RMP
Mercury Strategy Team
2026

Meeting #1
March 13, 2026

Zoom Stuff

This meeting is being recorded and AI-transcribed

Item 1: Introductions and Meeting Goals

DRAFT AGENDA

1.	**Introductions, Meeting Goals, Agenda Review** Major goals for the meeting: 1. Discuss progress on WDM 2. Discuss progress on in-Bay recovery trajectory model 3. Discuss progress on Mercury Synthesis 4. Discuss mercury TMDL wasteload allocations achievement method Materials: None	9:00 Jay Davis
2.	**Discussion: WDM Update** Update on progress to date and timeline for completion. Materials: Slides presented at the meeting **Desired Outcomes:** Informed group and feedback provided.	9:05 Matt Heberger, Pedro Avellaneda
3.	**Discussion: In-Bay Recovery Trajectory Modeling Update** Update on progress to date and timeline for completion. Materials: Slides presented at the meeting **Desired Outcomes:** Informed group and feedback provided.	9:25 Craig Jones, Sam McWilliams
4.	**Discussion: Mercury Synthesis Update (Part 1)** Update on progress to date and timeline for completion: Jay's sections. Materials: Slides presented at the meeting **Desired Outcomes:** Informed group and feedback provided.	9:45 Jay Davis
5.	**Discussion: Mercury Synthesis Update (Part 2)** Update on progress to date and timeline for completion: Don's sections. Materials: Slides presented at the meeting **Desired Outcomes:** Informed group and feedback provided.	10:05 Don Yee
6.	**Discussion: Mercury Synthesis Update (Part 3)** Update on progress to date and timeline for completion: Lester's sections. Materials: Slides presented at the meeting **Desired Outcomes:** Informed group and feedback provided.	10:35 Lester McKee
7.	**Discussion: Mercury TMDL Wasteload Allocations Achievement Method** We will review the TMDL methods by which stormwater programs can demonstrate achievement of WLAs. We will then discuss: the pros and cons of these approaches; the need for possible modifications to the TMDL language to accommodate a hybrid modeling/monitoring approach; and perhaps sketch out a path for generating information for this demonstration. Materials: Slides presented at the meeting **Desired Outcome:** Informed group and feedback provided on a preferred approach for demonstrating WLA attainment.	11:05 Richard Looker, Gerardo Martinez
8.	**Review Next Steps and Action Items and Adjourn**	11:55 Jay and Group

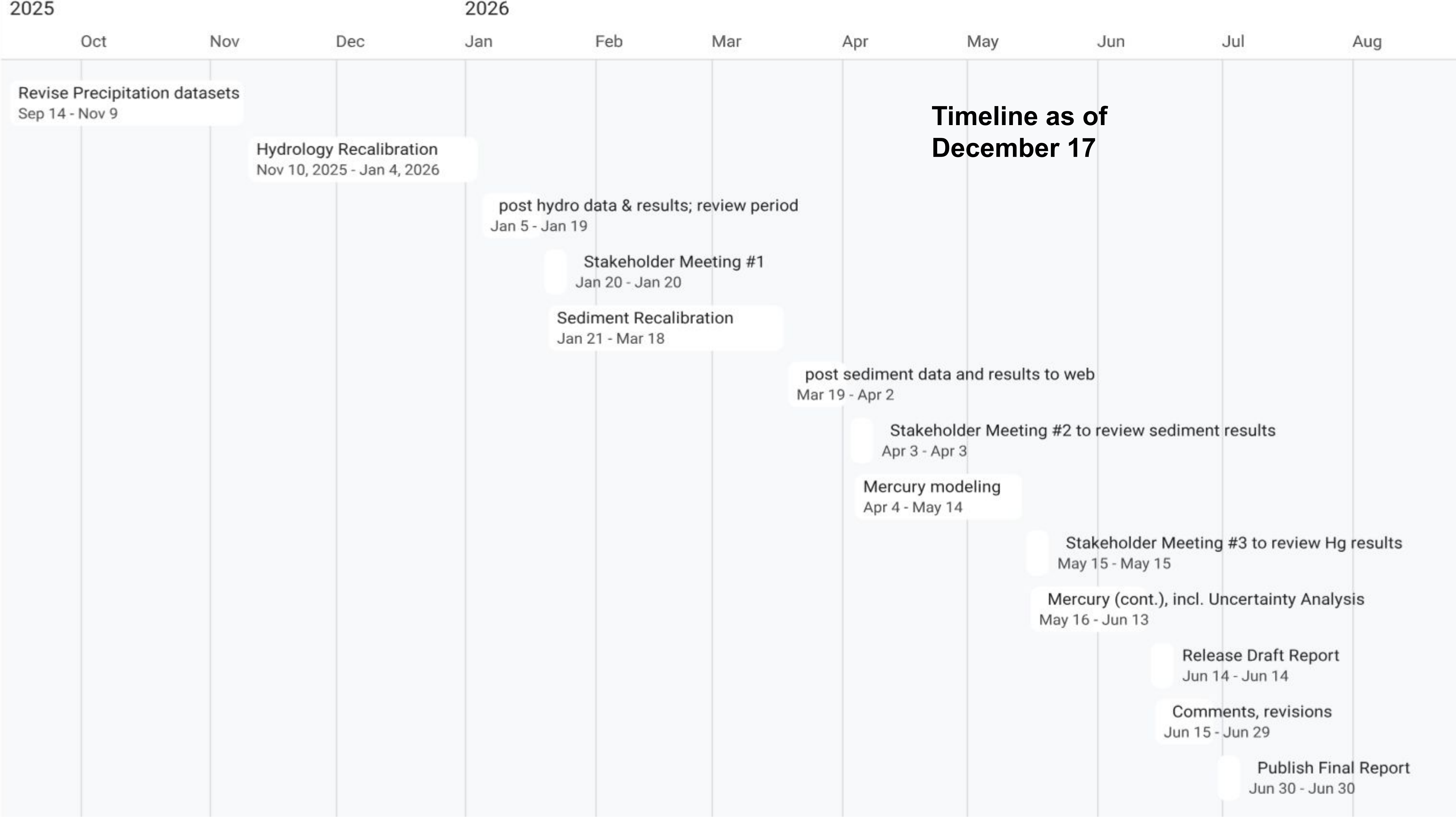
Item 2
Discussion: WDM Update

WDM Hg Update

- SFEI has been working to update the Watershed Dynamic Model (WDM) to fix unrealistic predictions of runoff and sediment load
- WDM progress meeting held on Jan 23, next one on April 17
- Meeting “virtual handout”: https://mghydro.com/pages/wdm/

WDM Hg Timeline

- Project timeline: https://tinyurl.com/wdm-plan
- (Currently about 2 weeks behind schedule, but hope to make up time)

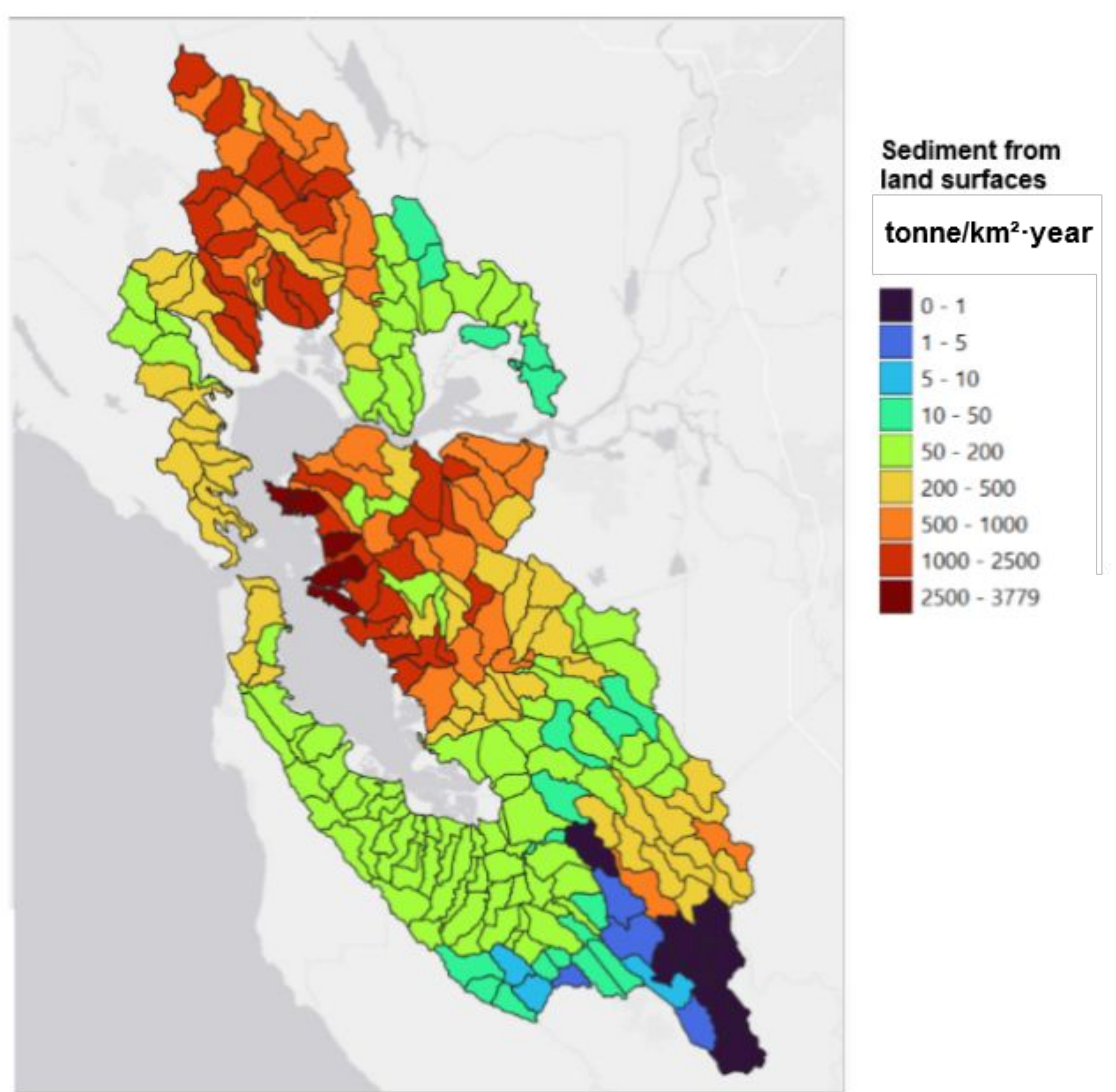

2025
2026
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Timeline as of December 17
Revise Precipitation datasets
Sep 14 - Nov 9
Hydrology Recalibration
Nov 10, 2025 - Jan 4, 2026
post hydro data & results; review period
Jan 5 - Jan 19
Stakeholder Meeting #1
Jan 20 - Jan 20
Sediment Recalibration
Jan 21 - Mar 18
post sediment data and results to web
Mar 19 - Apr 2
Stakeholder Meeting #2 to review sediment results
Apr 3 - Apr 3
Mercury modeling
Apr 4 - May 14
Stakeholder Meeting #3 to review Hg results
May 15 - May 15
Mercury (cont.), incl. Uncertainty Analysis
May 16 - Jun 13
Release Draft Report
Jun 14 - Jun 14
Comments, revisions
Jun 15 - Jun 29
Publish Final Report
Jun 30 - Jun 30

The need to fix the sediment model

- We determined that the physics of erosion and sediment transport at the hydrologic response unit (HRU) scale are unrealistic.
- This prevents us from creating a credible pollutant loading model that is suitable for making management decisions.

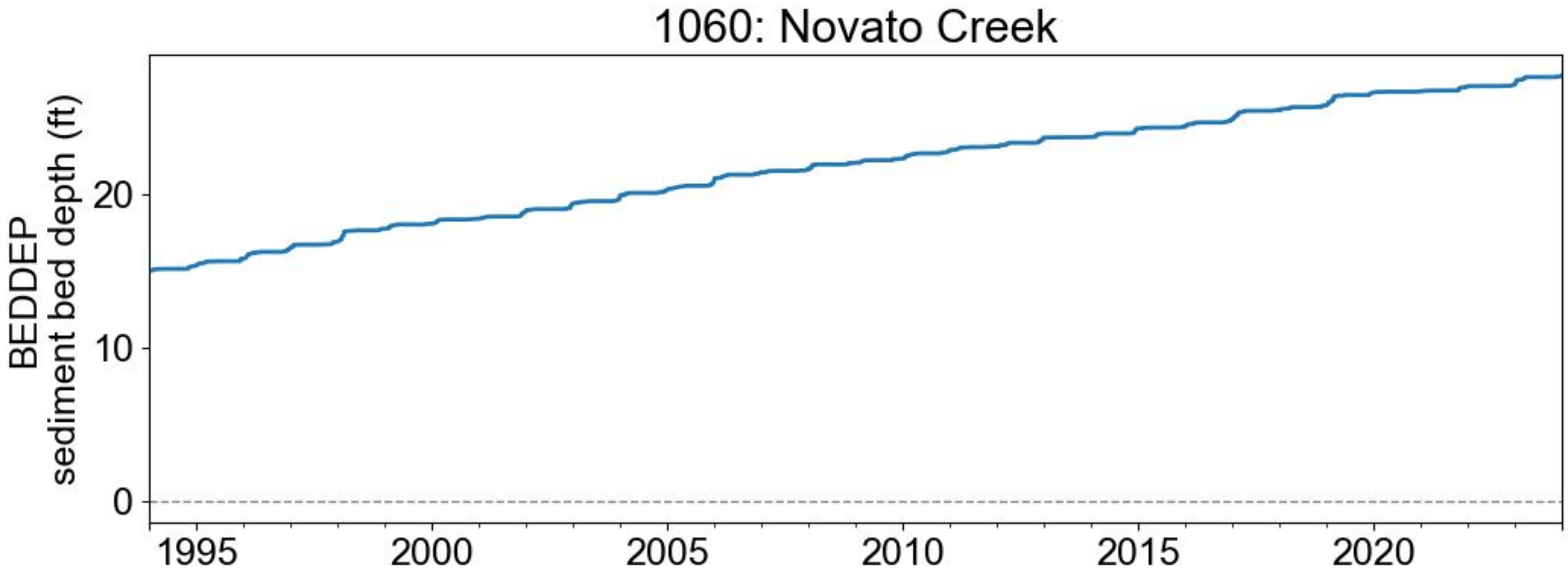
Three main strategies:

1) Fix erosion and sediment washoff from land surfaces, which show unusual patterns that are inconsistent with our understanding of watershed processes.



Three main strategies:

2) Balance sediment scour and deposition in channels, which is out of balance in over 80% of reaches.

