



SACRAMENTO - SAN JOAQUIN  
**DELTA CONSERVANCY**  
A California State Agency



# Mercury in the Delta

Where does it come from and what  
can we do about it?

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# Outline

- What is mercury?
- Where does it come from?
- What can we do to clean it up in the Delta?



# Mercury (Hg)



<http://spock.fcs.uga.edu/ext/housing/images/mercury2.jpg>



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# Where mercury comes from

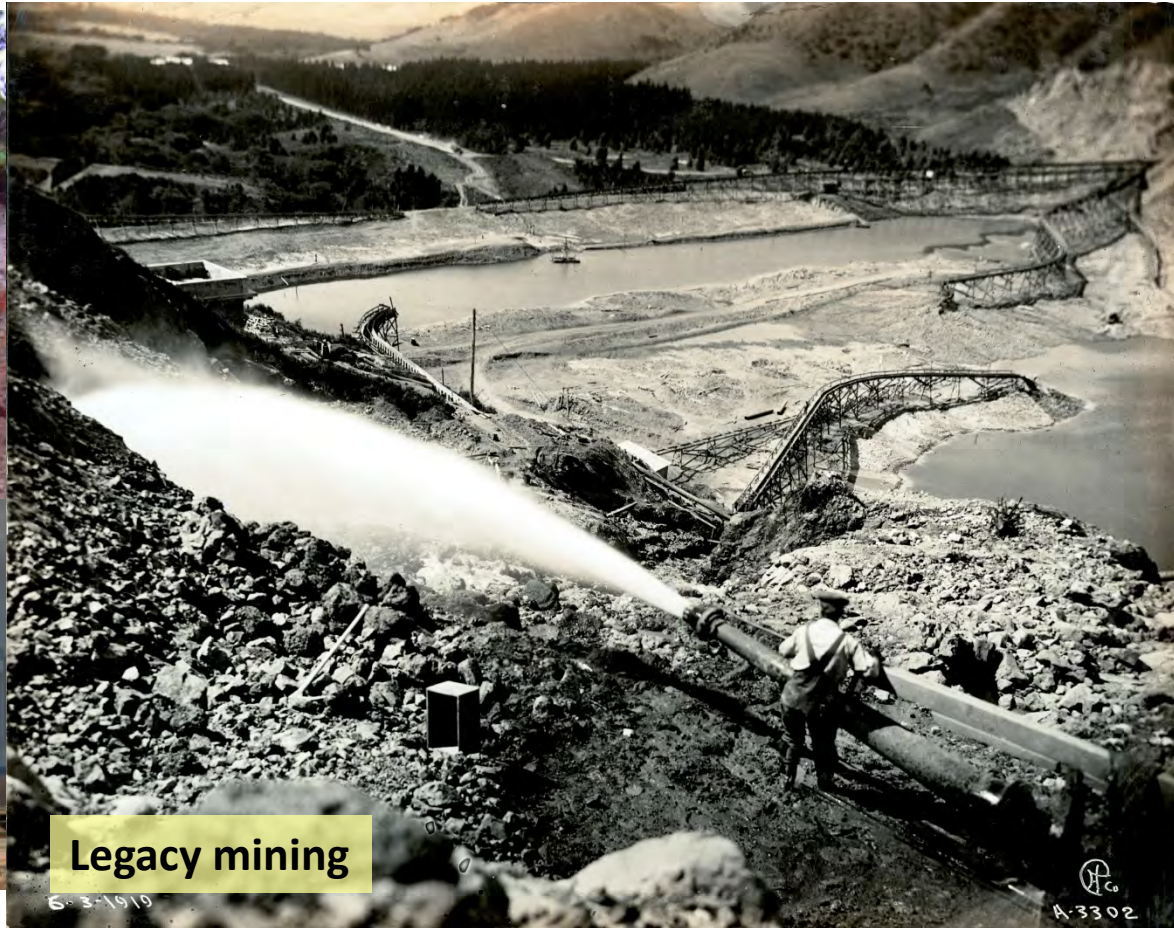


**Mercury-rich soils**



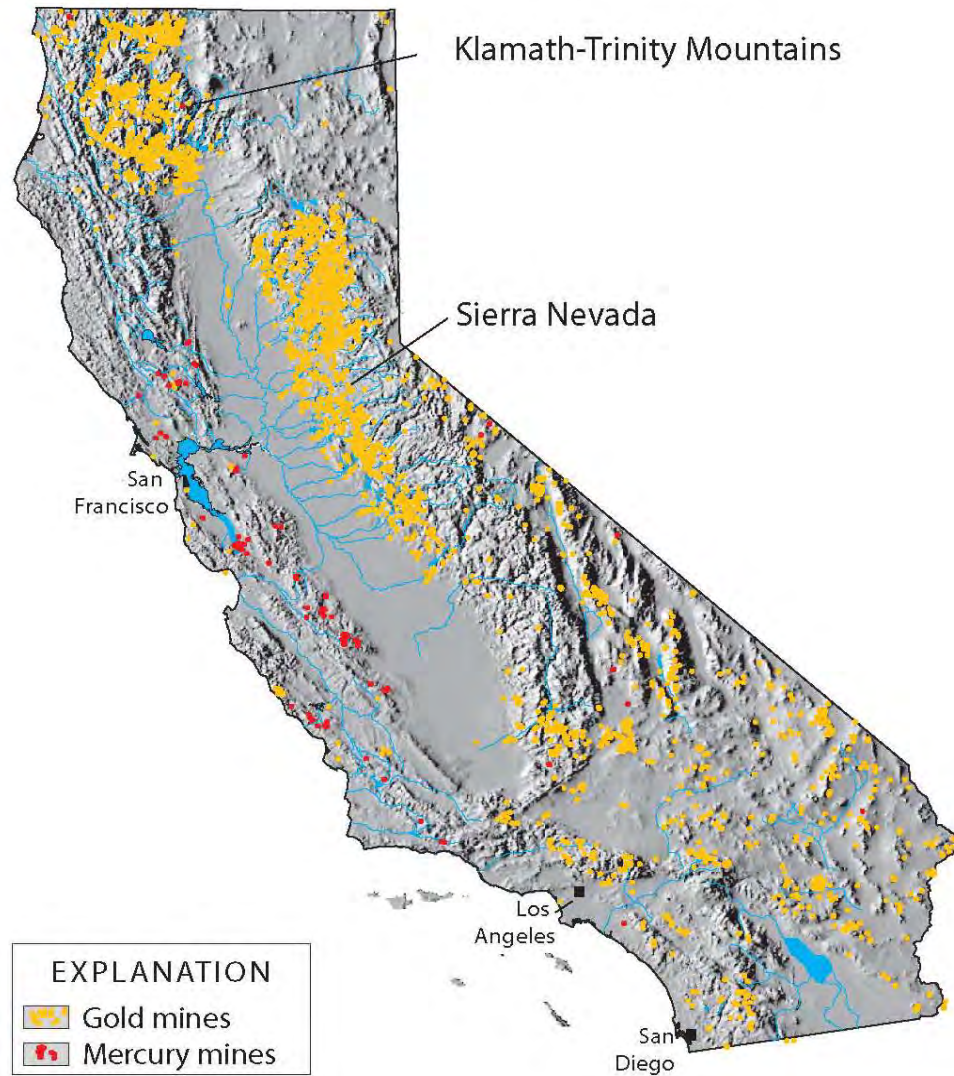
**Atmosphere**

<http://bellona.org/assets/sites/6/Coal-Fired-Power-Plant.jpg>



**Legacy mining**

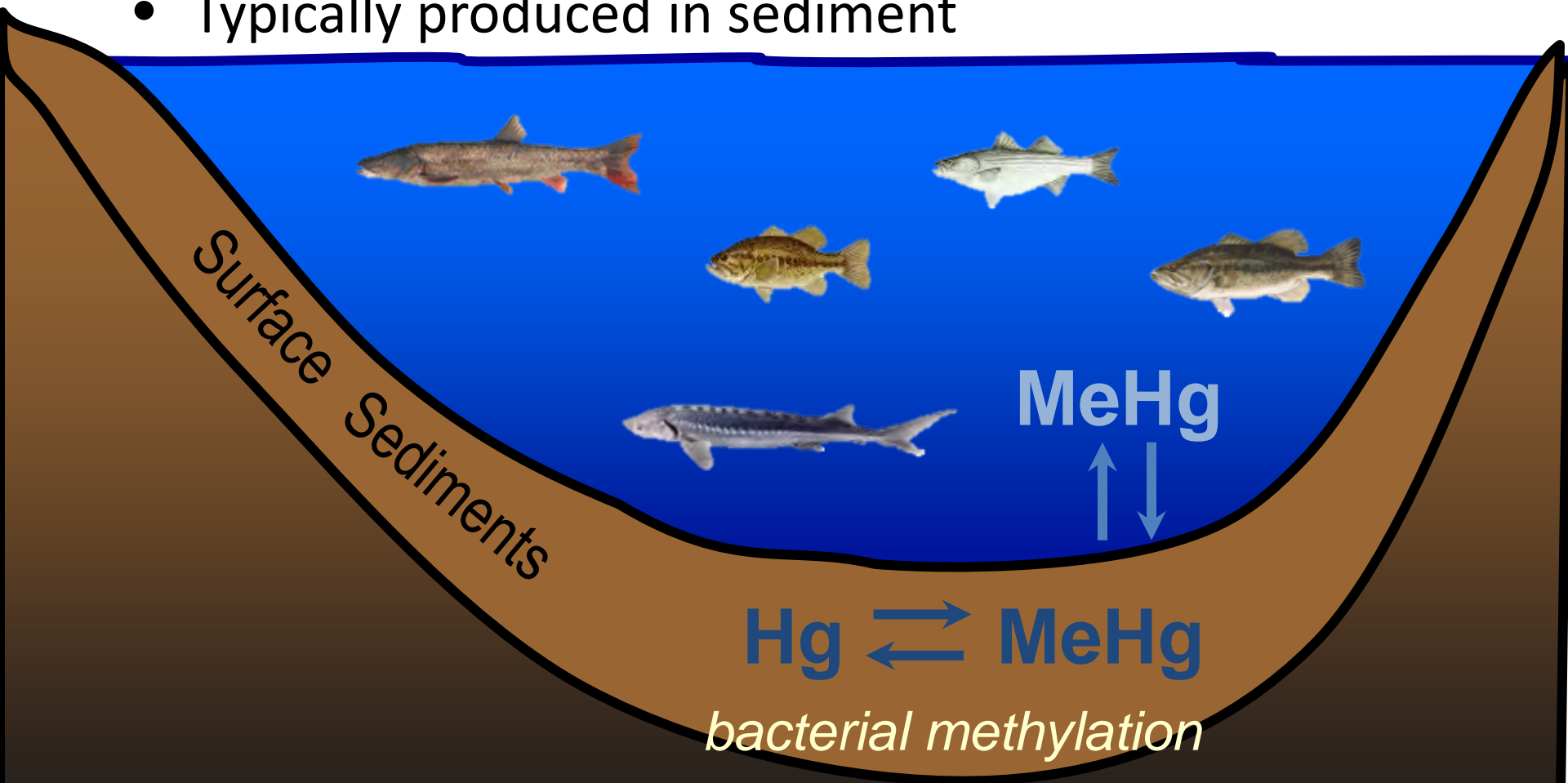
Oakland Museum of California





# Methylmercury (MeHg)

- Byproduct of the metabolism of sulfate- and iron-reducing bacteria
- Typically produced in sediment



