

## Case Studies – Water Quality

### Mercury Strategy for the Bay-Delta Ecosystem

Mercury contamination is a major water quality priority for the CALFED Bay-Delta Program and the Sacramento-San Joaquin Delta, with potential impacts on human health, wildlife health and ecosystem restoration projects. Development of the *Mercury Strategy for the Bay-Delta Ecosystem: A Unifying Framework for Science, Adaptive Management, and Ecological Restoration*, was funded by the CALFED Science Program in recognition of the need for an integrated, systematic framework for addressing key management and scientific questions concerning mercury in the Bay-Delta ecosystem.

#### The Mercury Strategy

The Mercury Strategy is a peer-reviewed document developed by a team of independent scientists, with input from other managers, researchers, and stakeholders during two public workshops. The strategy describes the existing state of knowledge on the mercury issue and outlines a strategy for integrated mercury investigations linked to restoration and adaptive management of the Bay and Delta.

The framework for the Mercury Strategy contains six core components. Each core component addresses one or more management goals and includes specific, supporting objectives pertaining to scientific activities (research and monitoring), management actions, or both. Management actions include source remediation, risk communication, ecosystem restoration and landscape management. The six core components and their associated management goals are as follows:

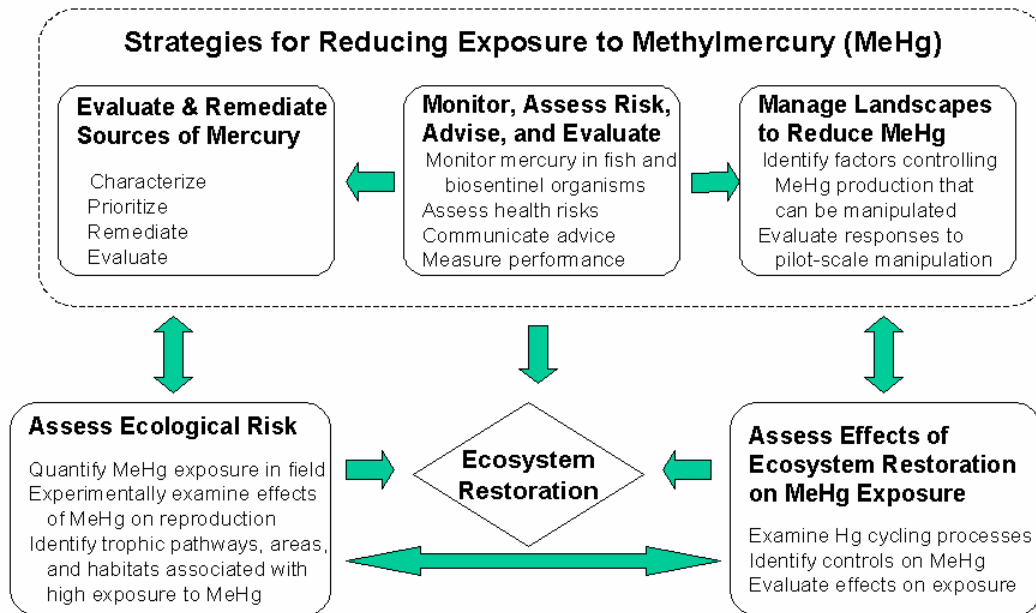
#### **Core Components**

1. Quantification and evaluation of mercury and methylmercury sources
2. Remediation of mercury source areas
3. Quantification of effects of ecosystem restoration on methylmercury exposure
4. Monitoring of mercury in fish, health-risk assessment and risk communication

#### **Management Goals**

- To identify mercury sources that contribute most strongly to the production and bioaccumulation of methylmercury
- To identify remedial actions that can reduce loadings of mercury from sources to surface waters and decrease the exposure of aquatic biota to methylmercury
- To document and understand the effects of ecosystem restoration in wetland, floodplain and riverine habitats on the production and bioaccumulation of methylmercury in the Bay-Delta ecosystem
- To protect human health by assessing and reducing exposure to methylmercury-contaminated fish
- To provide a “performance measure” to gauge methylmercury contamination of the Bay-Delta ecosystem during restoration

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| 5. | Assessment of ecological risk  | To protect fish and wildlife from adverse effects of methylmercury exposure  |
| 6. | Identification and testing of potential management approaches for reducing methylmercury contamination | To identify and evaluate potential landscape management approaches for reducing the production and abundance of methylmercury in the ecosystem, as well as the associated exposure of resident biota |



**Implementation - The SFEI Fish Mercury Project**  
<http://www.sfei.org/cmrfishmercury/>

Supported by a \$4.5 million California Bay-Delta Authority grant, the goals of the Fish Mercury Project are to examine mercury and other chemicals in fish in the Bay-Delta watershed, to increase public awareness of fish contamination issues and to monitor potential changes in mercury concentrations from marsh restoration projects in the Delta. Partners in this project include the San Francisco Estuary Institute, UC Davis, the California Department of Fish and Game, Moss Landing Marine Lab, the California Department of Health Services and the California Office of Environmental Health Hazard Assessment. Notable accomplishments include:

- Development of a “biosentinel” fish tissue monitoring method for identifying mercury methylation “hot zones”.
- Expanded sport fish monitoring.
- Improved health risk identification and communication for people consuming fish from the Bay-Delta.

# Protect Your Health if You Eat DELTA FISH

## Limit eating fish caught in the Delta



Eating fish is good for your health. But **striped bass** and **sturgeon** caught in the Delta have a harmful chemical called mercury in them. Eating these fish may harm your health or the health of your family. Mercury can cause babies to develop and learn slower.

## CAUTION!



Sturgeon



Striped Bass

**Safer —  
Less Chemicals**



Bluegill



Salmon



Sunfish



Trout

**How much can you eat?**



Women age 18 – 45  
Pregnant women  
Breastfeeding women  
Children and teens

Eat 1 meal or less of **striped bass**  
or **sturgeon** per month. Avoid  
**striped bass** longer than 27 inches.



Other Adults

Eat 2 meals or less of **striped bass**  
or **sturgeon** per month. Avoid  
**striped bass** longer than 35 inches.

For more information, call your local health  
department or OEHHA at (916) 327-7319.

[www.oehha.ca.gov/fish.html](http://www.oehha.ca.gov/fish.html)

Photography: Rene C. Reyes, Zak Sutphin

**Less Safe —  
More Chemicals**



Crappie



Carp



Sacramento Pikeminnow



Largemouth Bass



Catfish