Management Question

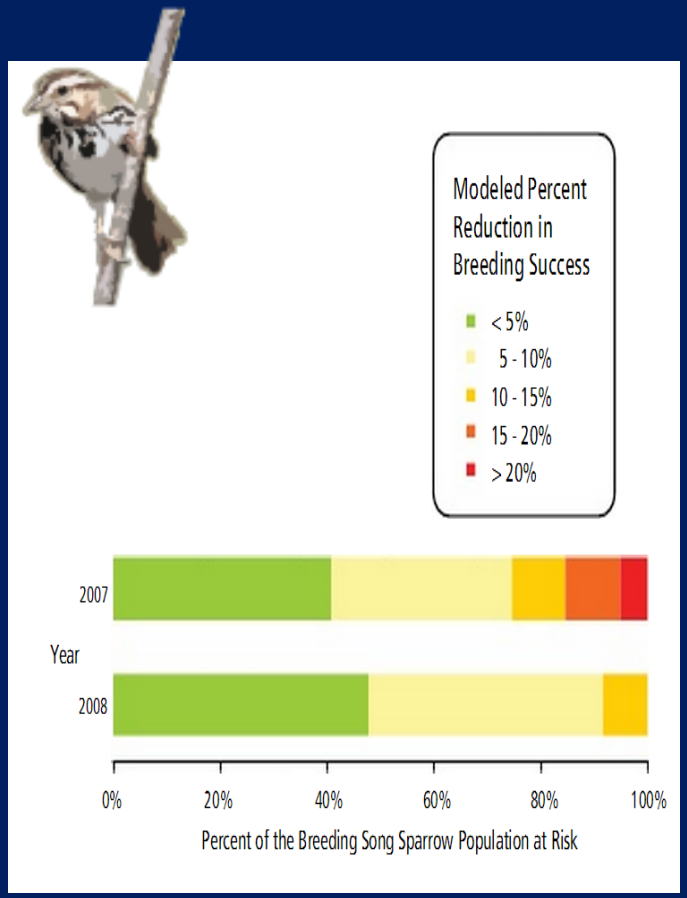
What are the local (within the project or immediately downstream) versus regional environmental impacts to the food web due to restoration projects?

