

MERCURY RISKS TO HUMANS AND WILDLIFE IN THE BAY-DELTA WATERSHED

- General statements
- New findings
- Work in progress



Food web mercury concentrations in some places and some species are high enough to cause concern for humans and wildlife (part 1 – human risks)

- Advisories are currently in place for some of the contaminated areas
- We don't have direct evidence of effects of mercury from sport fish consumption in this watershed

Advisories have been issued for some of the contaminated areas



Food web mercury concentrations in some places and some species are high enough to cause concern for humans and wildlife (part 2 – wildlife risks)

- Birds are relatively sensitive and vulnerable to methylmercury toxicity compared to humans and other wildlife species
- Some bird species are more sensitive than others
- Mercury in bird eggs is above effects thresholds for terns, rails, and other species
- Slower growth in tern chicks associated with mercury
- Fish reproduction may also be affected

Food web mercury concentrations in some places and some species are lower – you can eat more of some fish species and of fish from some places

- There are health benefits to consumption of fish
- Upcoming advisories will delineate some lower mercury areas
- Low species include bluegill, redear, salmon, trout

Mercury risk management strategies should be incorporated into restoration projects, storage projects, other habitat alterations



- Food web monitoring is a key to adaptive management
 - small fish for measuring impacts of projects on mercury
 - sport fish to characterize human health concerns
 - small fish and/or other prey, and bird eggs for fish-eating birds for wildlife health concerns
- Reservoir creation is a particular concern – can be expected to result in increased food web mercury in the reservoir over a 20 – 30 year timeframe

New Findings (So Far) – Wildlife Health

- Variation within marshes and among adjacent marshes: High marsh is high in MeHg, black rail habitat, black rails may be at risk – needs to be evaluated (Yee)
- MeHg exposure was associated with slower growth of tern chicks - growth critical to survival to fledging (Schwarzbach)
- Concentrations in SF Bay waterbirds (tern livers) are above levels associated with deleterious effects in other species (Schwarzbach)

New Findings (So Far) – Human Health

- A small amount of new fish data from Englebright reservoir refining understanding of potential human exposure in that location (Alpers)

Work in Progress: Results Coming Soon (Humans)

- Most intensive sampling ever of mercury in fish across the Bay-Delta watershed is happening over the next three years
 - sport fish
 - biosentinels (important mercury indicators)
- Project includes a stakeholder process
- Developing advisories for contaminated areas, including information to help people reduce their exposure without reducing consumption
- Will be making a large effort to communicate information on risks and benefits of fish consumption

Safer —
Less Chemicals



Bluegill



Salmon



Sunfish



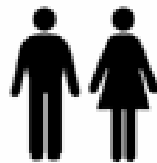
Trout

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.

Photography: Rene C. Reyes, Zak Sutphin

Less Safe —
More Chemicals



Crappie



Carp



Sacramento Pikeminnow



Largemouth Bass



Catfish

Work in Progress: Results Coming Soon (Wildlife)

- Thorough characterization of avian sensitivity to mercury in the Bay-Delta and relating this to risks based on feeding strategy and location
 - Species sensitivity determined in the lab
 - Field studies relating this to survival in the wild
- Quantifying effects of mercury on birds that winter in the Bay but breed elsewhere, as well as effects on birds that do breed in the Bay

FOR MORE INFORMATION

Posters

Websites

Fish Mercury Project: www.sfei.org/cmr/fishmercury

Fish Advisories: <http://www.oehha.ca.gov/fish.html>

DHS information related to fish consumption:

<http://www.ehib.org> (click on “topics” then “fish”)

Email: jay@sfei.org

Information Gaps

- Effects of mercury on early life stages of fish – being addressed through one study by Swee Teh (UC Davis)
- Human exposure to mercury from consumption of ducks and geese

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