# What can we do to clean up mercury in the Delta?

*In other words, How can we reduce MeHg in Delta fish & waters?*

- Reduce inorganic Hg in Delta sediment
- Control activities that affect MeHg production and loss



# Reducing **inorganic mercury** in sediment

## In-Delta Sources (~3%):

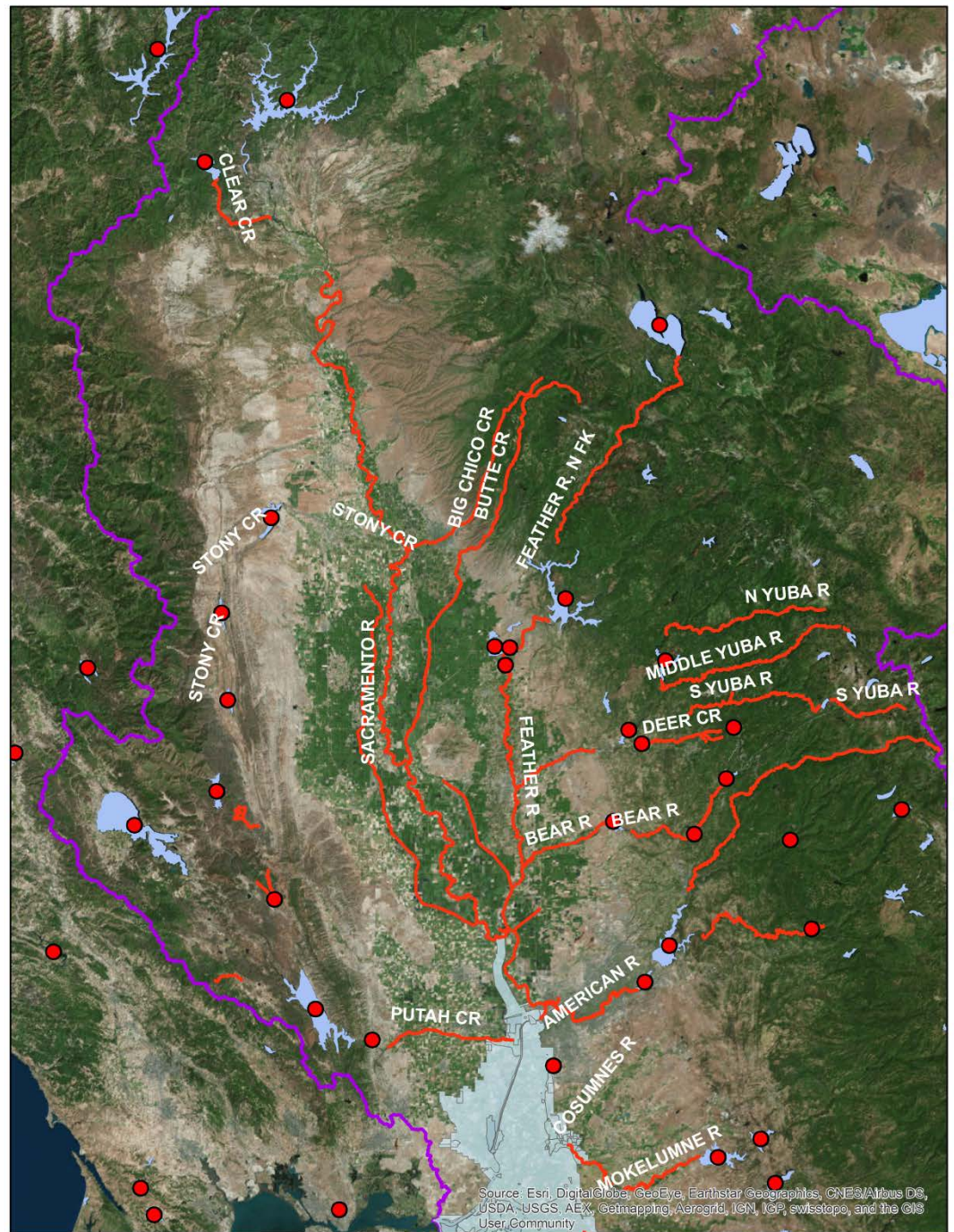
- Wastewater treatment plants
- Atmospheric deposition
- Urban runoff

## Watershed Sources (~97%):

- Wastewater treatment plants
- Atmospheric deposition
- Urban runoff
- Historic mining activities
- Naturally mercury-enriched soils
- Geothermal springs