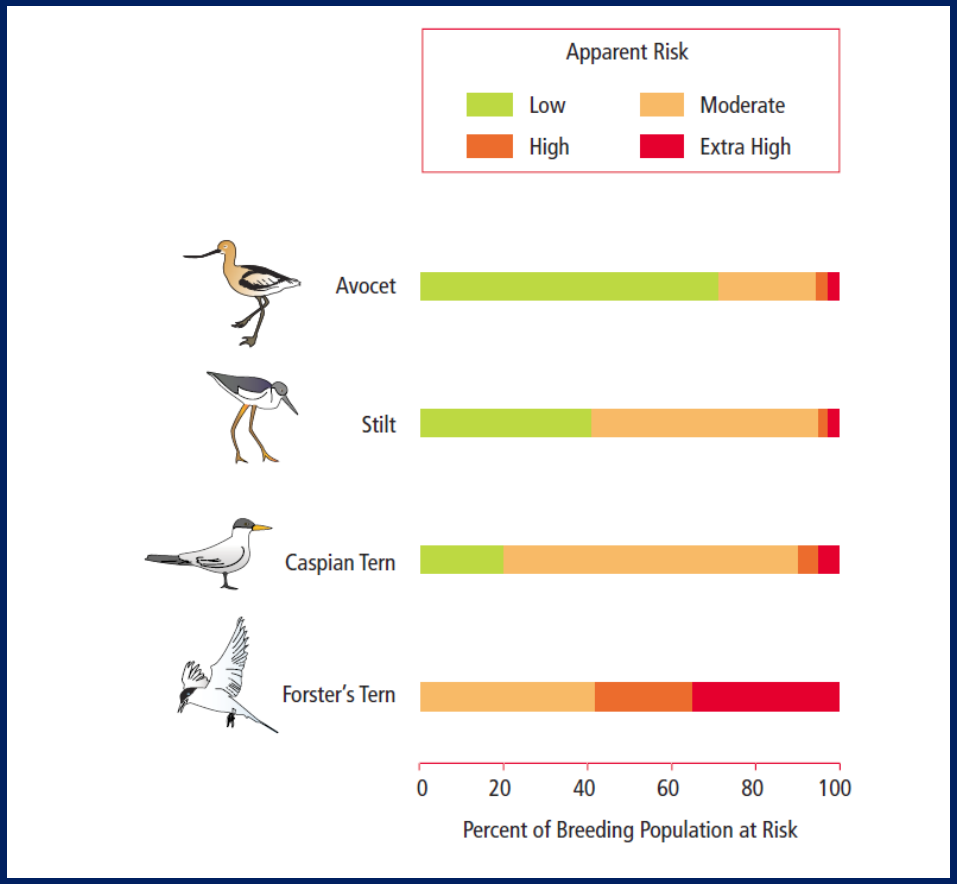
Hypotheses

- Methylmercury loading from tidal wetland restoration projects is a minor contribution to the total pool of methylmercury available for uptake into the Bay's food web and therefore is a minor factor relative to Bay-wide mercury impairment (e.g., bird and fish tissue levels).

- We do not expect to be able to measure regional impacts to the Bay's food web from tidal wetland restoration projects.