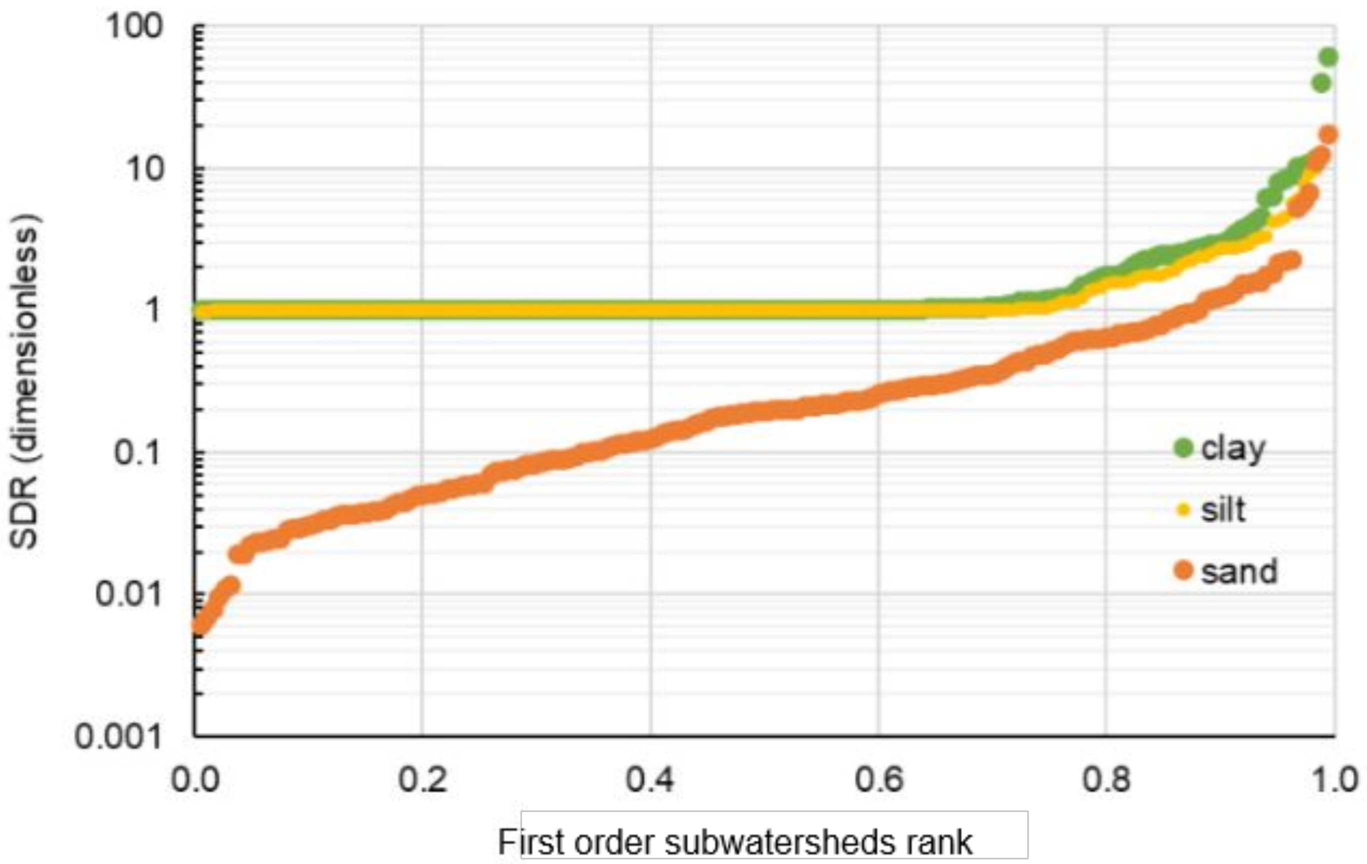


Three main strategies:

3) Verify sediment delivery ratios for all 3 classes (sand, silt, clay)

Average SDR > 1 not possible. Implication:

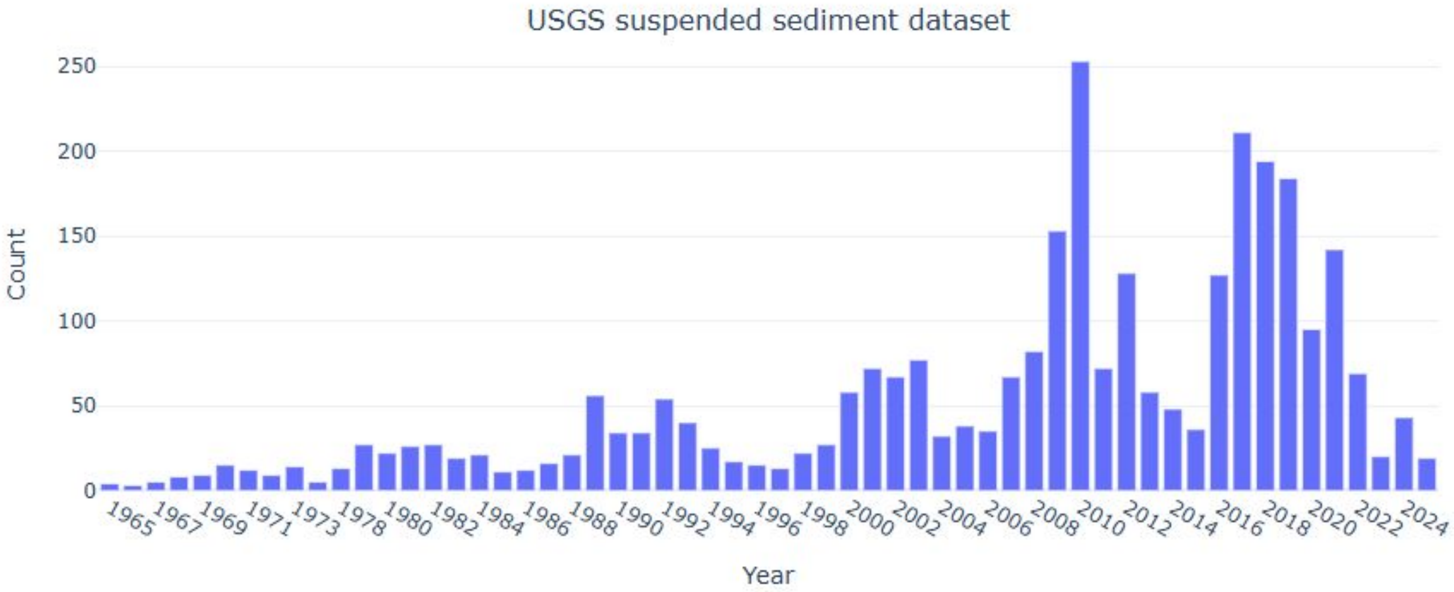
majority of the sediment in flow is coming from the reservoir of channel bed sediment and NOT the land surfaces in the watershed

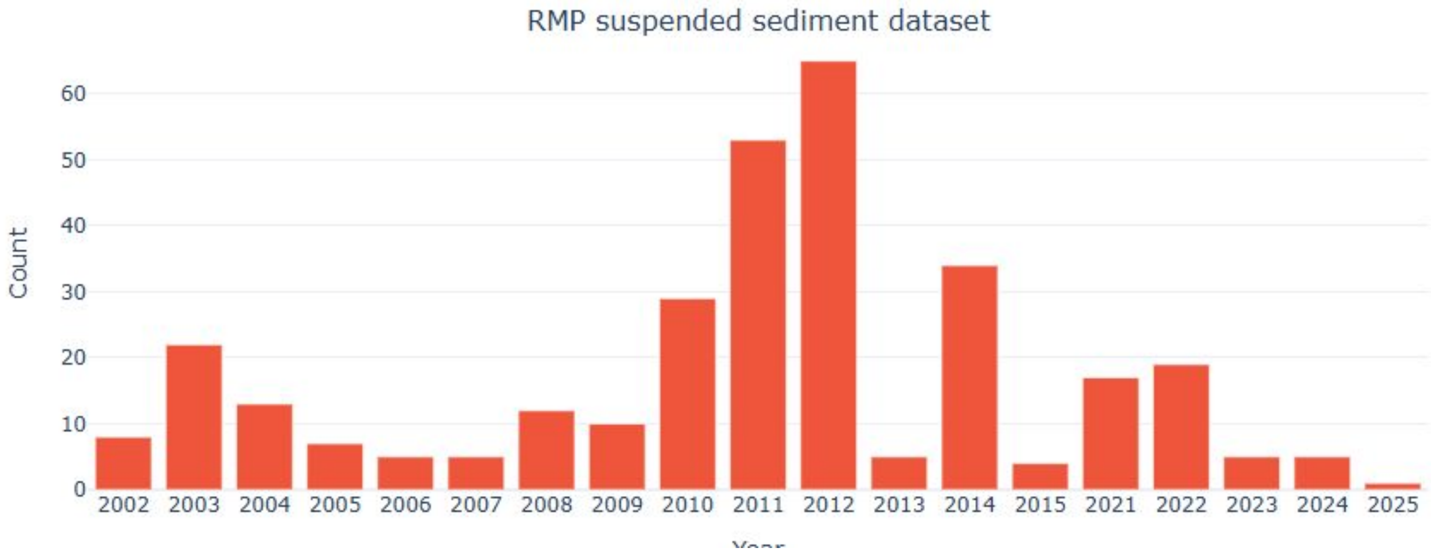


Additional Challenges Uncovered

- **Hydrology** - model fits to daily observed flows were relatively poor
- **Precipitation** - errors in data processing -- overall precip. totals were correct, but the way they were disaggregated was poor, making the time series totally wrong.
- **Evapotranspiration** - input data was coarse resolution, included "coastal contamination" in
- **Reservoirs** - there was a mistake in how reservoirs were being handled in the model, with the downstream overflow or release and the water supply withdrawals ***reversed*** for several reservoirs.