Upstream Mercury  
Control Programs are  
being developed



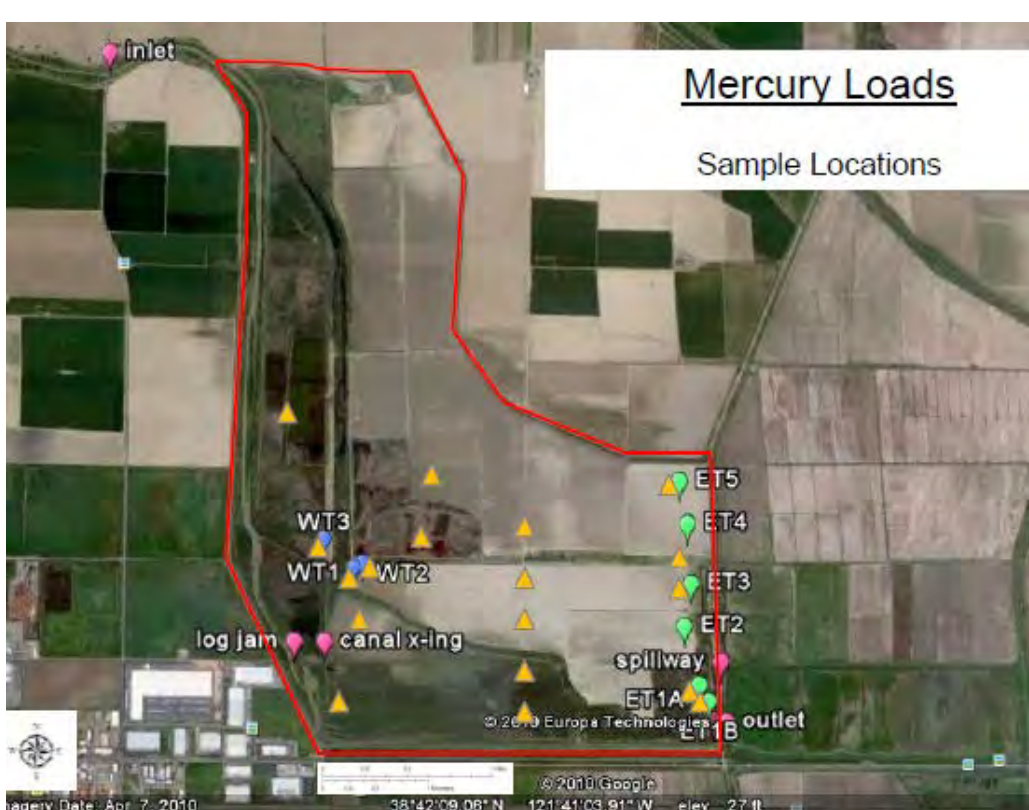


Image: Dept. Water Resources

Cache Creek Settling Basin in Yolo Bypass  
 - A source and solution to mercury inputs





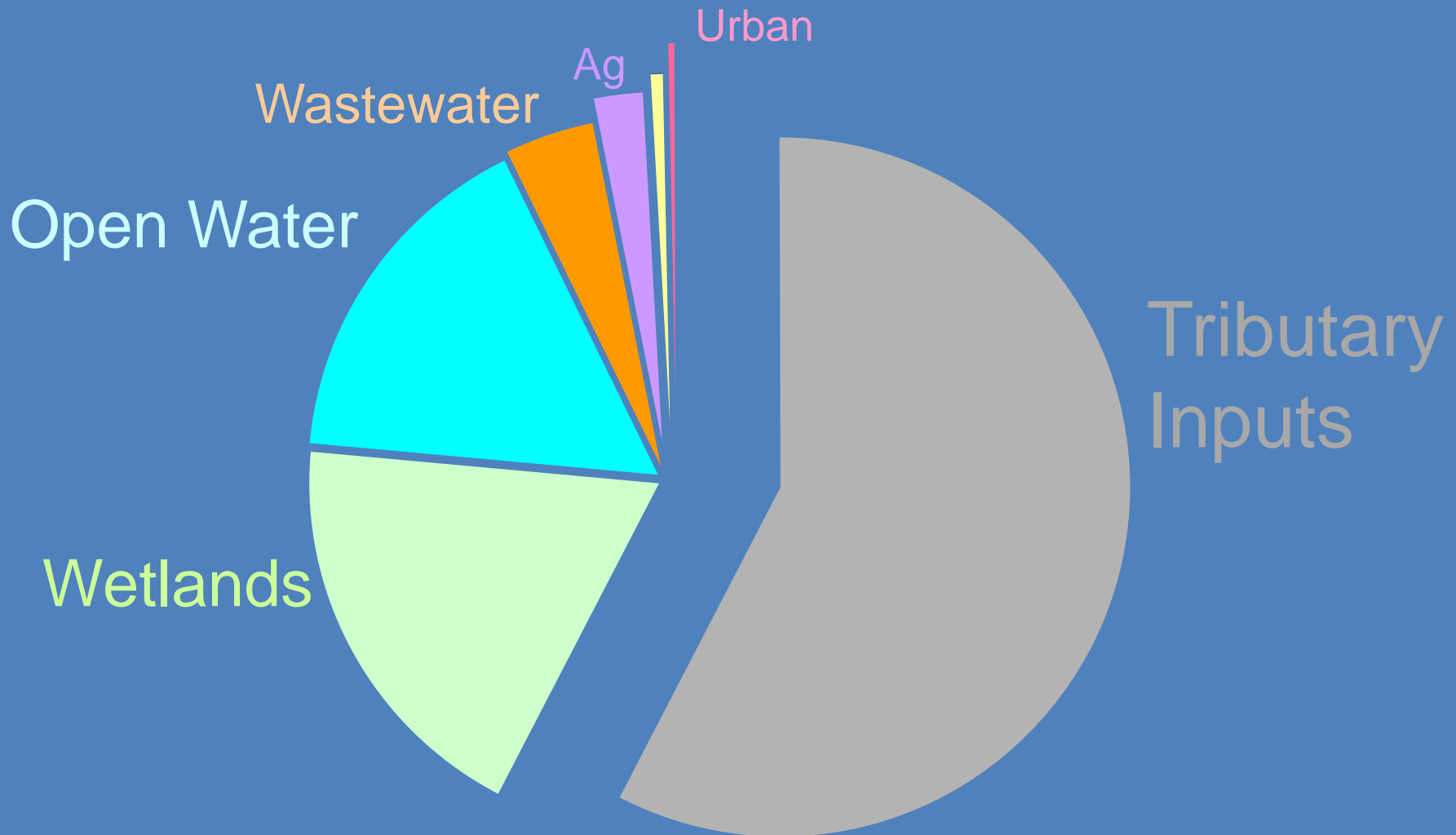
# What can we do to clean up mercury in the Delta?