Local effects: MeHg above thresholds of concern



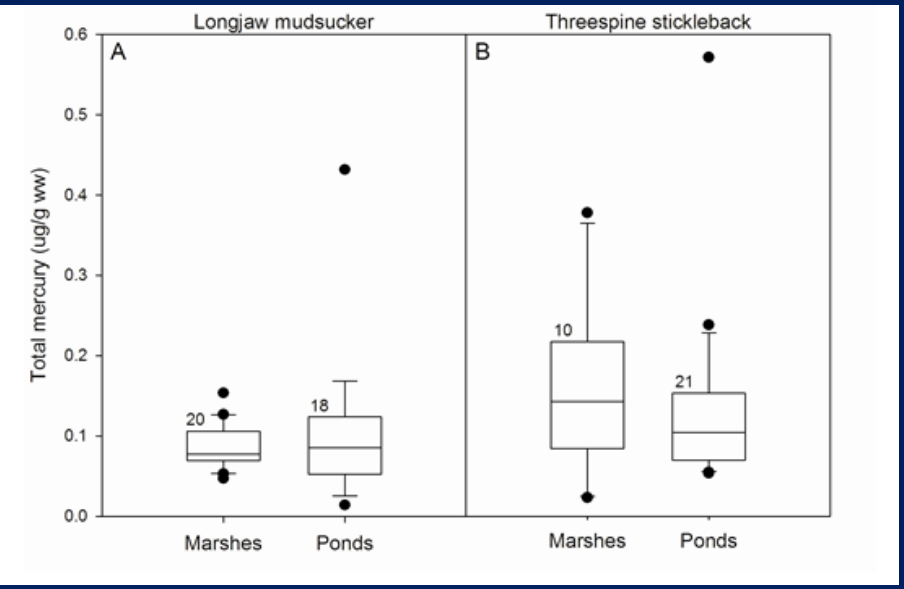


SBMP 2010

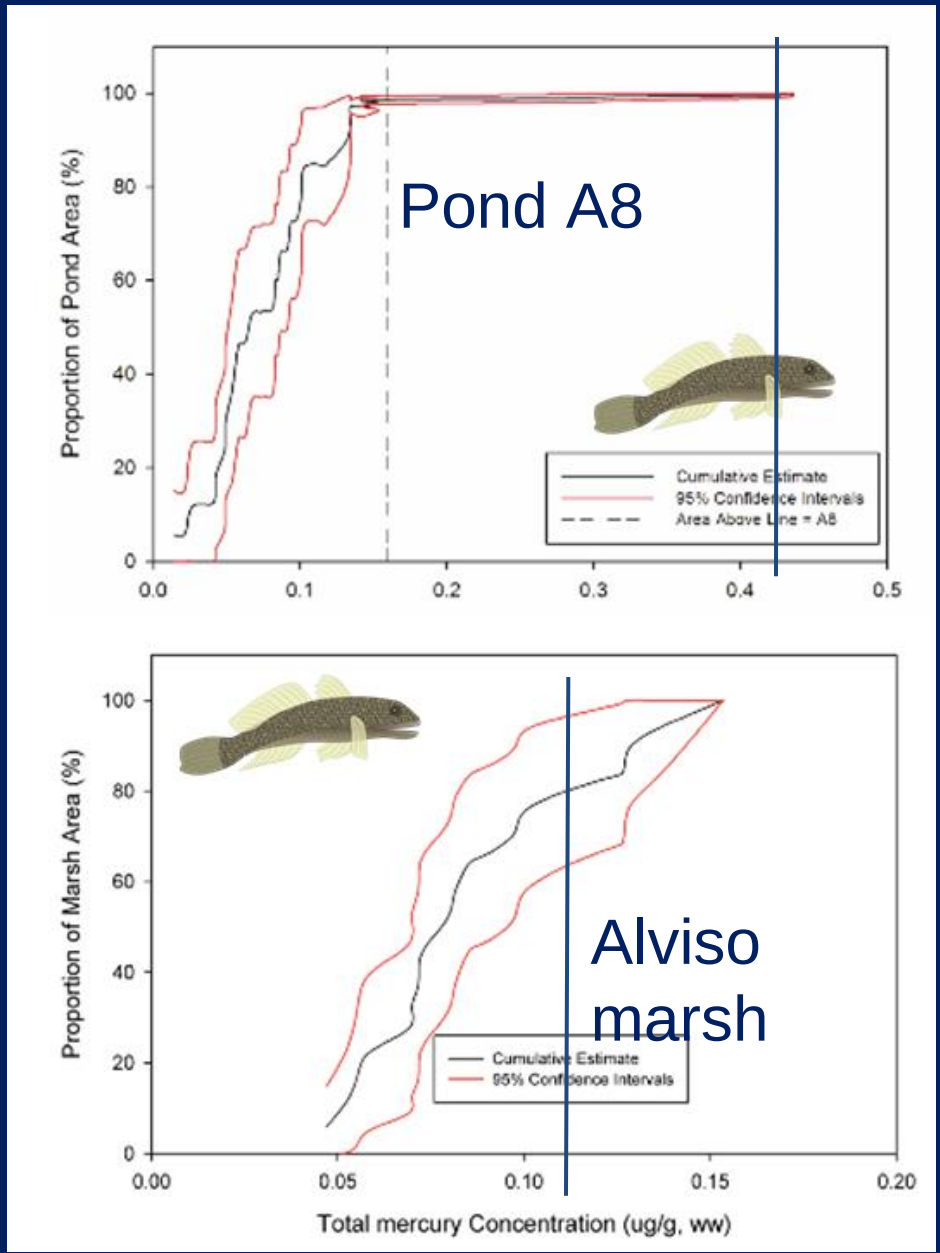
USGS 2008

Local effects: Comparison to ambient

Probabilistic surveys of ambient conditions

