>California Least Tern Prey Fish</b>	California Least Tern Habitat	0.03 mg/kg in whole fish < 50 mm

\* Also Marine Habitat; Rare, Threatened, or Endangered Species; Warm Freshwater Habitat; Cold Freshwater Habitat; Estuarine Habitat; and Inland Saline Water Habitat

# Draft Water Quality Objectives

- When the **Sport Fish Water Quality Objective** is measured in trophic level 4 fish (bass), it is similar in stringency to the **Prey Fish Water Quality Objective**
  - making Prey Fish Water Quality Objective unnecessary

## Methylmercury Bioaccumulation



# Draft Water Quality Objectives

Conversely, when the **Sport Fish Water Quality Objective** is measured in trophic level 3 fish (trout)...

- not as protective as the Prey Fish Water Quality Objective...
- So, the **Prey Fish Water Quality Objective** must also be measured, to ensure protection of wildlife

# Draft Water Quality Objectives



Approximate habitat

## California Least Tern Prey Fish Water Quality Objective

- Ensures protection of an endangered species
- Only for California least tern habitat
- Not dependent on the Sport Fish Water Quality Objective
- The Prey Fish Water Quality Objective need not be measured in the same waters

# Draft Water Quality Objectives

To protect human health and wildlife:

Objective	Beneficial Uses	Objective (methylmercury in fish tissue)
<b>Sport Fish</b>	Commercial & Sport Fishing, Tribal Tradition & Culture, Wildlife Habitat*	0.2 mg/kg in filet of the highest trophic level fish, 150-500 mm
<b>Tribal</b>	Tribal Subsistence Fishing	0.04 mg/kg, mixture (70% TL3, 30% TL4), fish 150-500 mm
<b>Subsistence</b>	Subsistence Fishing	Narrative objective
<b>Prey Fish</b>	Wildlife Habitat* (where no trophic level 4 fish)	0.05 mg/kg, in whole fish 50-150 mm
<b>California Least Tern Prey Fish</b>	California Least Tern Habitat	0.03 mg/kg in whole fish < 50 mm

\*Also Marine Habitat; Rare, Threatened, or Endangered Species; Warm Freshwater Habitat; Cold Freshwater Habitat; Estuarine Habitat; and Inland Saline Water Habitat

# Draft Program of Implementation

1. Mines
2. Wetlands, dredging, nonpoint sources
3. Storm water
4. Municipal wastewater and industrial dischargers

# Draft Program of Implementation

## Mines

- Currently can be addressed through a number of permit programs and clean up orders
  - In some cases, requirements may apply as described subsequently for each discharge type
  - For closed mine sites: erosion and sediment controls
    - Mercury binds to sediment: controlling sediment controls mercury

# Draft Program of Implementation

## **Wetlands, dredging, and nonpoint sources**

- Continue to use existing policy and regulatory tools
- Regulatory language provides guidance:
  - Mercury controls should be considered in “areas with elevated mercury”
  - Sediment and erosion controls can be an appropriate mercury control, in some cases



# Draft Program of Implementation

## **Areas with elevated mercury:**

1. Coast Range mountains, 1 mg/kg total mercury or higher;
2. Industrial area with soil or sediments, 1 mg/kg total mercury or higher;
3. Historic mercury, silver, or gold mine tailings;
4. Historic hydraulic gold mining pits;
5. Other area determined by permit writer

# Draft Program of Implementation

## Storm water discharge

### Municipal Separate Storm Sewer Systems (MS4s):

- Sediment and erosion controls
- Mercury pollution prevention:
  1. Enhancement of household hazardous waste collection programs
  2. Public education on disposal of household mercury-containing products and alternatives
  3. Education of auto dismantlers proper disposal of mercury switches
  4. Survey of use of mercury-containing products used by the MS4
  5. Other substitute action, approved by regional board

# Draft Program of Implementation

## **Storm water discharge (continued)**

- Caltrans & construction:
  - No new requirements – current permits include sufficient erosion controls
- Industrial facilities:
  - Updating Numeric Action Level from 1400 ng/L to 300 ng/L

# Draft Program of Implementation

## **Municipal wastewater & industrial discharge**

- Procedure similar to existing policy
  - *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP)*
- Water column thresholds
  - Based on bioaccumulations factors
  - Not water quality objectives
  - Only for municipal & industrial wastewater permits

# Draft Program of Implementation

## Municipal wastewater & industrial discharge

Bioaccumulation factors (BAFs)