Expanded Sediment Dataset for Calibration & Validation

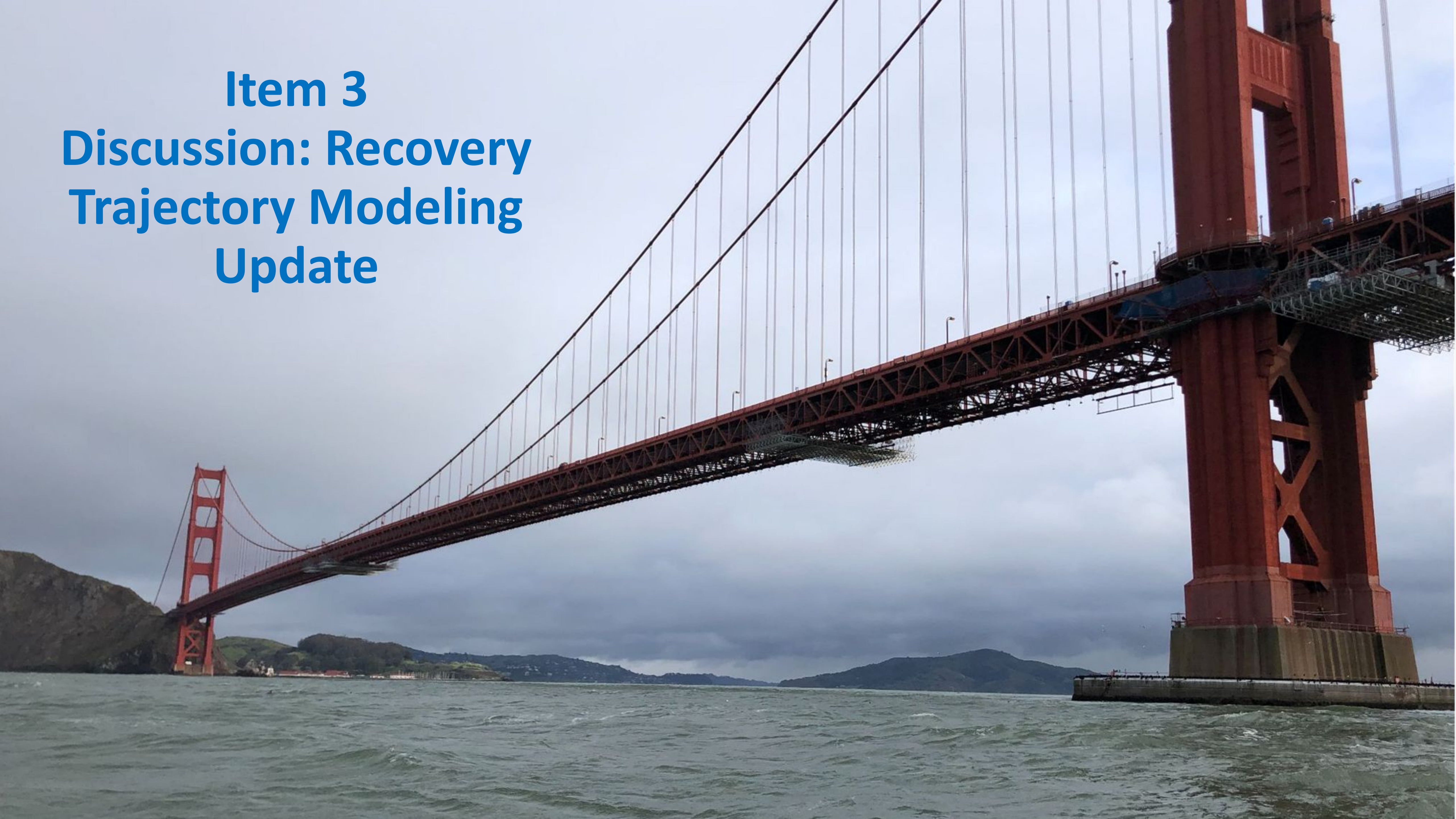




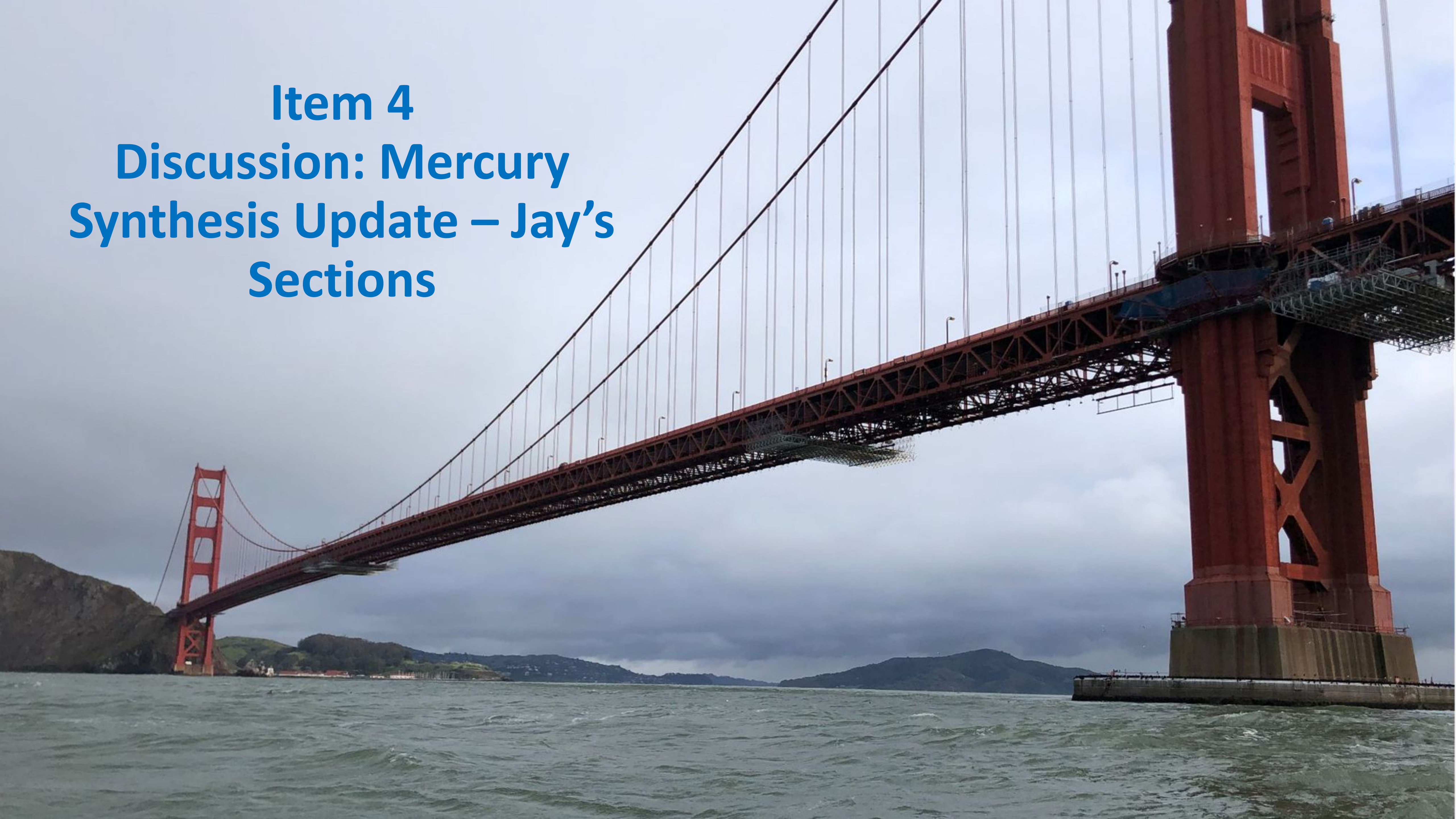
17 USGS gages

10 RMP monitoring sites

Item 3
Discussion: Recovery Trajectory Modeling Update



Item 4
Discussion: Mercury Synthesis Update – Jay's Sections



Biota Status and Trends

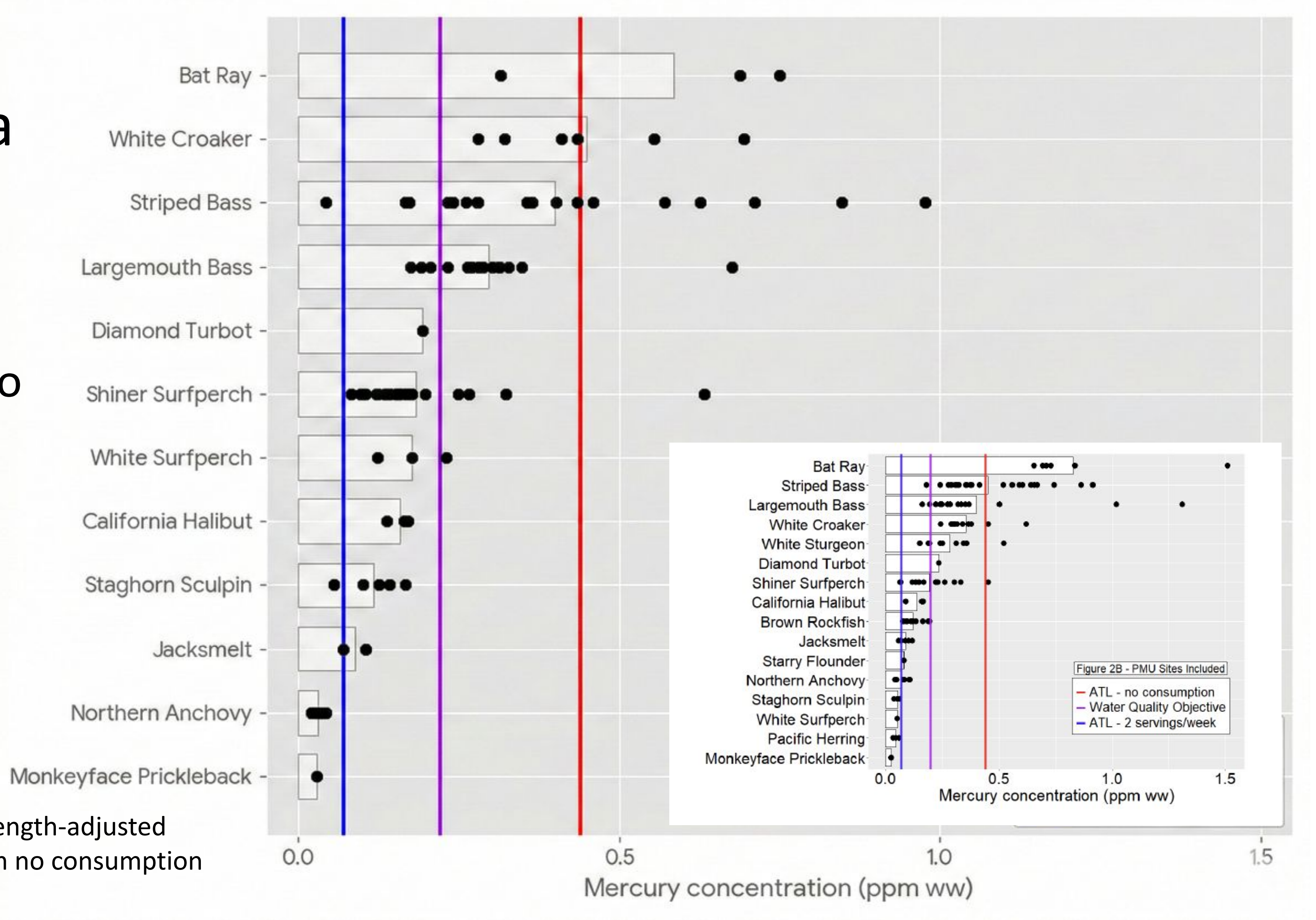
- Who: Jay, some Data Services (DS) support
- Literature - quick check for data not already included below
- Datasets
  - RMP: sport fish, bird eggs
  - North Bay Biosentinels, WB Wetland permit study: wetland biosentinel fish
  - South Bay Salt Ponds
- Notes
  - good to address topic of restored wetlands as a potential source of MeHg (separate Synthesis section on this?)
  - include 2024 sport fish and bird egg data

WB Guidance

Compile any new data and qualitatively evaluate trends. Biota data may not show much change at the Bay-wide scale (e.g., striped bass), but there could be some evidence in some types of biota (bird eggs or prey fish) when looking at smaller spatial scales. This slow rate of Bay-wide change in biota concentrations highlights the significance of the Hg reservoir in SF Bay sediments and supports rationale for time extension of TMDL.

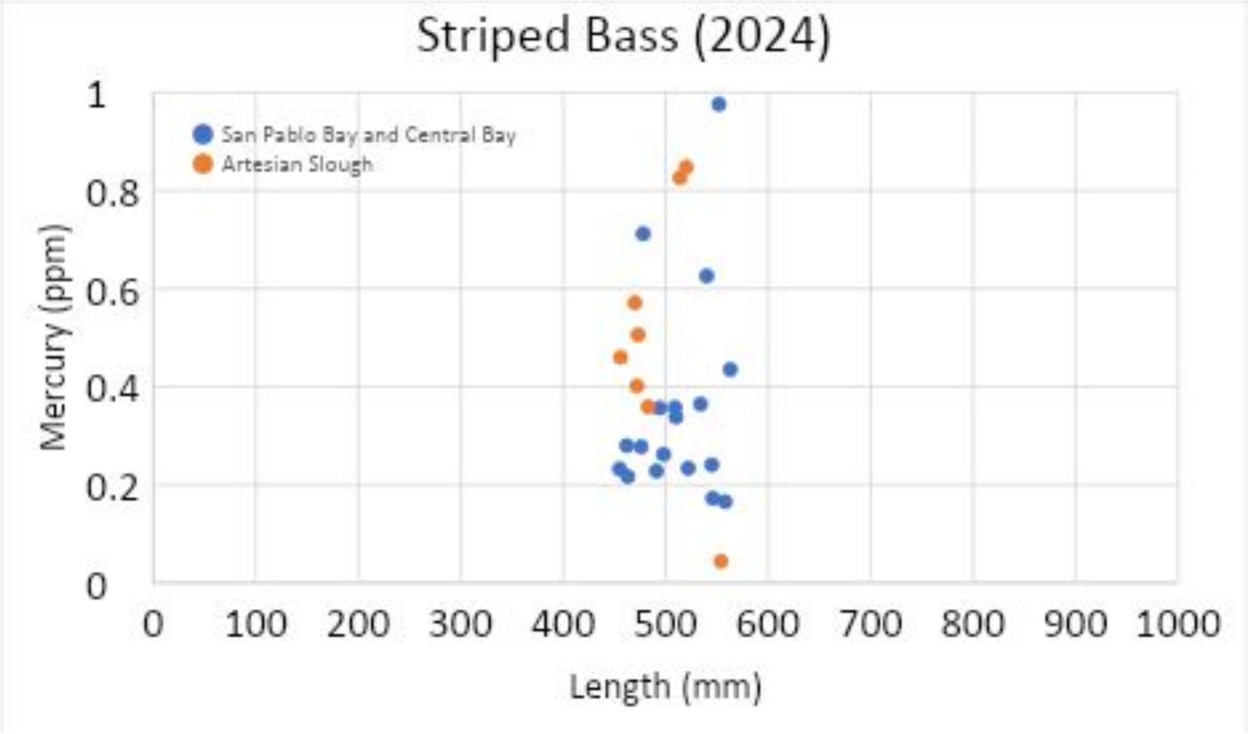
2024 Sport Fish Data

- *World premiere!*
- Generally very similar to 2019 (thumbnail)



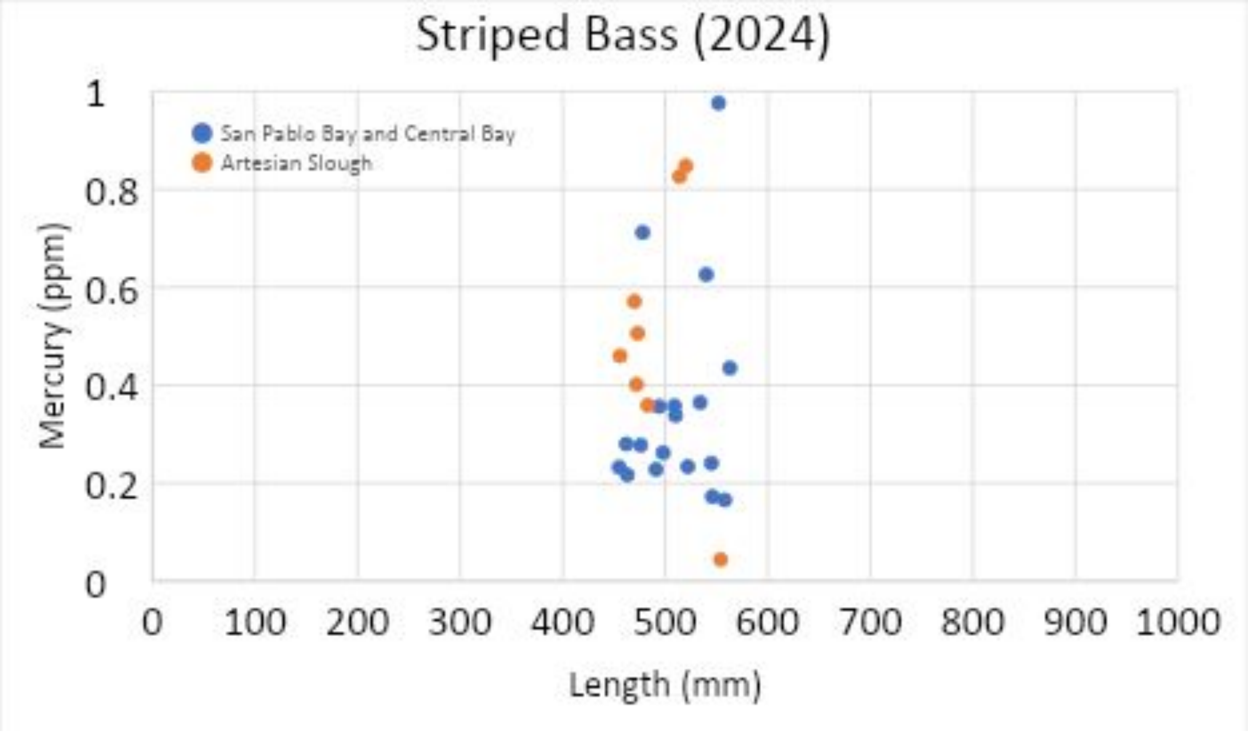
Notes

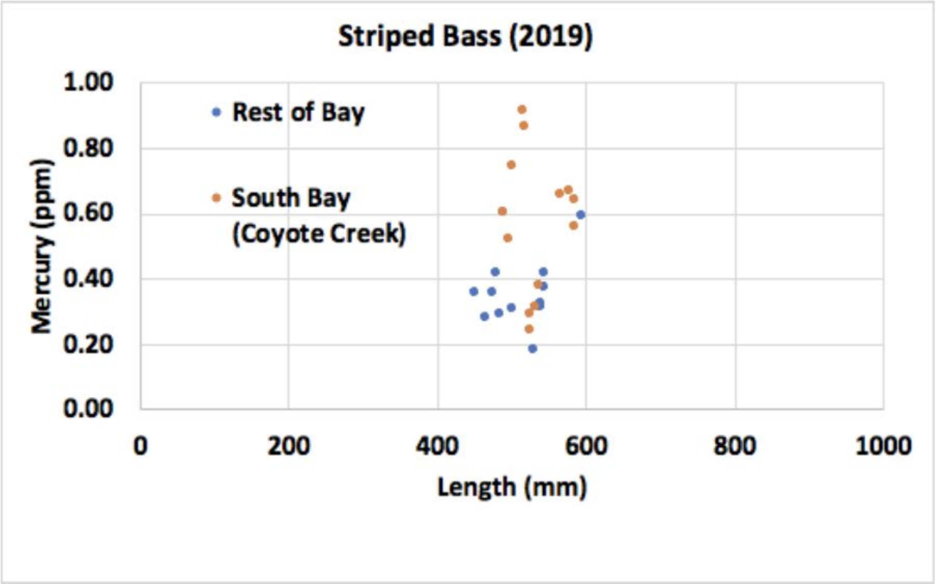
- striped bass and largemouth bass not length-adjusted
- striped bass mean still around 0.44 ppm no consumption ATL (for the sensitive population)



Notes

- As in 2019, we got a limited size range of striped bass in 2024 - not a good basis for regression - will have to get creative again using past data
- Bass from Artesian Slough were again higher than bass from the rest of the Bay
- We'll aim for a wider size range in 2029 - will be hard to get larger fish though - ***may*** want to reconsider the 60 cm size for length-adjustment