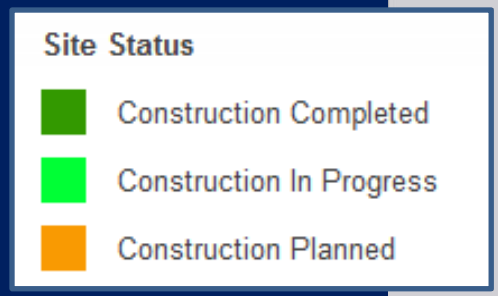


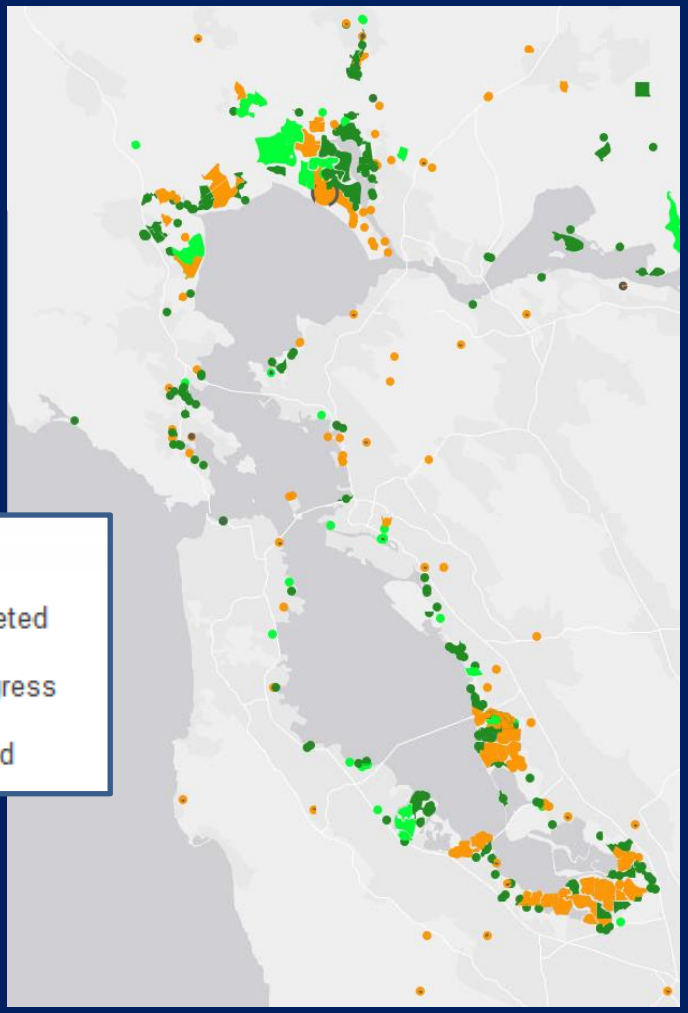
SBMP 2010



Regional Effects

- Cumulative impacts of restoration
  - > 100 restoration projects
  - Large scale projects
  - (SBSP and Napa-Sonoma)