*In other words, How can we reduce MeHg in Delta fish & waters?*

- Reduce inorganic Hg in Delta sediment
- Control activities that affect MeHg production and loss



# Control activities that enhance **methylmercury** production and loss



Methylmercury Sources to the Delta



# Managed Wetlands

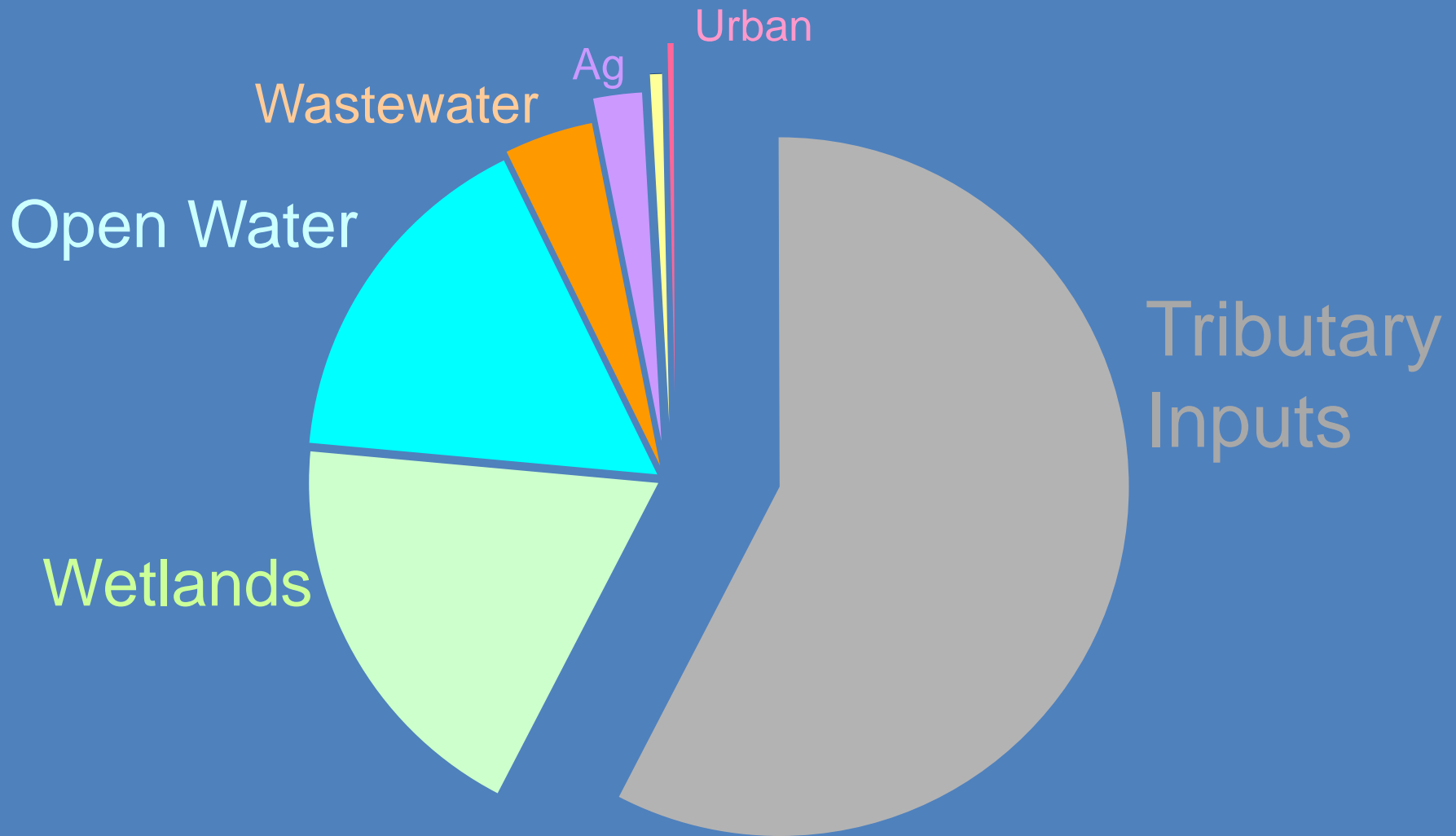


- Polishing pond pilot test
- Vegetation removal (baling, disking, grazing)