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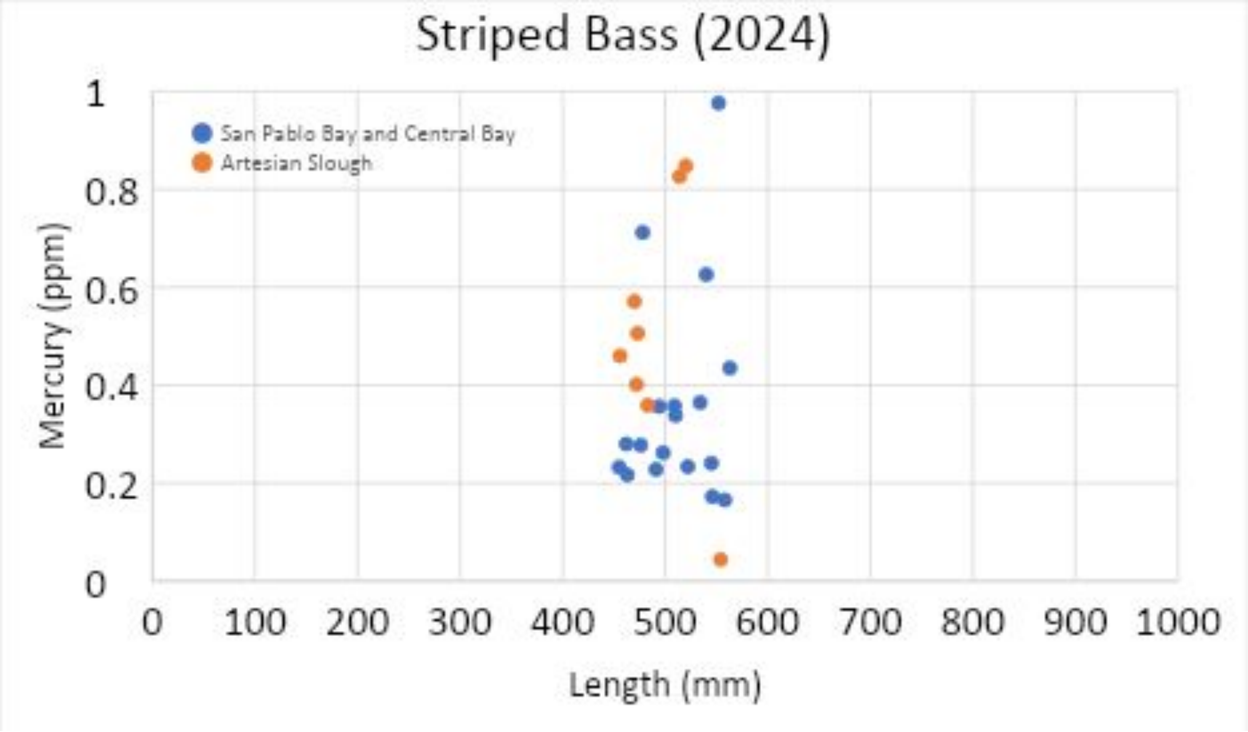
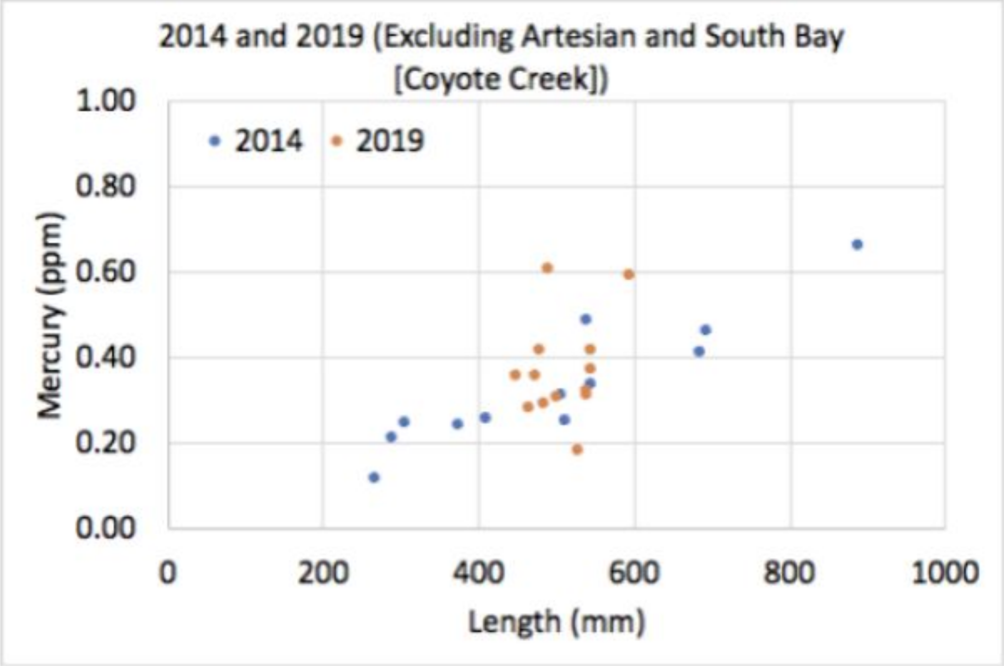
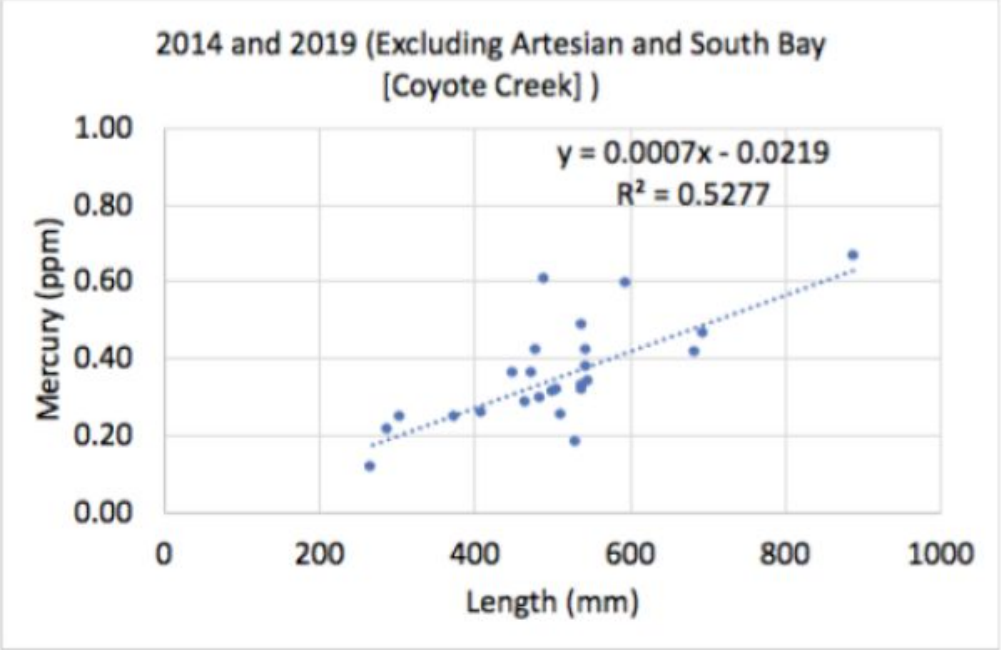
Notes

- 2019 data were very similar

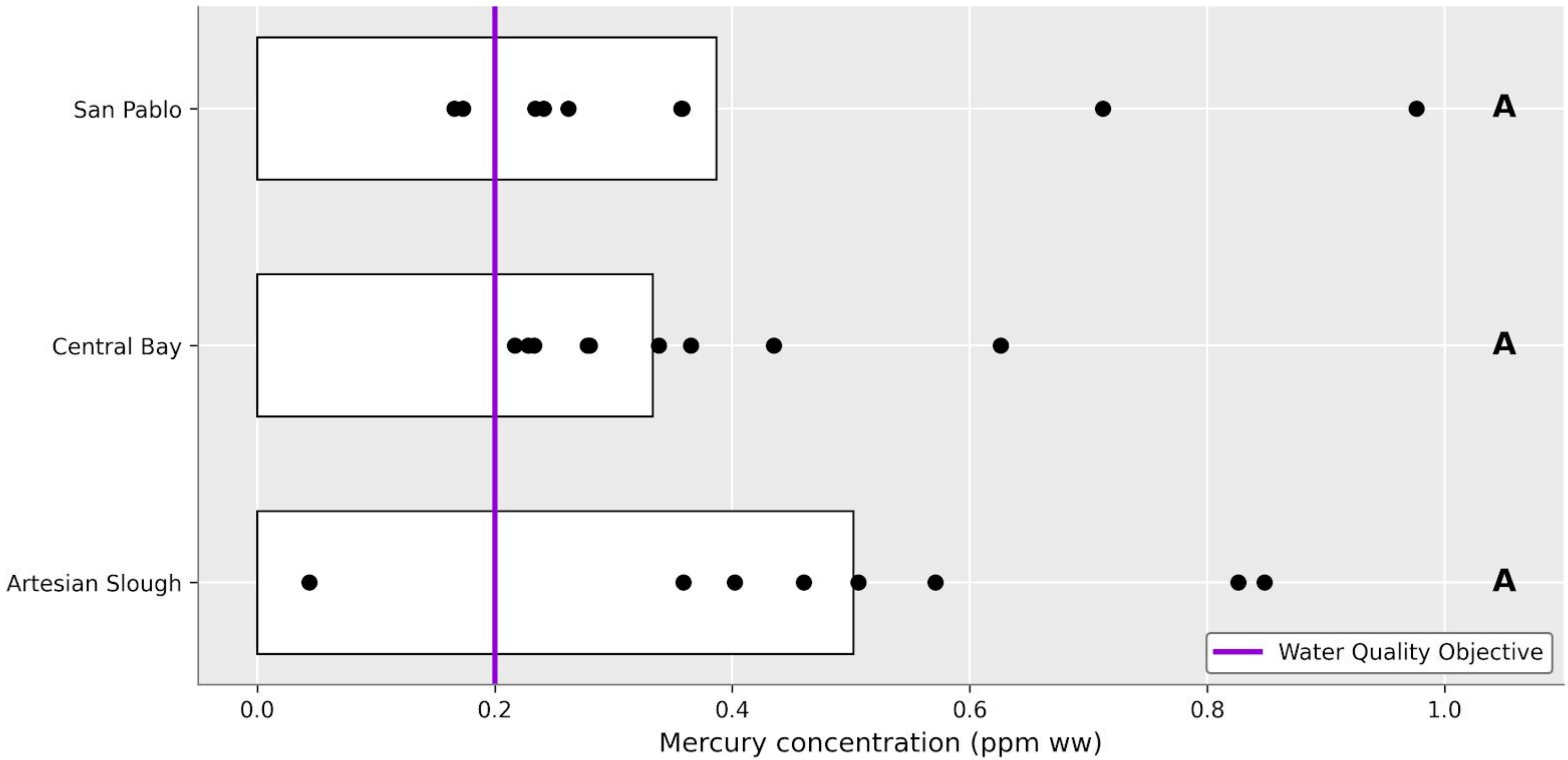






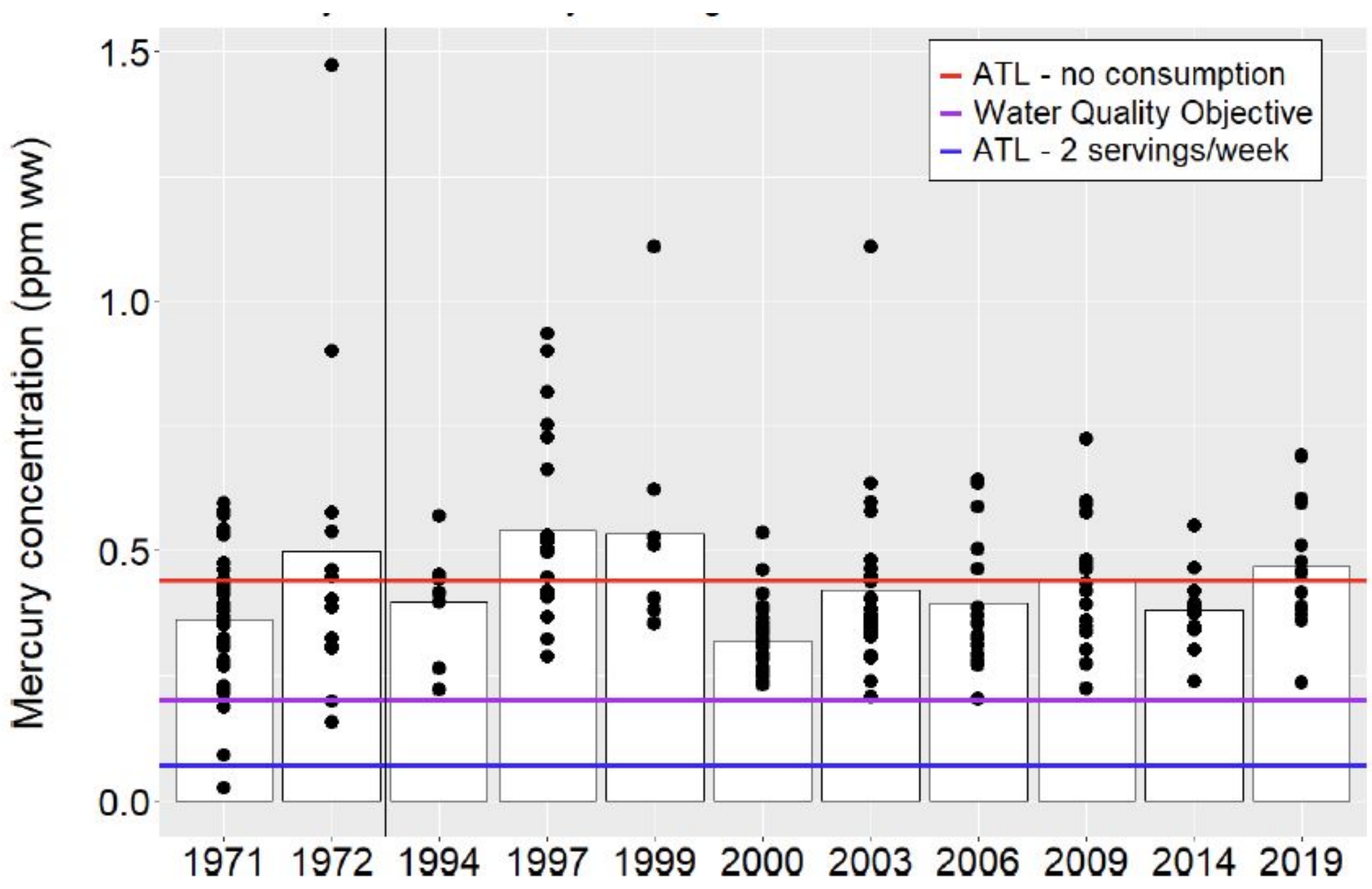
Notes

- In 2019 we used a combination of the 2019 data and 2014 data, excluding the South Bay bass (because they were higher) - will do something similar for 2024



Notes

- Artesian Slough bass versus other areas - higher but not statistically significant



Notes

- This graph is based on 60 cm length-adjusted data - will add 2024 after deciding on how to length-adjust

Biota: Wetland Monitoring

- South Bay Salt Pond Restoration Project
- Significant dataset
- Substantial risk to birds
- Short-term, but not long-term*, increases due to restoration