U.S. EPA		California
Lakes	Rivers	Rivers
5,700,000	1,200,000	1,100,000
2,700,000		
(lakes & rivers combined)		

# Draft Program of Implementation

## Municipal wastewater & industrial discharge

Bioaccumulation factors (BAFs)

U.S. EPA		California
Lakes	Rivers	Rivers
5,700,000	1,200,000	1,100,000
2,700,000 (lakes & rivers combined)		



- Agreement between national and California data
- Most discharges flow into rivers

# Draft Program of Implementation

## Municipal wastewater & industrial discharge

Bioaccumulation factors (BAFs)

U.S. EPA		California
Lakes	Rivers	Rivers
5,700,000	1,200,000	1,100,000
2,700,000 (lakes & rivers combined)		

Effluent limitation for discharges to “slow moving waters”

Effluent limitation for discharges to rivers

# Draft Program of Implementation

## **Municipal wastewater & industrial discharge**

### Water column thresholds

- Sport Fish Water Quality Objective
  - Rivers (“flowing waters”):
    - 12 ng/L (est. 92% or 283 facilities currently meet)
  - Other “Slow moving waters”
    - 4 ng/L (est. 73% or 222 facilities currently meet)
  - Reservoirs: few discharges:
    - Case-by-case



# Draft Program of Implementation

## **Municipal wastewater & industrial discharge**

### Water column thresholds

- Tribal Subsistence Water Quality Objective
  - Rivers (“flowing waters”):
    - 4 ng/L (est. 73% or 222 facilities currently meet)
  - Other “Slow moving waters”
    - 1 ng/L (est. 27% or 83 facilities currently meet)
  - Reservoirs: few discharges:
    - Case-by-case

# Draft Program of Implementation

## **Municipal wastewater & industrial discharge**

### Water column thresholds

- Subsistence Water Quality Objective
  - Case-by-case
    - Regional board would determine a water column threshold based on available data (e.g., U.S. EPA bioaccumulations factors)

# Draft Program of Implementation

## **Municipal wastewater & industrial discharge**

### Water column thresholds

- Prey Fish Water Quality Objective
- California Least Tern Prey Fish Water Quality Objective
- Same as water column thresholds as Sport Fish Water Quality Objective for both

# Draft Program of Implementation

## **Municipal wastewater & industrial discharge**

- Procedure similar to existing policy
  - Few exceptions: e,g., Annual average
- Dilution credits may apply, as in existing policy
  - Not to be granted if water body is impaired

# Draft Program of Implementation

## Municipal wastewater & industrial discharge

- Exceptions to reasonable potential (and effluent limitations):
  - **Small disadvantaged communities**
    - Pop. of 20,000 or less, with an annual median household income < 80 % statewide median
  - **Insignificant dischargers**
    - Low threat as demined by Regional Board
  - Permit writer must make findings of why no reasonable potential

# Scientific Peer Review

- Overall supportive of proposal
- Changes to amendment:
  - Subsistence objective – narrative to accommodate wide variability
  - Wastewater effluent limitation- more protective for discharges to estuaries

# Anticipated Schedule

Public comment period	January 3 to February 17, 2017
Public workshop	January 9, 2017
Board hearing	February 7, 2017
Board meeting; considered for adoption	May 2017
US EPA shall propose mercury criteria, if US EPA has not already approved Mercury Provisions	June 30, 2017

# Submitting Written Comments

- Deadline: 12:00 noon, Friday, February 17, 2017
- Addresses and details in notice located at the link below:
  - [http://www.waterboards.ca.gov/public\\_notices/comments/index.shtml](http://www.waterboards.ca.gov/public_notices/comments/index.shtml)
- Hard copy:
  - Jeanine Townsend, Clerk to the Board
- Electronically
  - [commentletters@waterboards.ca.gov](mailto:commentletters@waterboards.ca.gov)
    - Please indicate in the subject line: “Comment Letter -- Beneficial Uses and Mercury Objectives”



# Website

- Project web page:

- [www.waterboards.ca.gov/water\\_issues/programs/mercury](http://www.waterboards.ca.gov/water_issues/programs/mercury)

- Sign up for project email notices

- Form at the web address listed below, at the “Water Quality” tab, by checking the box for “Mercury – Statewide Provisions”
- [http://www.waterboards.ca.gov/resources/email\\_subscriptions/swrcb\\_subscribe.shtml](http://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml)

- Contact:

- [MercuryProvisions@waterboards.ca.gov](mailto:MercuryProvisions@waterboards.ca.gov)

# Questions?



Jessica Strickland, LA River



Urban fishing on the LA River