

Ms. Katherine Hart, Chair  
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Please accept my comments on the Basin Plan Amendment for the Control of Methyl and Total Mercury in the Sacramento-San Joaquin Delta Estuary. They are as follows:

**Page 17, Last Paragraph:**

Indicates that Alternative 2 is already approvable and meets the USEPA criterion for MeHg in fish tissue. But it is not recommended because it is not protective of the population that eats TL 4 fish.

How big is the population we are trying to protect? The combined population of the Central Valley and San Francisco Bay is approximately 13.5 million. The combined sport fisherman and subsistence fisherman population has been optimistically estimated at 300,000 (Morris, 2007), 2.5% of the total population. Are we talking about a subset of this population? Many of these sport fishermen only fish a few times per year.

**Pages 19, 20, Alternatives 3 and 4:**

Proposes fish tissue criterion below the EPA recommended level to protect a subset of the above population (>2.5%). Is this fair to impose this financial burden on the entire population so that a small percentage can consume Delta caught fish once a week?

**Page 23, 5<sup>th</sup> Paragraph:**

**“Alternatives Compared to Regional Mercury Levels and Their Attainability”**

Compares fish mercury concentrations for Delta fish to those fish mercury concentrations for the western United States not to background levels for the Delta.

The validity of this comparison is questionable. Most of the production of mercury in the US came from California.

The Delta watershed contains naturally occurring Hg deposits that produced an estimated 220,000,000 pounds (99,790 Tonnes) of Hg between 1850 and 1981 (Churchill, 2000). Compare this to 85,104 Tonnes produced in the entire US between 1904 and 1997 when all production in the US ceased (Kelly, 2010).

How can a target level be set without knowing what the background level is in the Delta and what the long term base load will be from natural sources?

The only mercury sources listed are abandoned mines and sites where the mercury is efficiently converted to methylmercury. However, in a 2009 report prepared by the Water Environment Research Foundation, it was stated that “It appears that mining sources have among the lowest % MeHg levels, typically 1% or less” (Dean and Mason, 2009). Are we looking in the right places?

**Page 25, 2<sup>nd</sup> Paragraph, discusses Hg inputs:**

Discussion of natural inputs:

There is no information that a complete local base load determination for Hg in the Delta has been performed. One that takes into account the contribution of Hg from all naturally occurring sources:

- 1) Sediments naturally enriched in Hg from over 500,000 years of erosion of Hg deposits
- 2) Thermal Springs
- 3) Groundwater

Churchill and Clinkenbeard, 2004, report natural background Hg concentrations in stream-channel alluvium up to 280 ppm.

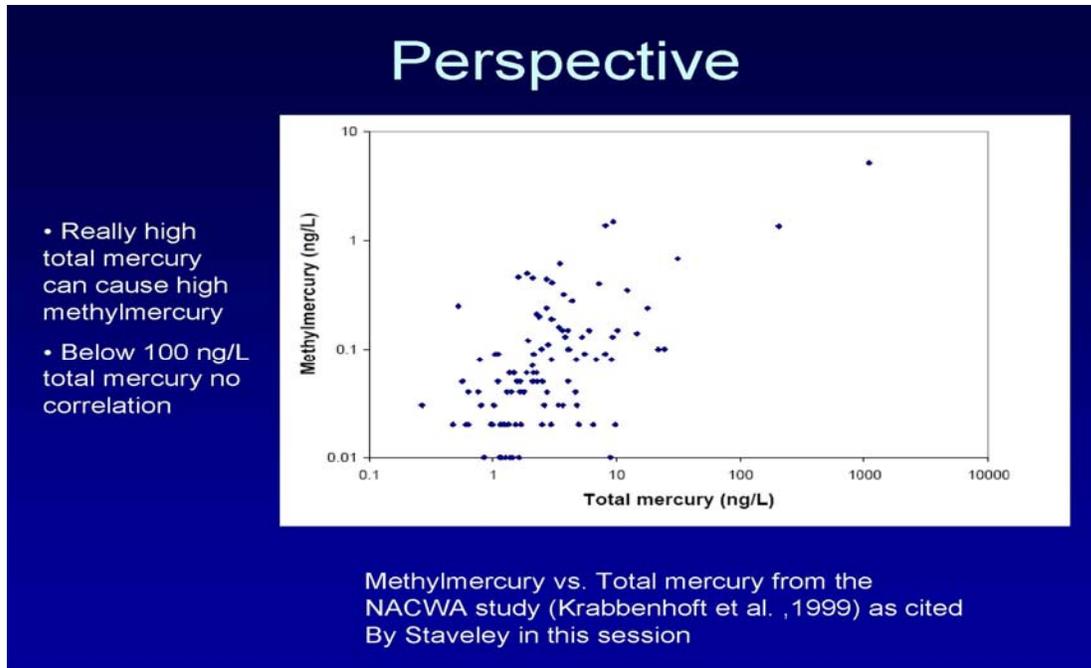
**Page 29, Third Bullet:**

Suggests that fish tissue mercury concentrations observed elsewhere in the United States can be achieved in the Delta.

Significant natural deposits of Hg remain in the rocks of the Coast Range. Thermal springs are actively precipitating 1 to 300 ppm Hg (Percy, 1990) Churchill and Clinkenbeard, 2003), (Domagalski, et al., 2004).

Don't we need to know what the long term base load of Hg is coming into the Delta from natural sources in order to determine whether the removal of anthropogenic Hg inputs will have any effect?

Data presented by Palen AbuSaba, 2006, suggest that there is no correlation between MeHg Production and total Hg below 100ng Total Hg.



### Page 29 5<sup>th</sup> Paragraph:

Recommends “An expanded exposure reduction program should be implemented to protect people with the highest consumption rates of Delta fish even before consumption studies are conducted or MeHg reductions are achieved.”

What is the size of the highest consumption rate population? The combined population of the Central Valley and San Francisco Bay is approximately 13.5 million. The combined sport fisherman and subsistence fisherman population has been optimistically estimated at 300,000 (Morris, 2007). There has been no accurate documentation on the number of individuals that actually subsist on fish from the Delta. Is this just a “*Big Fish Story*”? Is this the right thing to do at this time, when the State is struggling to keep its head above water? Making rash and overly quick decisions on issues that are not fully understood could over regulate industries and cause the loss of jobs.

### Final Comment:

The modifications made to the delta, such as the Yolo Bypass and the canal system has changed the environment, which may, in itself increase methylation. Probably more important, these modifications have interrupted the natural movement of mercury by streams, through the delta and out of the Bay. Is the state willing to re-create a more natural system and remove these artificial conveyances?

**References Cited:**

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Thank you for accepting my comments.

Sincerely



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