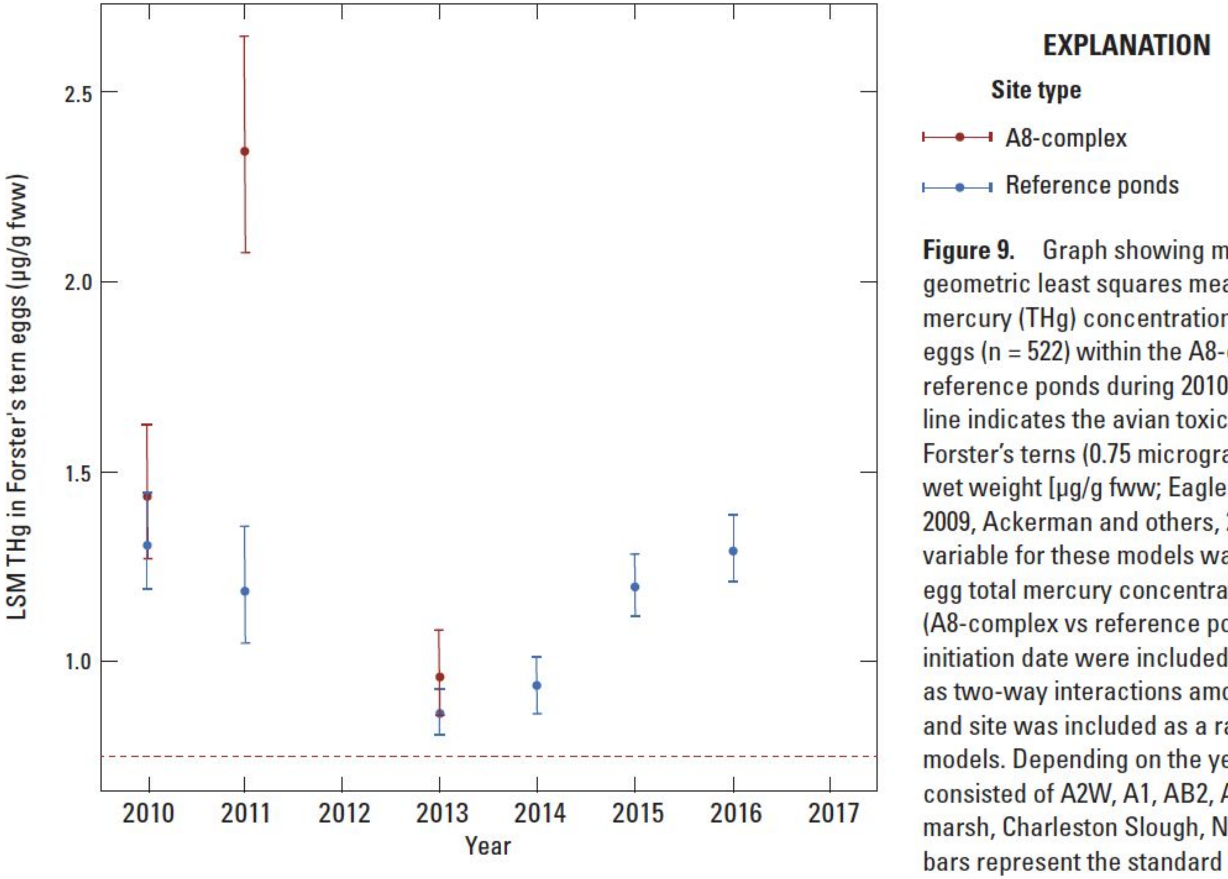


Figure 9. Graph showing model-averaged geometric least squares mean (LSM) total mercury (THg) concentrations in Forster's tern eggs (n = 522) within the A8-complex and at reference ponds during 2010–17. The red dashed line indicates the avian toxicity benchmark for Forster's terns (0.75 microgram per gram in fresh wet weight [µg/g fww; Eagles-Smith and others, 2009, Ackerman and others, 2016a]). The response variable for these models was log-transformed egg total mercury concentration. Year, treatment (A8-complex vs reference pond), and nest initiation date were included as covariates as well as two-way interactions among the variables, and site was included as a random effect in all models. Depending on the year, reference ponds consisted of A2W, A1, AB2, AB1, New Chicago marsh, Charleston Slough, N1, and (or) SF2. Error bars represent the standard error.

Notes
- Forster's Tern eggs
- Spike in 2011 was due to reconfiguration in the pond A8 complex but it was short-lived

Notes

- Forster’s tern eggs in South Bay as a whole
- Spikes in 2006, 2011, and 2015-2017
- 2006 - coincident with some of the initial restoration actions at the island ponds (ponds A19–21
- 2011 - after the breaching of pond A6 and the construction and initial opening of the A8 tidal control structure
- 2015-2017 - followed the 3-gate condition to 5-gate condition transition in the operation of the A8-TCS (September 2014) and encompassed the extreme flow event during January–February 2017
- no monitoring after 2017

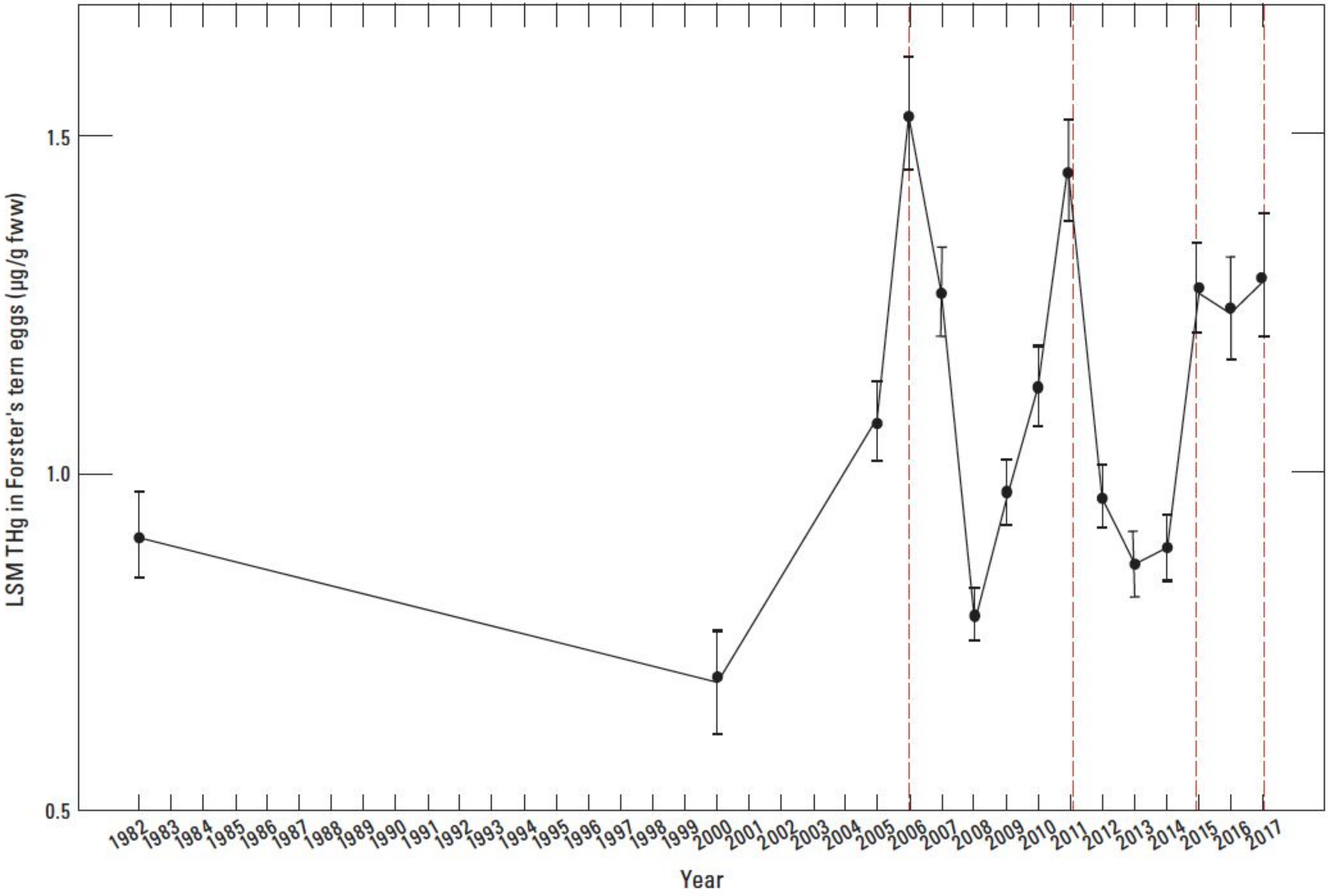


Figure 11. Graph showing long-term trend in total mercury (THg) concentrations in Forster’s tern eggs collected from southern San Francisco Bay during 1982–2017. The time series also includes historical reference values in 1982 for Bair Island (n=10 eggs) by Ohlendorf and others (1988) and in 2000 for 4 sites (n=21 eggs) by Schwarzbach and Adelsbach (2003). Values from 2005–2017 are least squares means (LSM) in micrograms per gram in fresh wet weight [µg/g fww] accounting for site as a random effect (model results in table 1). Error bars represent the standard error. The red dashed lines highlight peaks in years prior to (2006) and during (2011 and 2015–17) the South Bay Salt Pond Restoration Project Phase 1 period of study (2010–2017).

Notes

- Prey fish data from slough sites - focus on more complete silverside series on top
- Spike in 2011 like the tern eggs - in Alviso Slough only and linked to management actions
- No spike in 2015-16 - unlike the tern eggs
- Spike in late 2016 thought to be related to earlier transition to the 5 gate condition
- Back to baseline in 2018

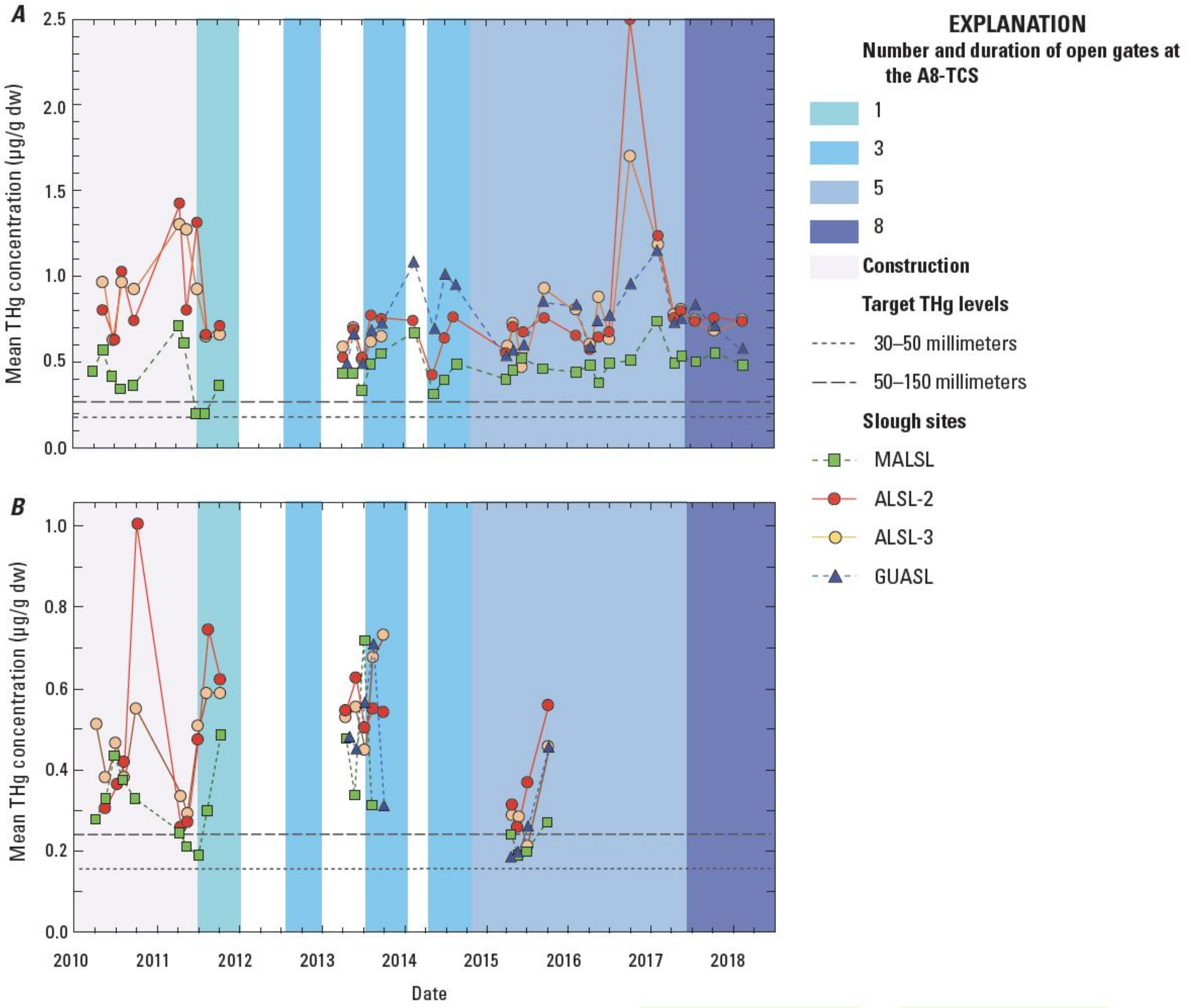
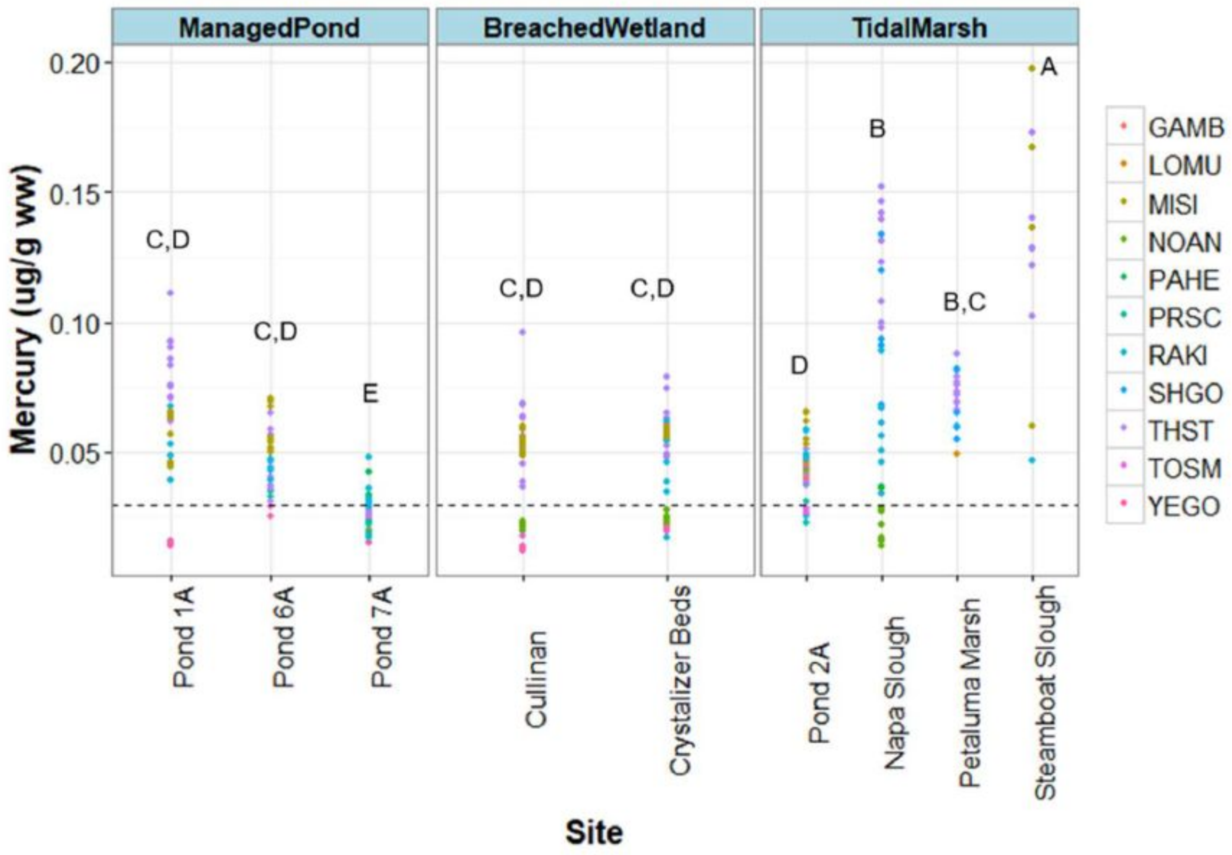


Figure 15. Graphs showing mean total mercury (THg) concentrations of Mississippi silverside (*A*) and three-spine stickleback (*B*), by slough site, for the years 2010–18 and 2010–16, respectively. Each Mississippi silverside data point (*A*) represents the mean of 6 composite samples of 8 fish each; 48 fish total, whereas each three-spine stickleback data point (*B*) represents the mean of 10–15 individually analyzed fish (homogenized whole body). Target THg levels (horizontal dashed lines) for 30–50 millimeters and 50–150 millimeters fish are in dry weight equivalents of 0.03 and 0.05 microgram per gram (µg/g) wet weight regulatory targets, respectively. Year labels are centered on January 1 of each year. THg concentrations are given in micrograms per gram dry weight (µg/g dw). Locations of samples shown on figure 3. Nonshaded background represents duration when all gates are closed.