Graphic credit :  
USGS

# Methylmercury Sources to the Delta

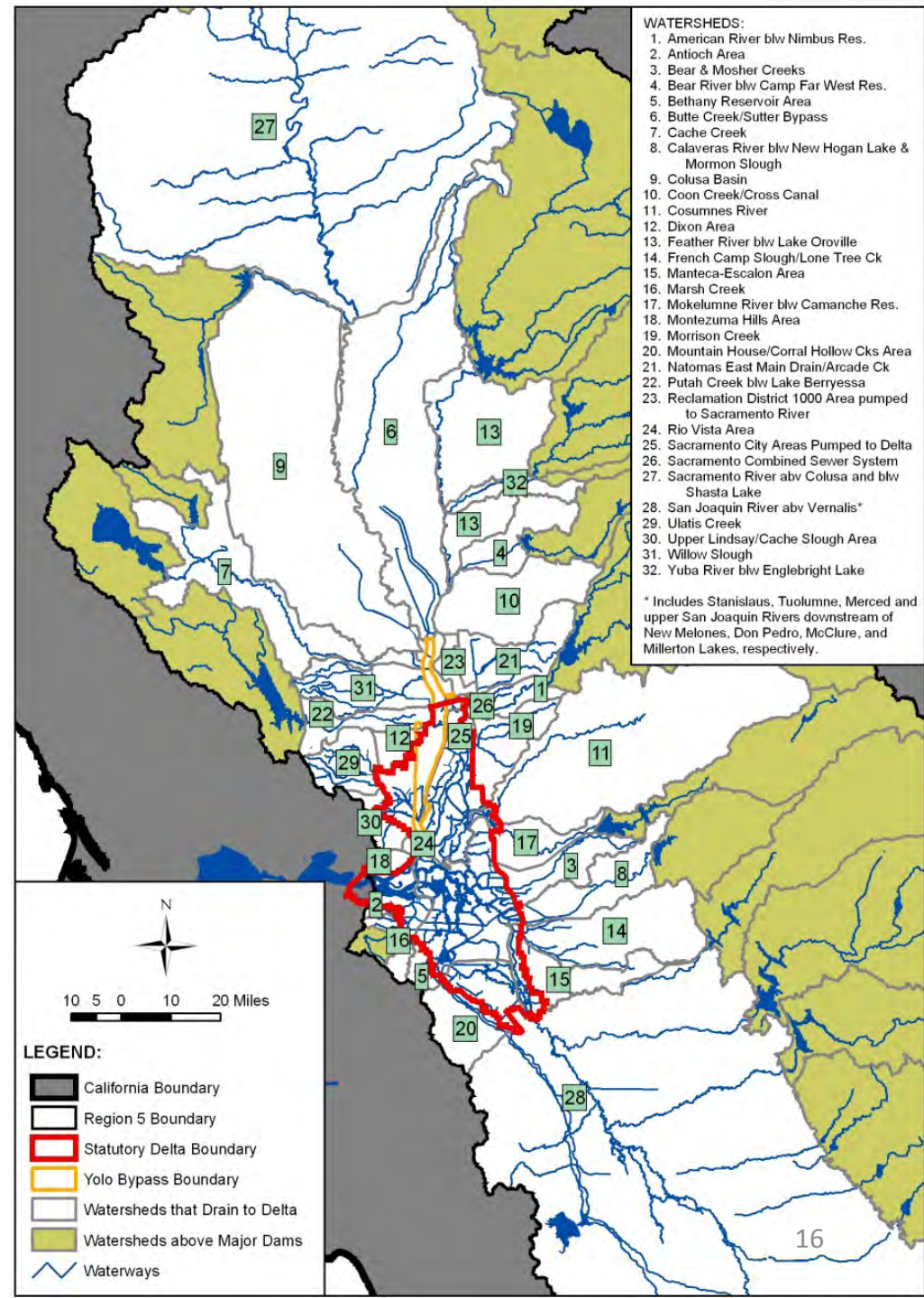


# Multi-Layered System



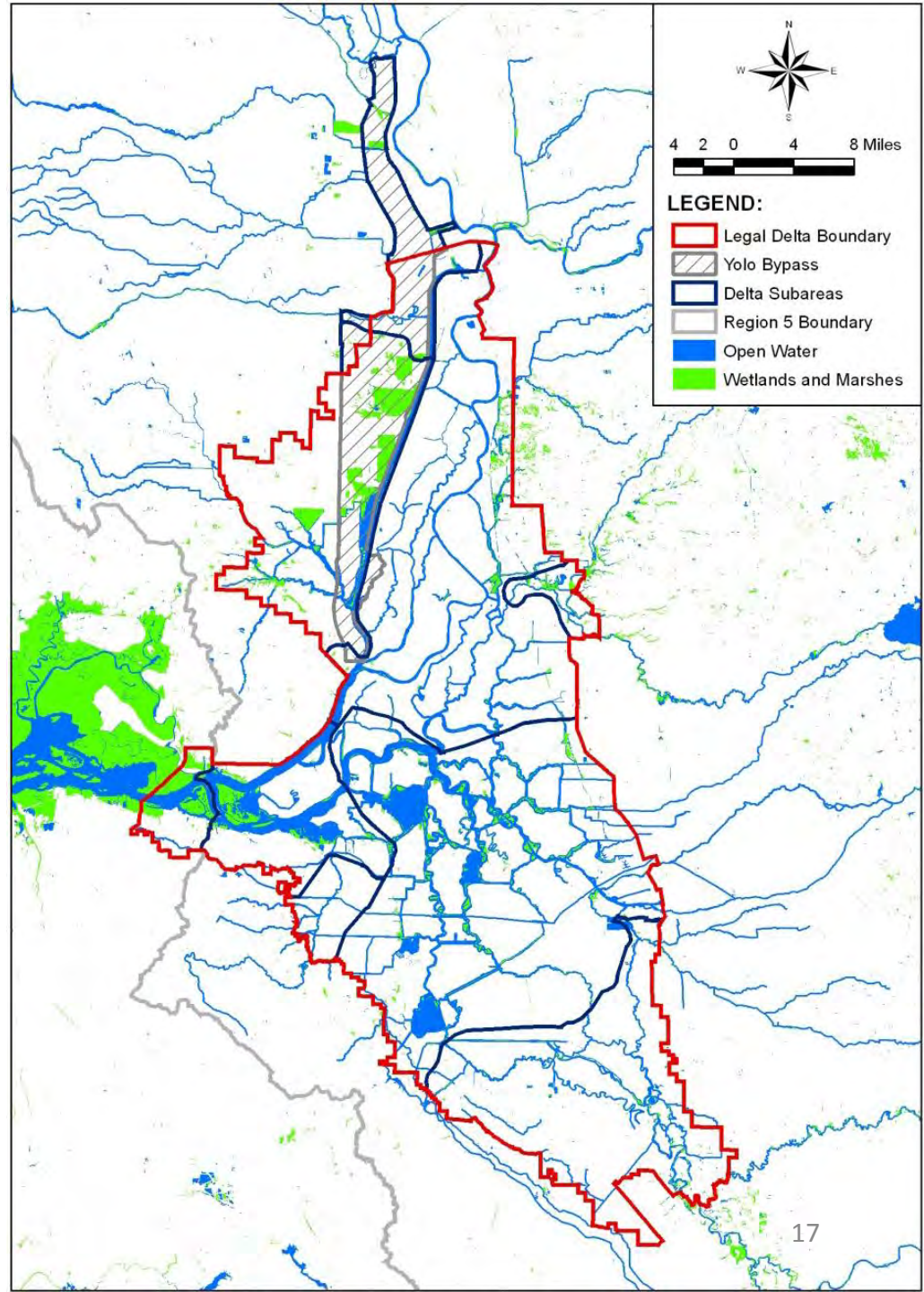


# Layer 1: Tributary Watersheds to the Delta