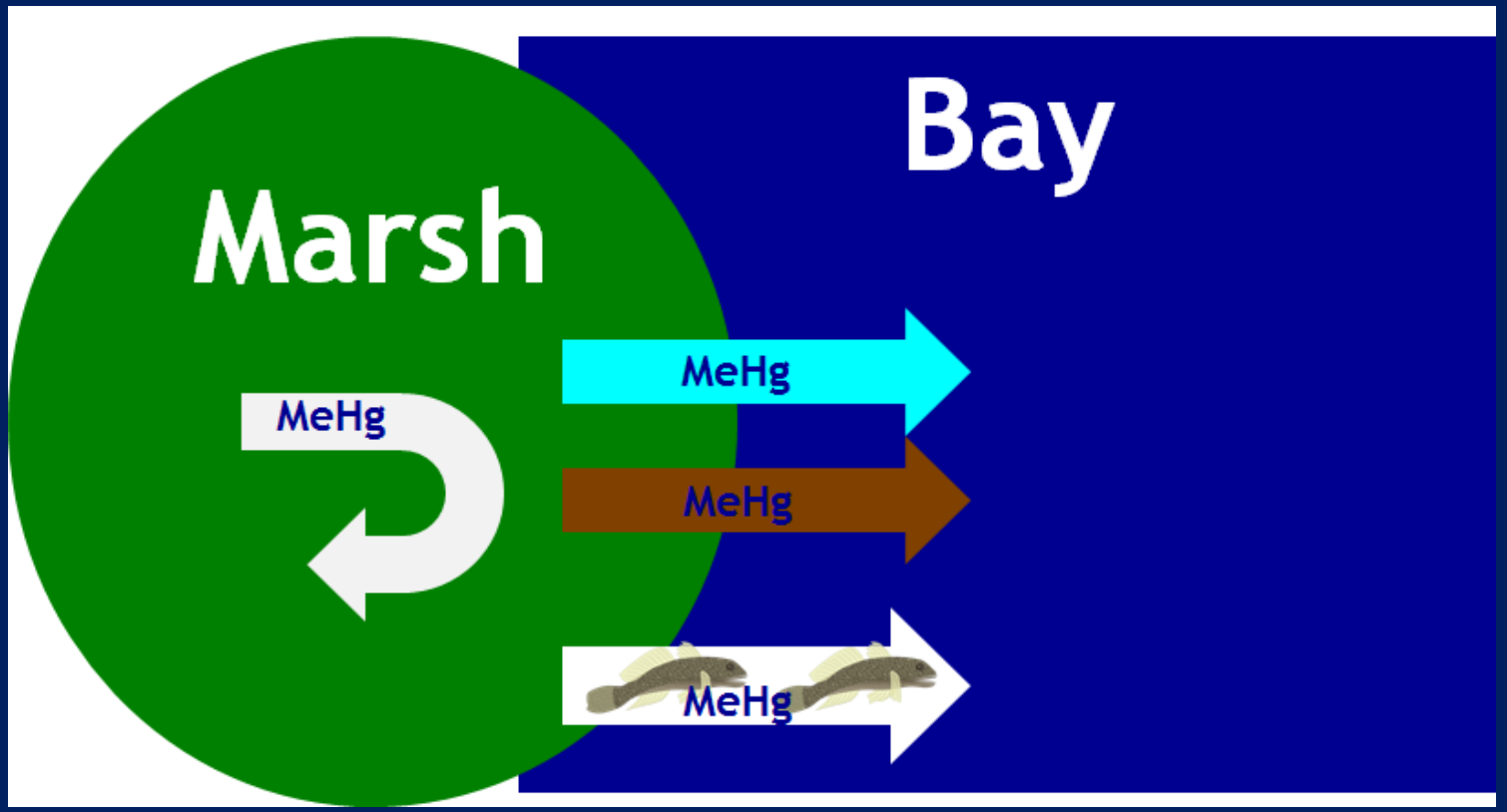




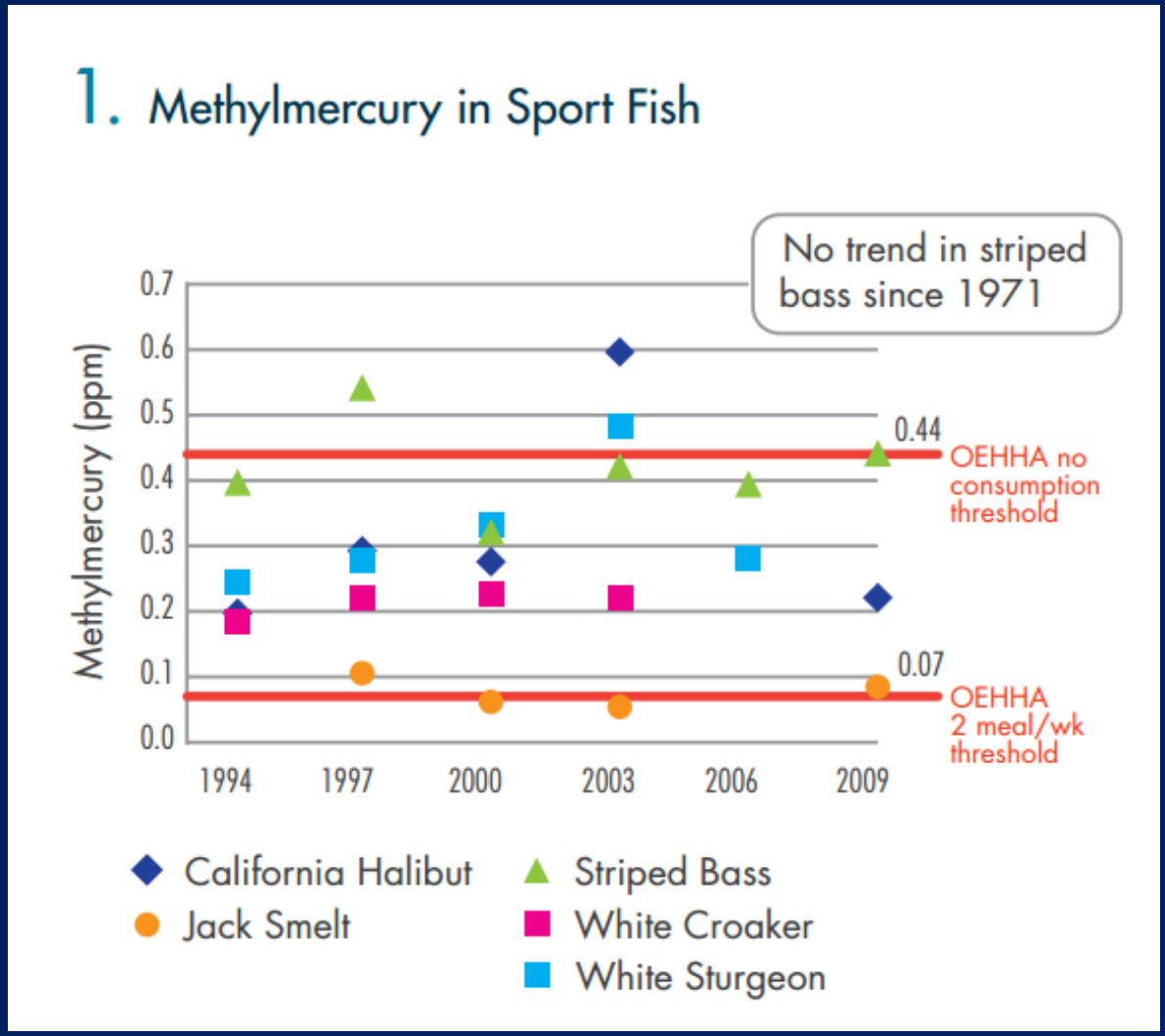
Regional Effects

MeHg export from marsh restoration projects

- Abiotic
- Biotic

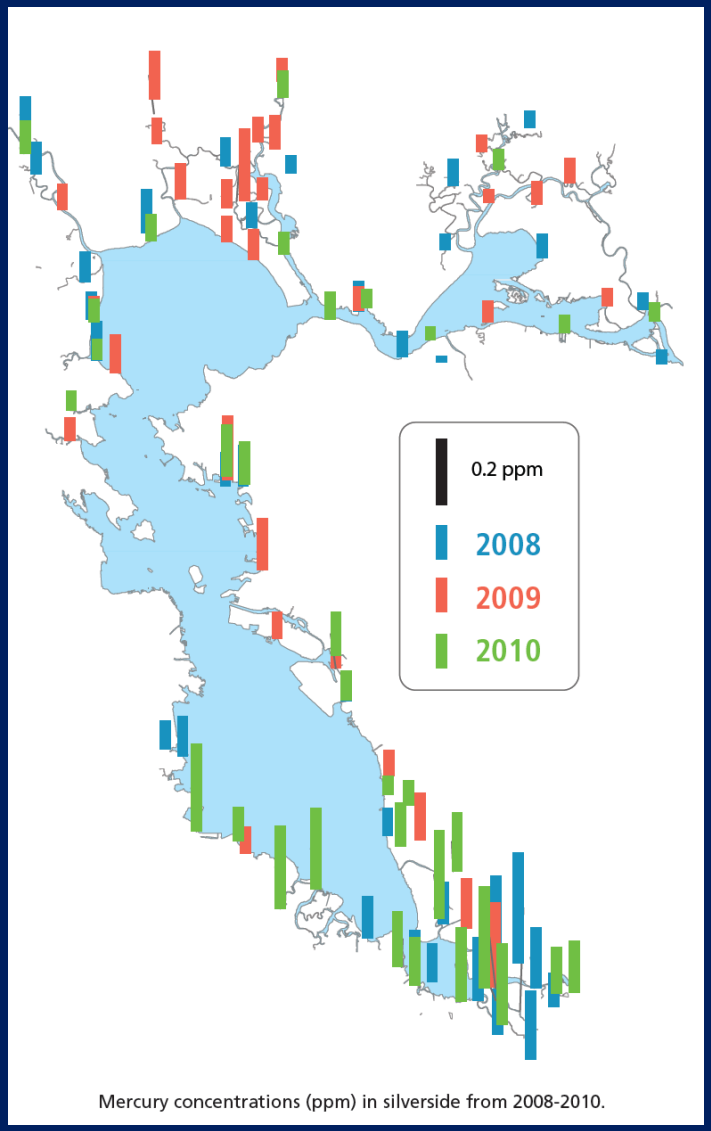


Regional Effects: No Baywide increase



RMP 2011

Regional Effects: No correlation with restoration



Mercury concentrations (ppm) in silverside from 2008-2010.

RMP 2009

Local effects: What do we know?

- Restoration activities can increase MeHg risk locally in the short term.
- No evidence marshes pose higher MeHg risk to wildlife than salt ponds in South Bay.
- Ambient MeHg levels are above thresholds of concern; local results should be interpreted in context.

Regional effects: What do we know?

- Lack of regional trend in Bay wildlife
- The influence of marsh restoration on Bay-wide trends will be difficult to detect due to:
  - the small expected change in MeHg input
  - the mobility of the indicator species
  - additional factors influencing MeHg in Bay wildlife

Discussion

MQ2: What are the local (within the project or immediately downstream) versus regional environmental impacts to the food web due to restoration projects?

H2: Methylmercury loading from tidal wetland restoration projects is a minor contribution to the total pool of methylmercury available for uptake into the Bay's food web and therefore is a minor factor relative to Bay-wide mercury impairment (e.g., bird and fish tissue levels).

H3: We do not expect to be able to measure regional impacts to the Bay's food web from tidal wetland restoration projects.

Local effects: Different trends among sub-habitats