- North Bay Biosentinels Project
- Robinson et al. (2018)



Monitoring was conducted in 2016 and 2017. The results were consistent with findings from an earlier phase of the project (2012-2014) that showed methylmercury concentrations in restoration sites could pose a risk to fish and piscivorous wildlife, but levels within restored areas were no higher than at reference sites. Concentrations varied by site, species, and year.

Surface and Suspended Sediment Status and Trends

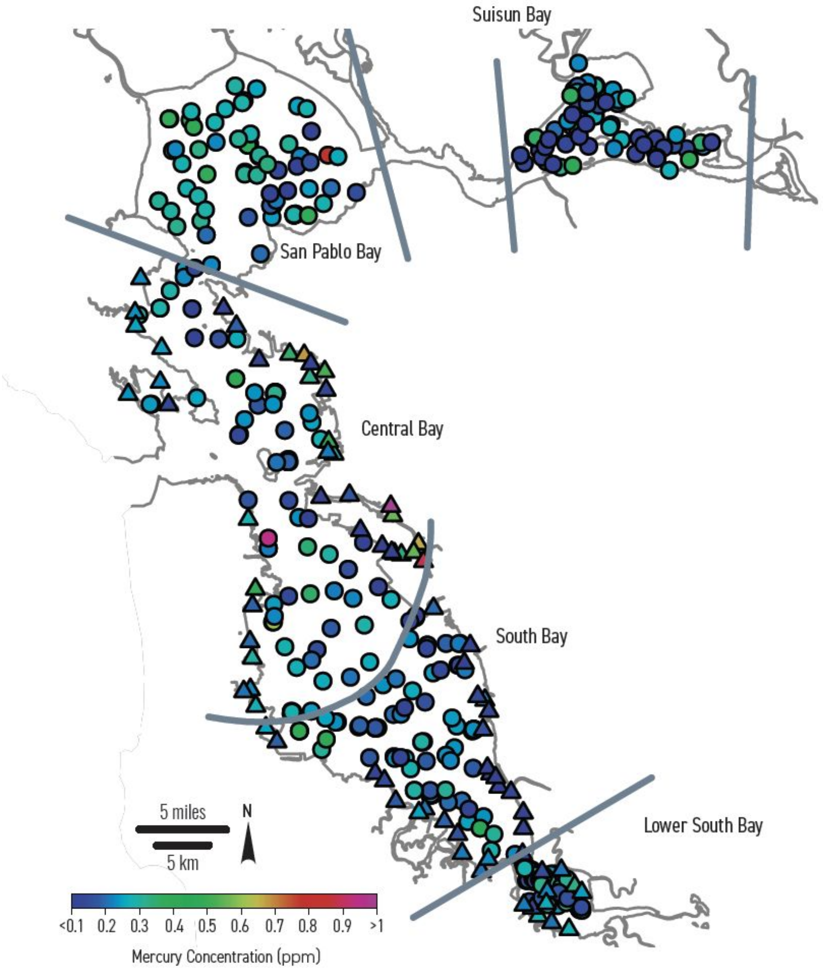
- Who: Jay (surface), Don (suspended), some Data Services (DS) support
- Literature - not applicable
- Datasets
  - RMP sediment and water data
- Notes
  - include new data for 2023 archived samples
  - include brief summary of margins data

WB Guidance

- Compile any new data (i.e., archived Bay sediment samples special study). Are there any updated status and observed trends? Can we show any progress?
- Evaluate data in terms of time and space (subembayment)
- The bed sediment data are probably less variable and likely a better indicator for changes, but the suspended sediment target is what is in the TMDL so must be evaluated. Work with the WB if there are issues that arise involving the difference between dissolved and total mercury used in the calculation.

Surface Sediment Update

- Samples have been retrieved and sent to the lab
- Results expected late April



Wastewater Inputs

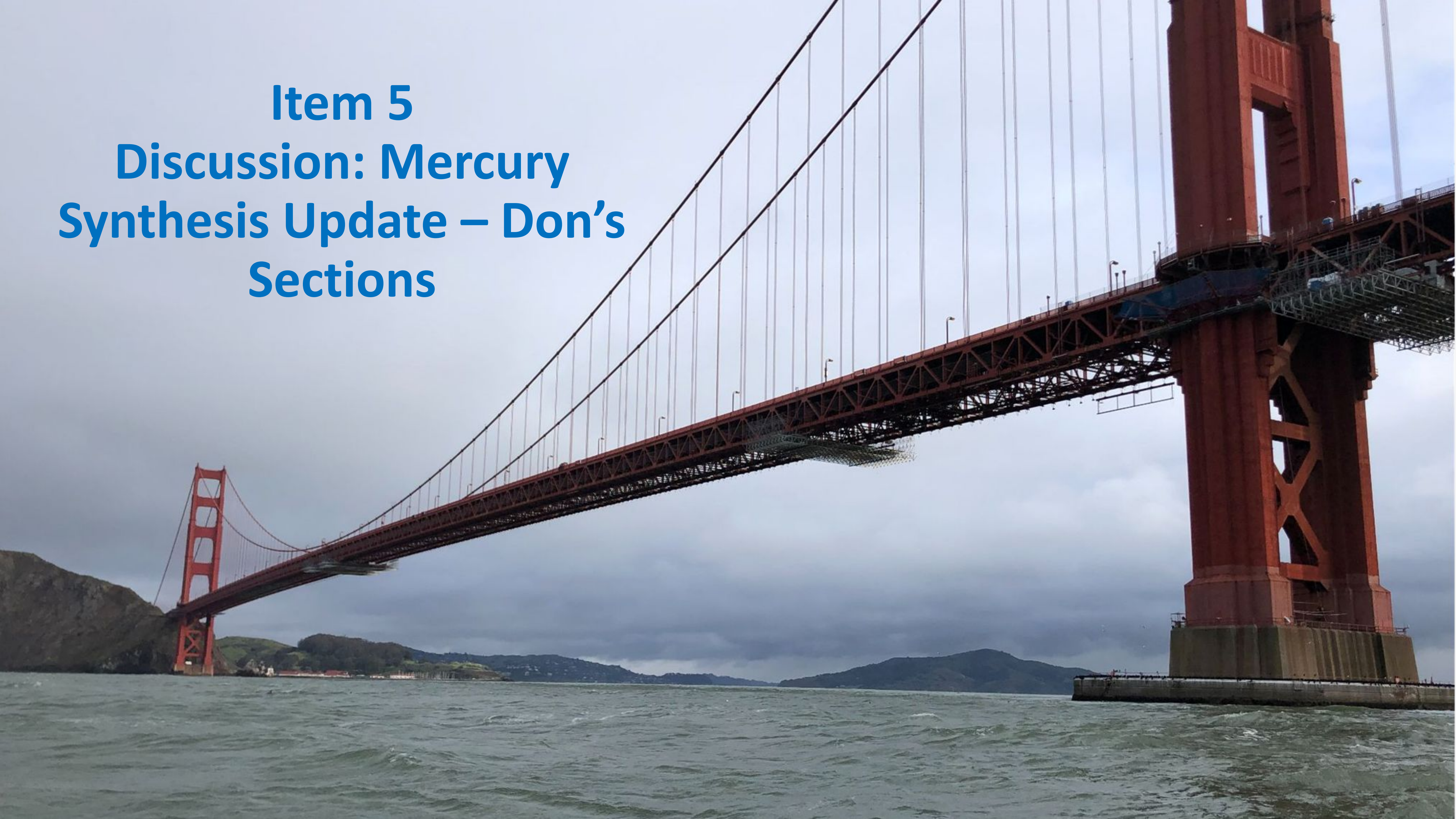
- Who: WB (James Parrish), Jay write
- Literature - NA
- Datasets
  - NPDES data
- Notes
  - haven’t contacted James yet

WB Guidance

This is one of the Water Board’s strongest datasets because this is reported on a regular basis and the Water Board provides annual reports to the Board. This is potentially already done.

Last update provided at the July 9, 2025 Board Meeting (July 2025 Executive Officer's Report, page 3) included the 2024 municipal and industrial Hg loads.

Item 5
Discussion: Mercury Synthesis Update – Don's Sections



Atmospheric Mercury

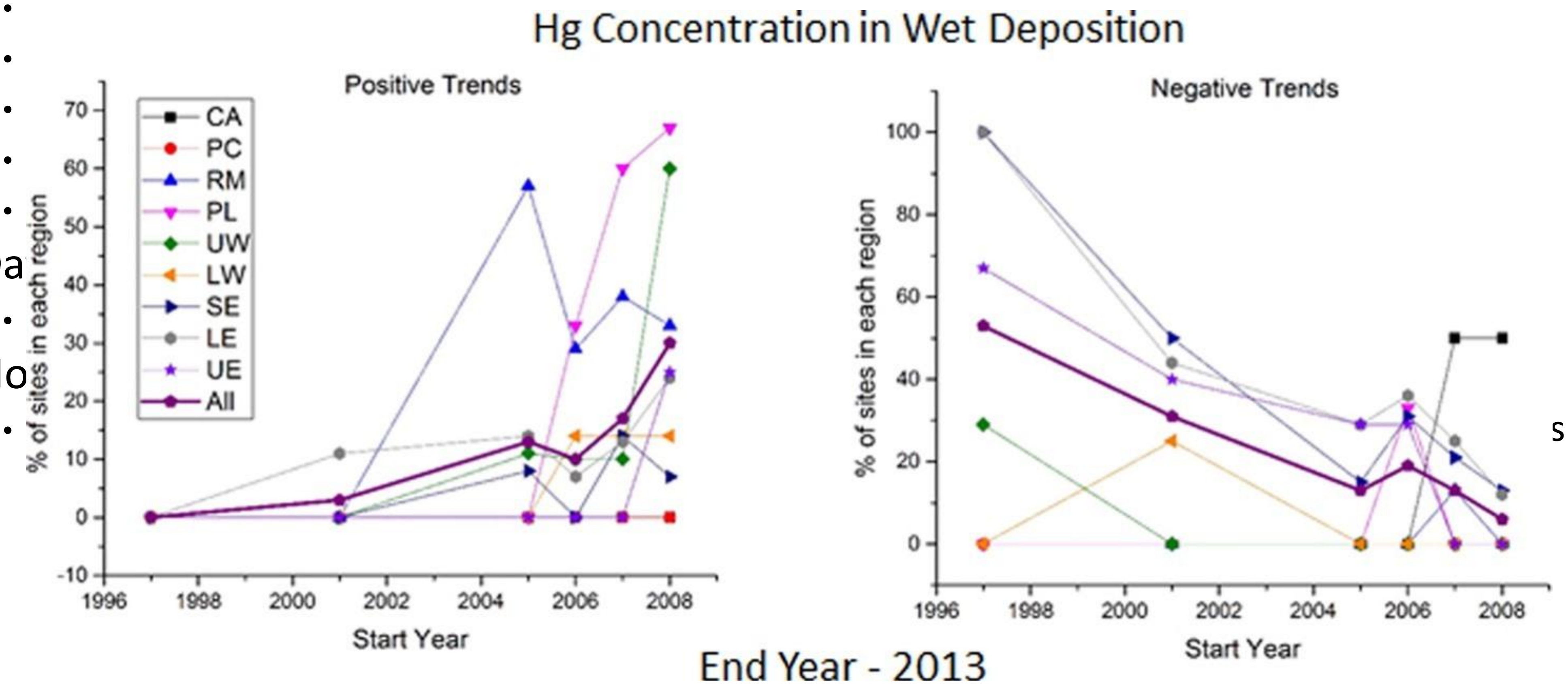
MERCURY LOADS TO THE BAY (kg/year)

PATHWAY	TMDL ALLOCATION	TMDL LOAD ESTIMATE	LATEST LOAD ESTIMATE	COMMENTS
POTWs	20	20	2.9	SFBRWQCB (2012)
Industry			0.4	SFBRWQCB (2012)
Urban Stormwater	82	160	120	McKee et al. (2015)
Central Valley	330	440	190	David et al. (2015)
Atmospheric Deposition	7	27.2	–	New estimate not available
Bed Erosion	220	460	–	New estimate not available
Guadalupe River	2	92	90	McKee et al. (2015)
Non-urban Stormwater	25	25	–	New estimate not available
Sediment Dredging and Disposal	0	Net loss	–	New estimate not available

USA-CAN Atmospheric Hg - Stable or Rising

- USA emissions down (esp. east coast) but global increase (Weiss-Penzias et al., 2016)

https://doi.org/10.1016/j.scitotenv.2016.01.061



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- No

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UNEP Global Mercury Assessment 2018

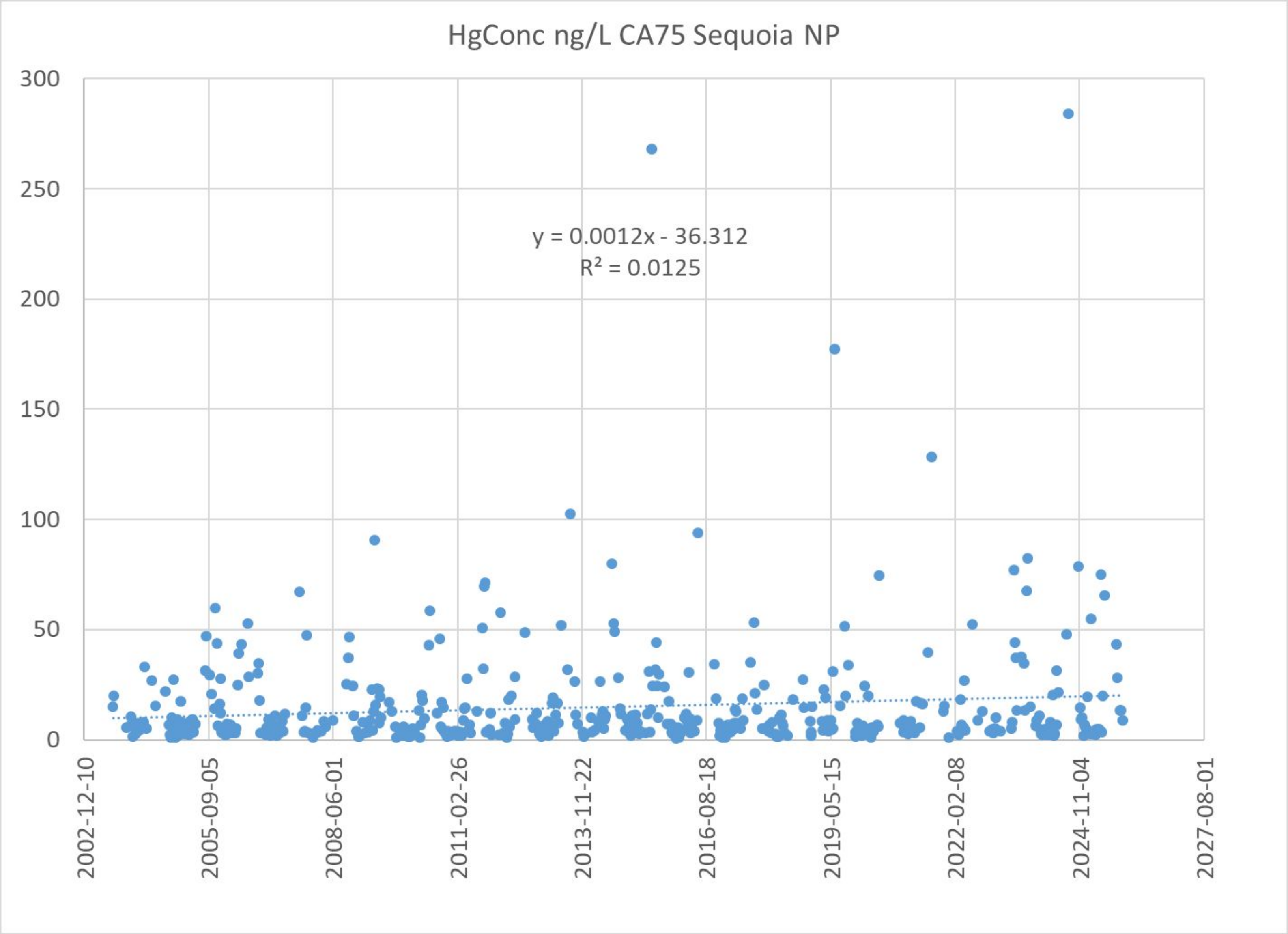
KEY FINDING 2

Estimated global anthropogenic emissions of mercury to the atmosphere for 2015 are approximately 20% higher than they were in updated estimates for 2010.