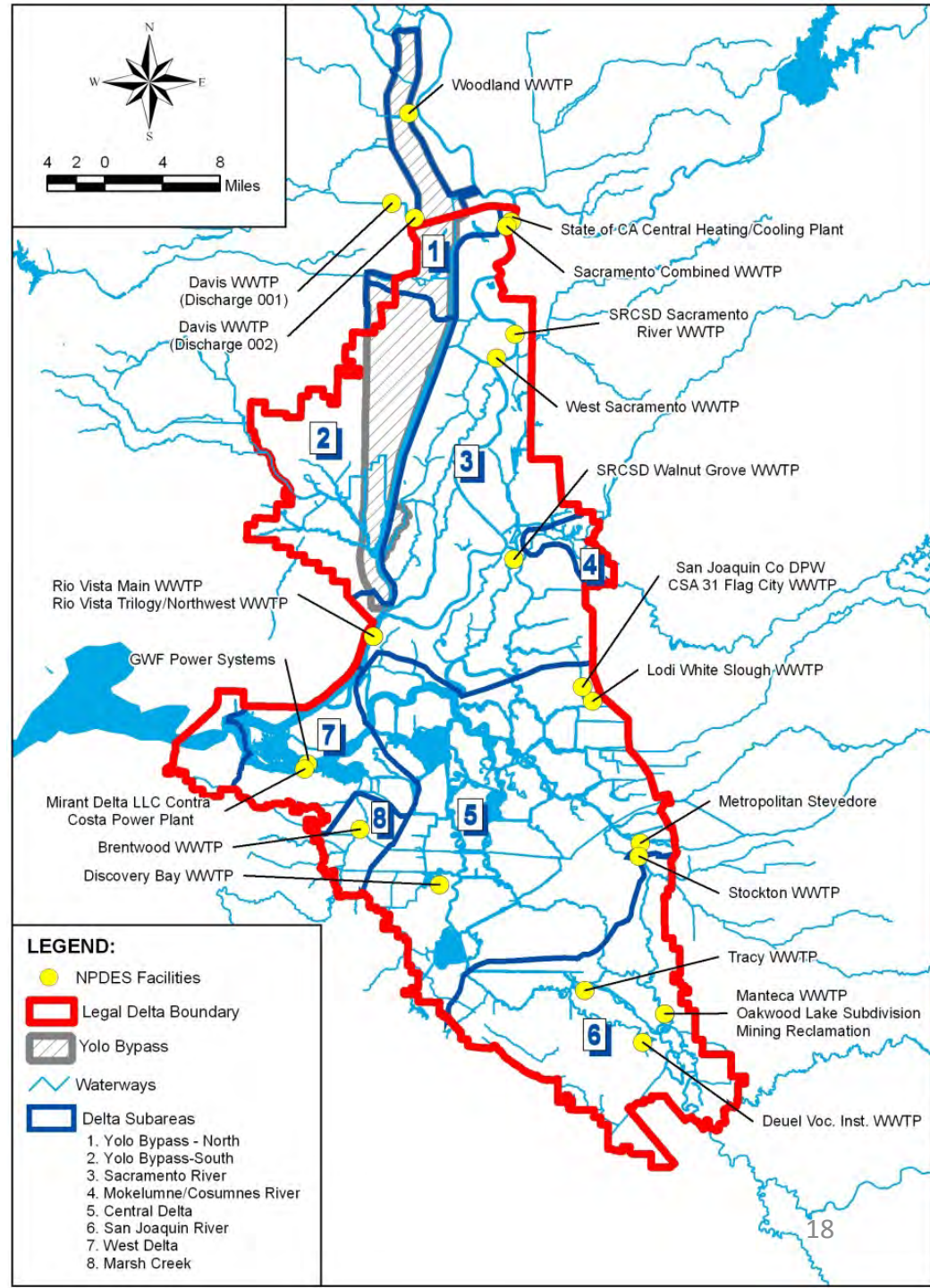




# Layer 2: Wetlands and Open Water

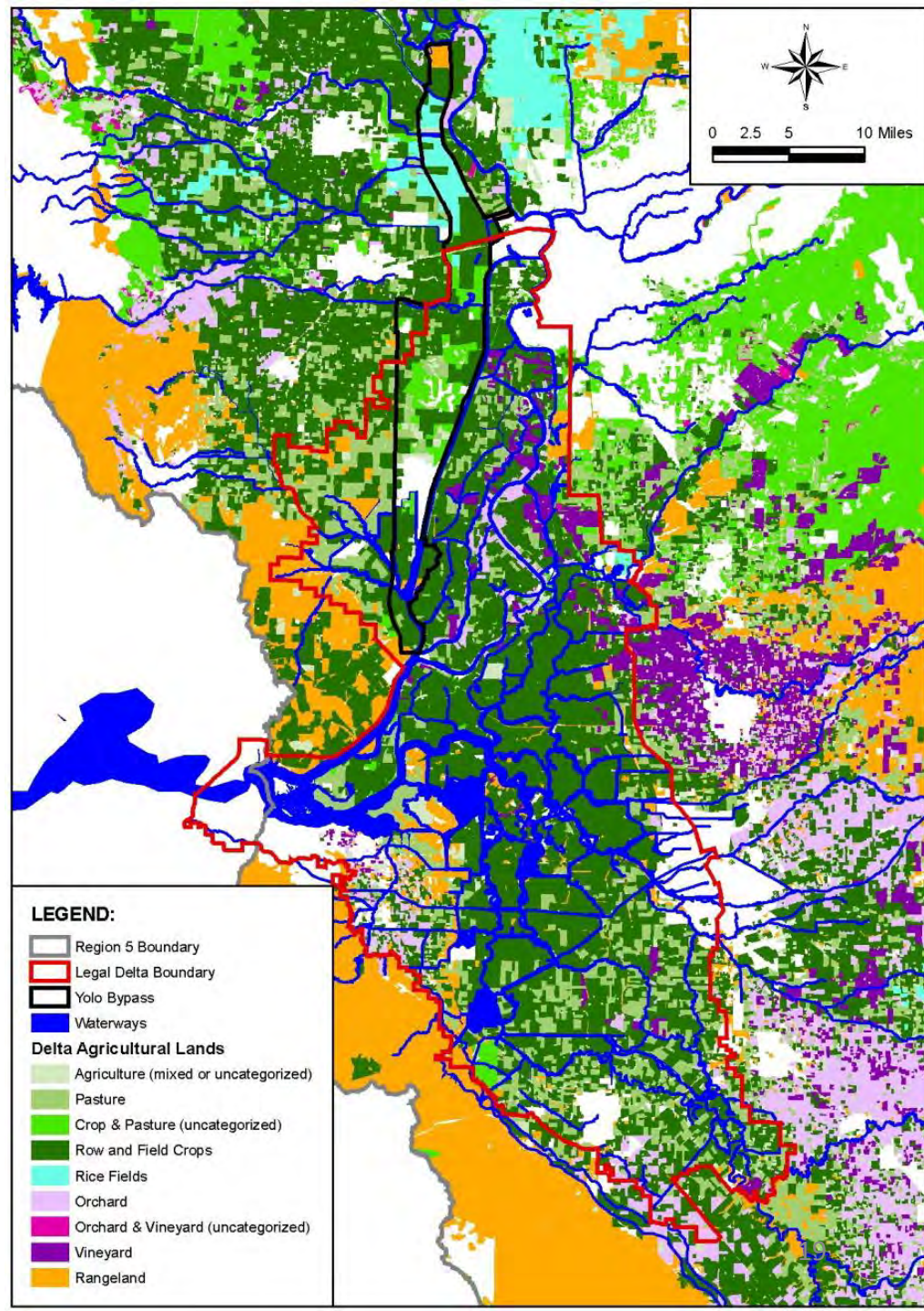


# Layer 3: Wastewater Treatment plants



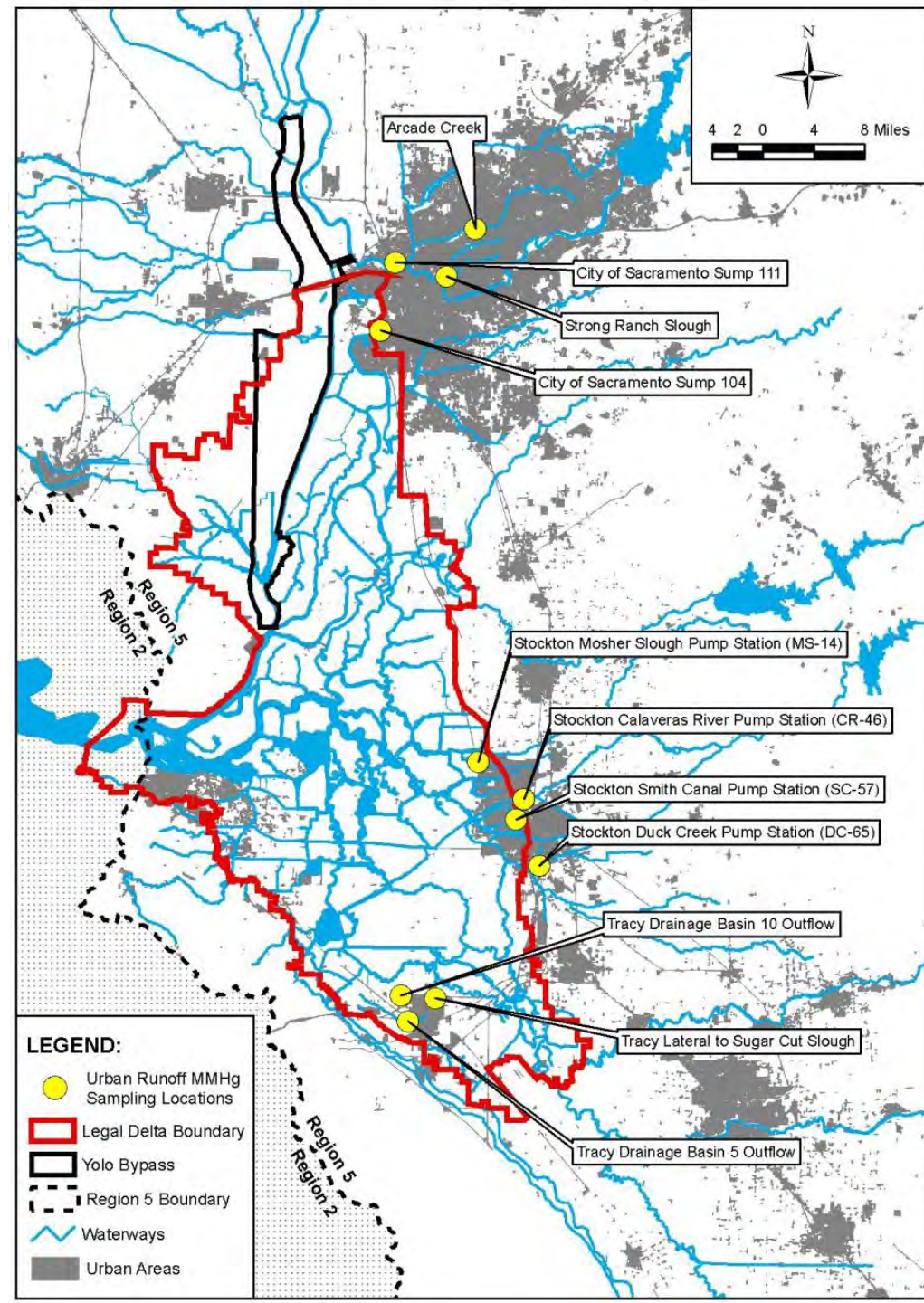


# Layer 4: Agricultural Areas





# Layer 5: Urban Areas in the Delta Region





# Layer 6:

## It is dynamic!

*Video provided by Moss Landing Marine Laboratories*

# Thank you. Questions?

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