Continuing action to reduce emissions has resulted in modest decreases in emissions in North America and the European Union. Increased economic activity, notably in Asia, and the use and disposal of mercury-added products appears to have more than offset any efforts to reduce mercury emissions.

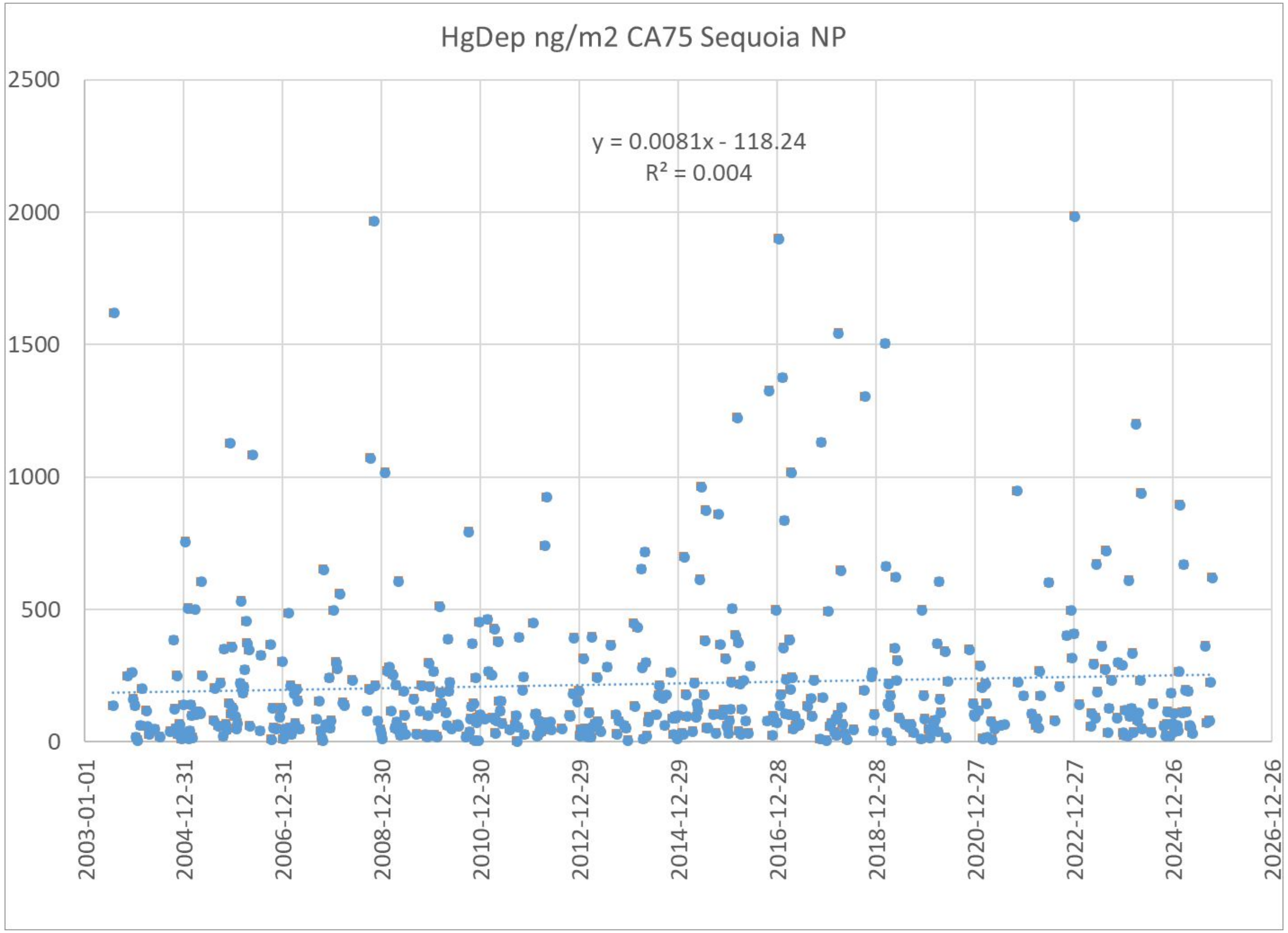
CA MDN site

no trend in Hg concentration in rainfall



CA MDN site

no trend in weekly Hg deposition in rainfall



Air Dep Takeaway

- Atmospheric deposition was a small portion of Bay budget
- Anthropogenic emissions flat or slightly rising, up to +20%/decade
  - natural emissions ~⅔ of global total, so ~0.7%/yr rise in Hg_{conc}
- Blum group isotope work showed food web Hg ~ sediment
  - (total inventory) isotope signature (water column/ air dep Hg not preferentially taken up)
- Atmospheric deposition not a controllable knob, but still a small portion of Bay budget
  - continued long term global increase could be problematic

Sediment Mixed Layer

Fuller et al 1999

Uniform ^{210}Pb top 25cm, 33cm mixed zone, 9cm half gaussian σ

Leahy 1976

Tracer in dredged material disposal, to 30cm+ in 2-6 months

Bay RMP cruises

Redox transition zone (brown -> gray) usually ~7-9cm depth (rarely <5 or >11)

Some benthos burrow to ~20cm (N. succinea, , Macoma petalum)

Sediment Mixing Takeaway

No major shifts in benthic community over ~5 years, but already ~75% invasive species (H. Jimenez et al., 2019) https://doi.org/10.1016/j.ecss.2019.106324

Absent major shifts in benthic community composition, hydrodynamics, or sediment supply, sediment mixing processes are likely to change little in the long term.

Prior baseline mixed depth ~15cm reasonable.

Suspended & Bed Sediment Linkage

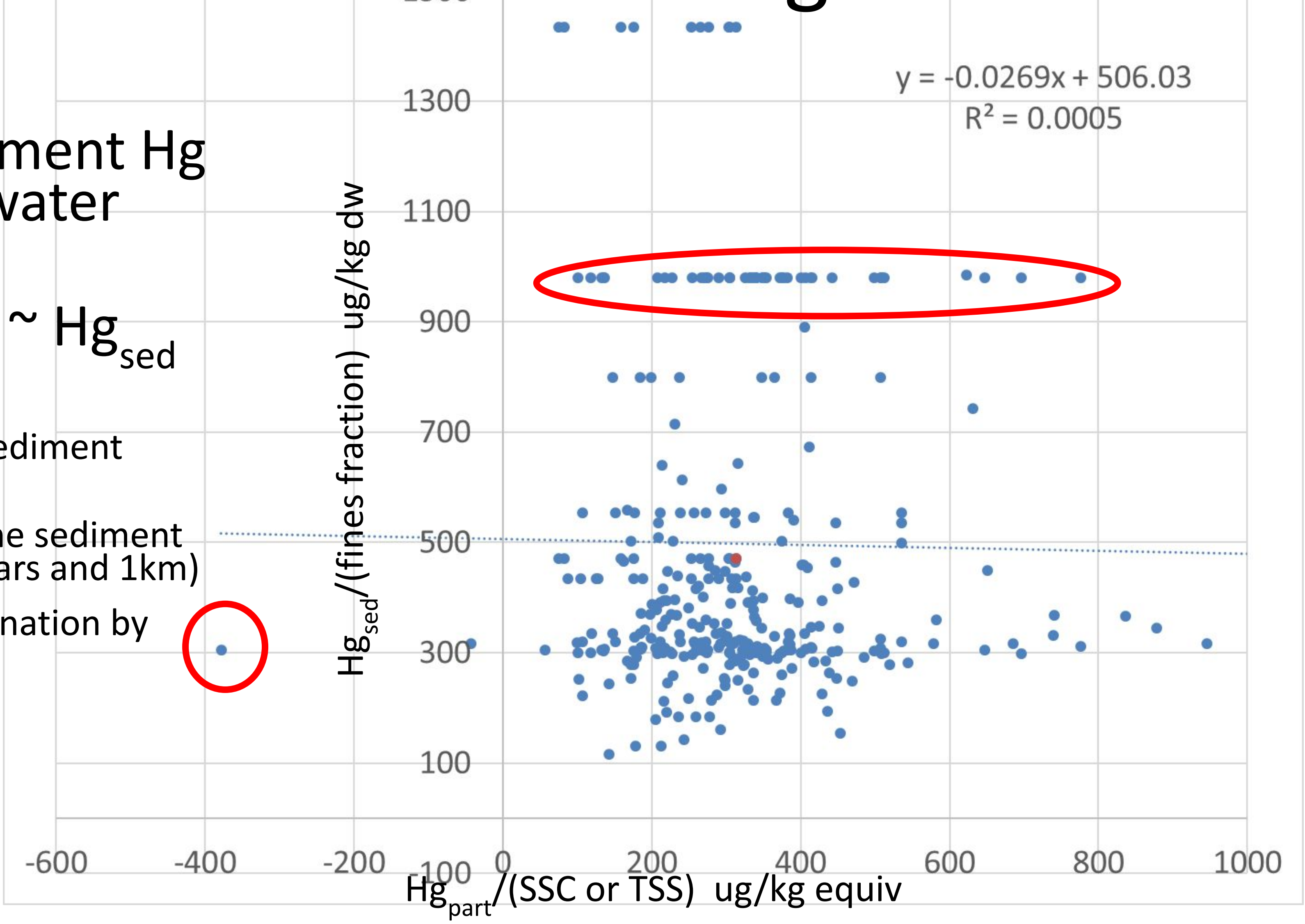
Hypothesis: Bed sediment Hg highly correlated to water particulate Hg

$$(Hg_{tot} - Hg_{diss})/SSC \sim Hg_{sed}$$

Pair water results with nearest sediment sample, fines normalized

Some water samples had only one sediment sample nearby (N=1, within 5 years and 1km)

Analytical RPDs 10-20%, determination by difference very noisy)



Suspended & Bed Sediment Linkage

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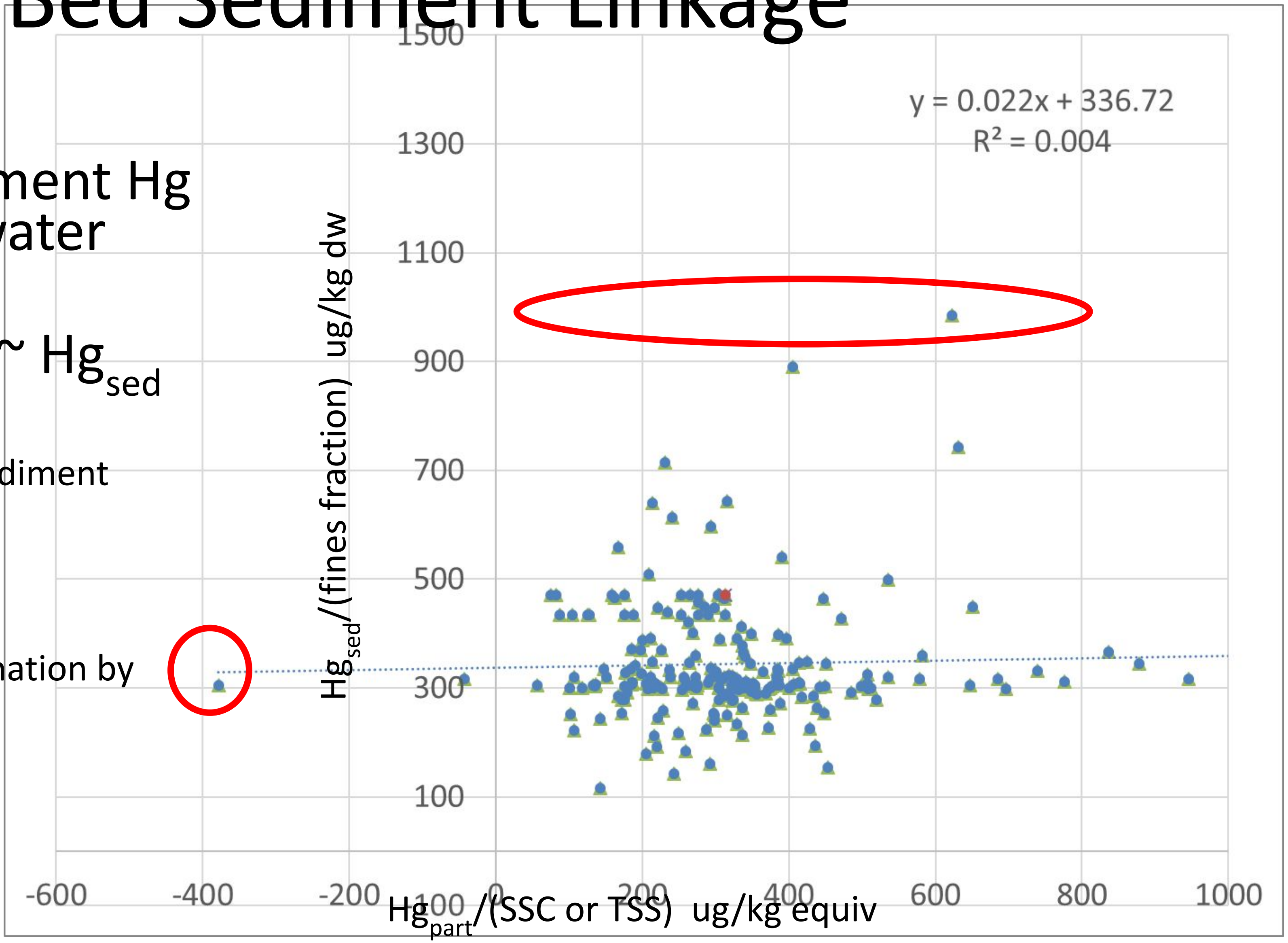
Pair water results with nearest sediment sample, fines normalized

N=1 sets removed

Analytical RPDs 10-20%, determination by difference very noisy)



Suspended & Bed Sediment Linkage

Hypothesis: Bed sediment Hg
highly correlated to water
partic

(Hg

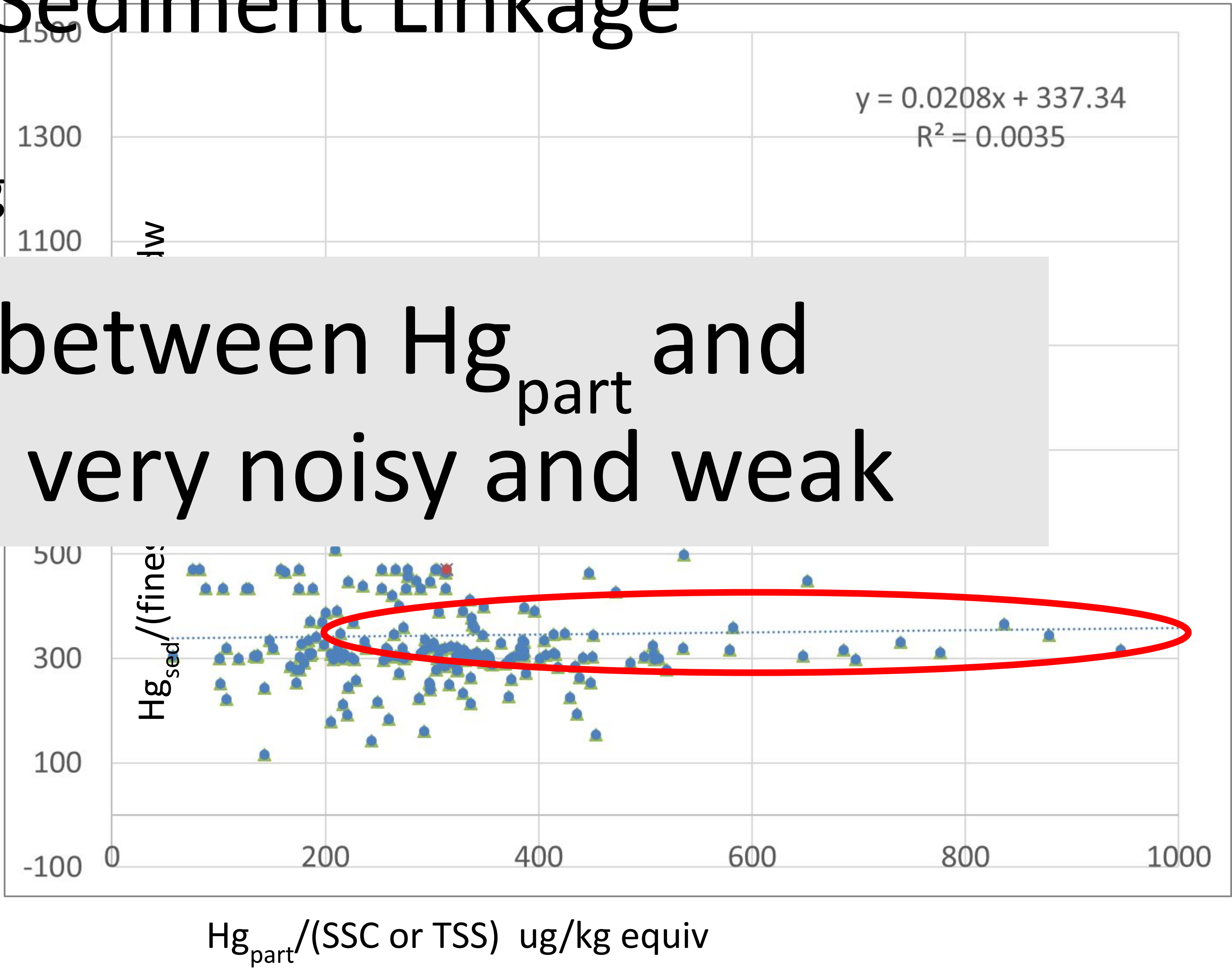
Relationship between Hg_{part} and Hg_{sed} nearby very noisy and weak

Pair wate
sample, fi

N=1 sets removed

<0 sets removed

LSB & BA20 have many Hg/SSC sharing averaged sediment for many water samples



Suspended & Bed Sediment Takeaway

Conceptually, resuspended bed sediment has to be part of water column SSC

- In summer, few other plausible sources

Water particulate Hg not highly correlated with sediment Hg

- Noise of deriving Hg_{part} by difference
- SSC & TSS on a separate subsample
- Measurement uncertainty stacked
- Temporal & spatial separation of water & sediment samples

Bed Erosion Inputs

Historical Hg loads pre 1970s were higher than post CWA

For bed erosion to be a substantial contributor

1. Historical concentrations much higher
2. Depositional through ~1980
3. Erosional going forward
4. Major portion of Bay sediment area/budget

#2&3 somewhat incompatible absent major shifts in sediment supply, hydrodynamic /wave energy

Rare Depositional Locations

- USGS (1990) cores
  - –90+ sites collected
  - –2 reported in detail
- •Polluted max subsurface

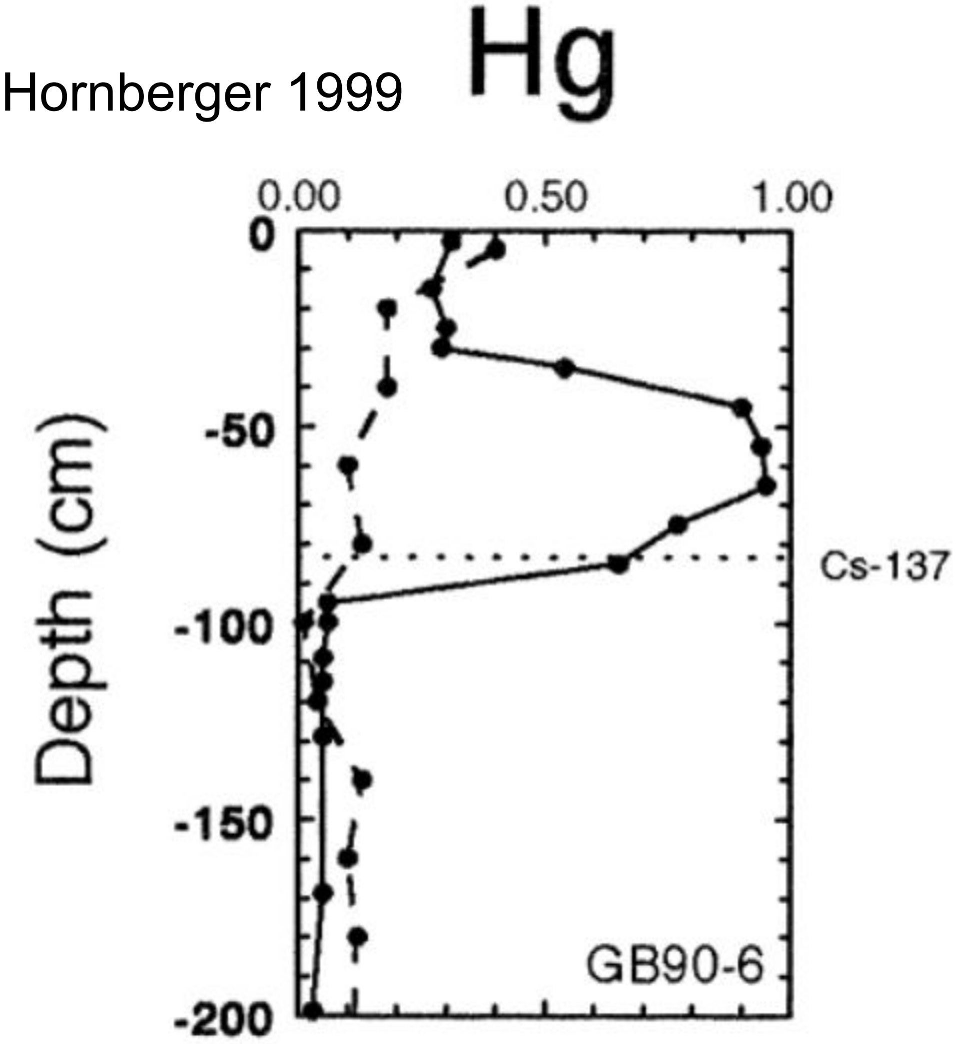
SFEI (2005) cores

Subtidal cores 0 for 11 with subsurface Hg max

Himson et al., 2023, 1 of 19 cores

Subsurface Hg max, but “continuous deposition since 1858 CE, based on bathymetric survey data

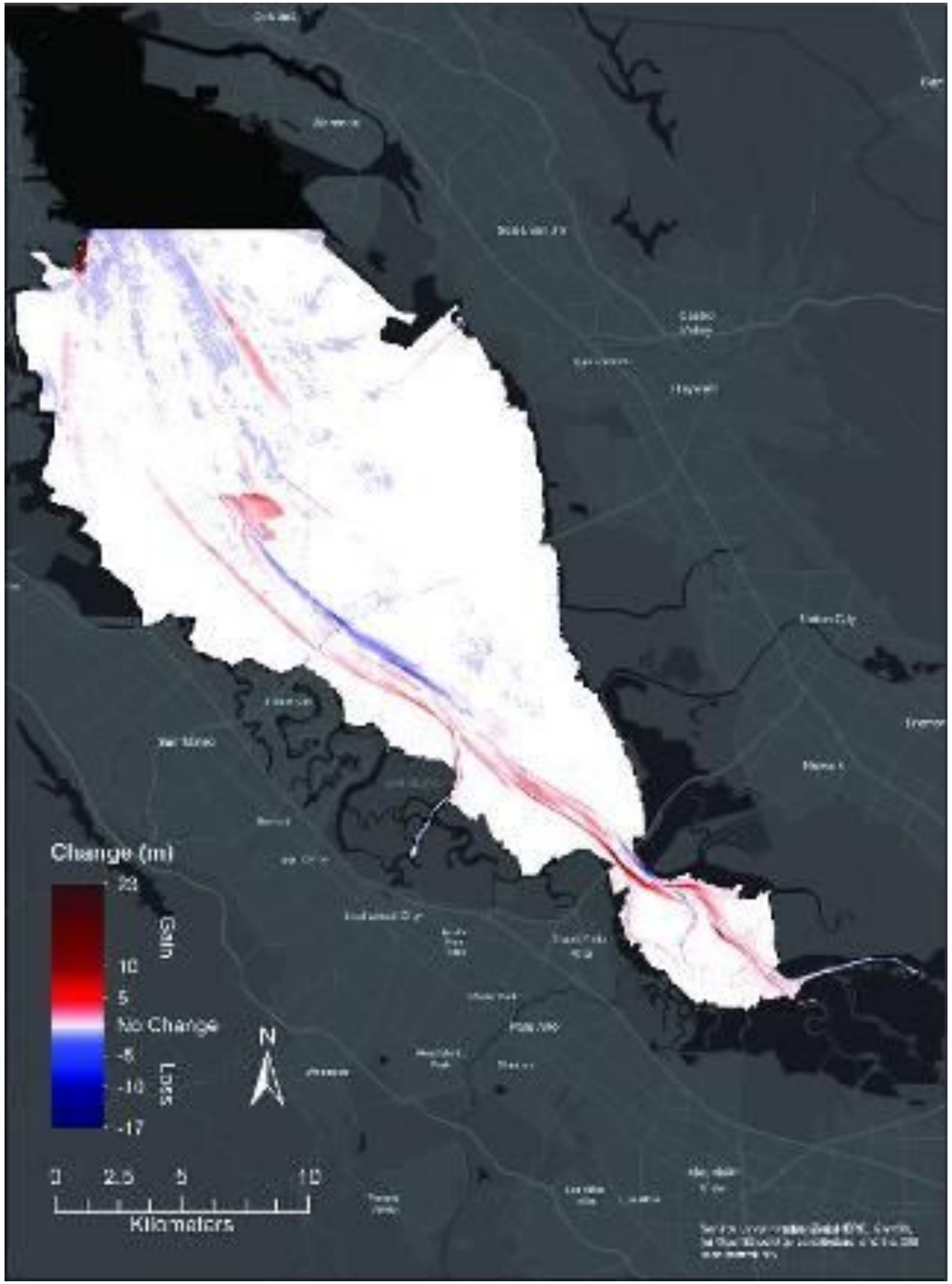
Hornberger 1999



Bed Erosion Inputs

Fregoso, T.A., Jaffe, B.E., and Foxgrover, A.C., 2024, Bathymetric change analysis in San Francisco Bay, California, from 1971 to 2020: U.S. Geological Survey data release, https://doi.org/10.5066/P1332UUW

- Main areas of change near Central Bay, and adjacent to main channels



Bed Erosion Inputs

1956 to 1983

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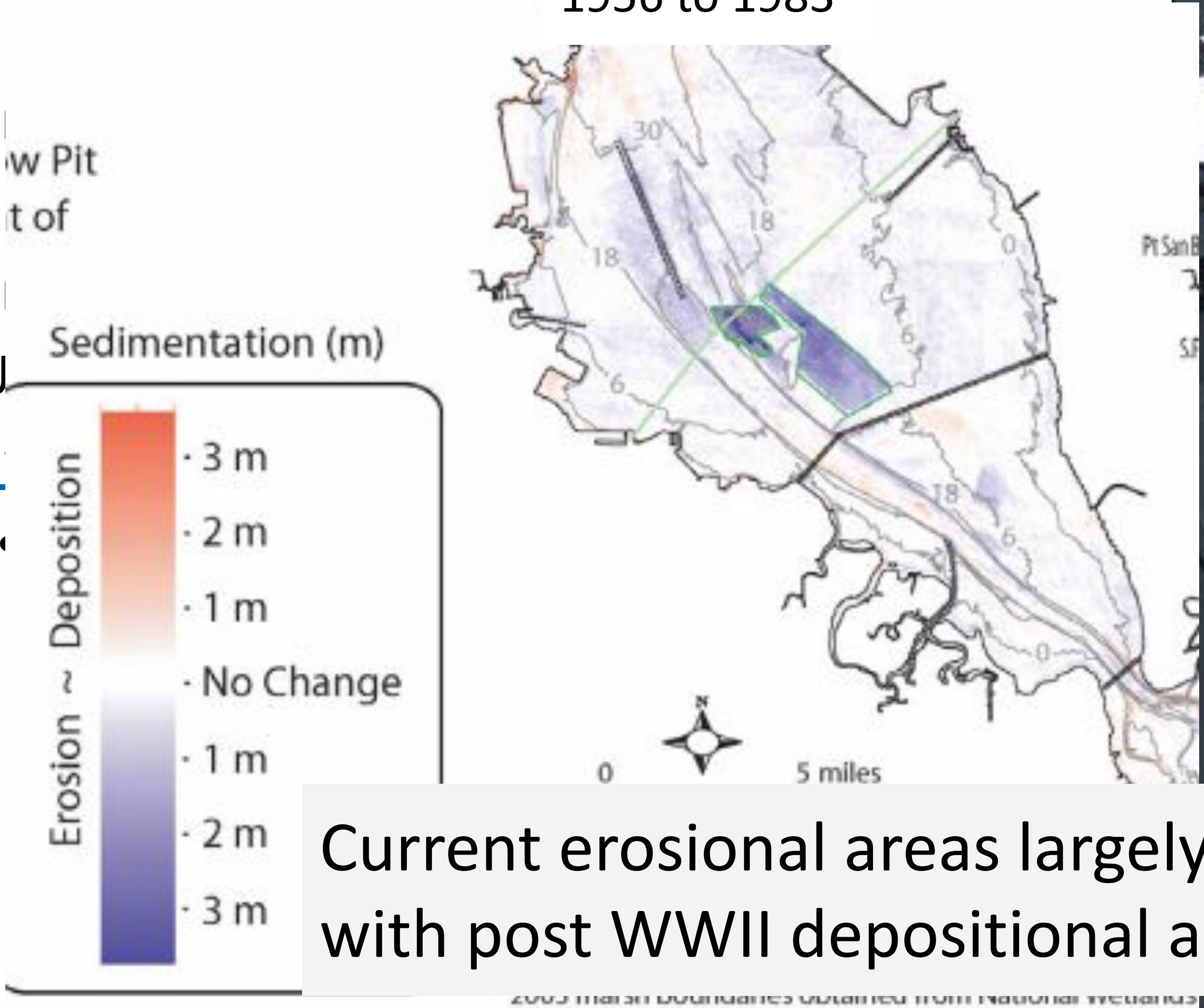
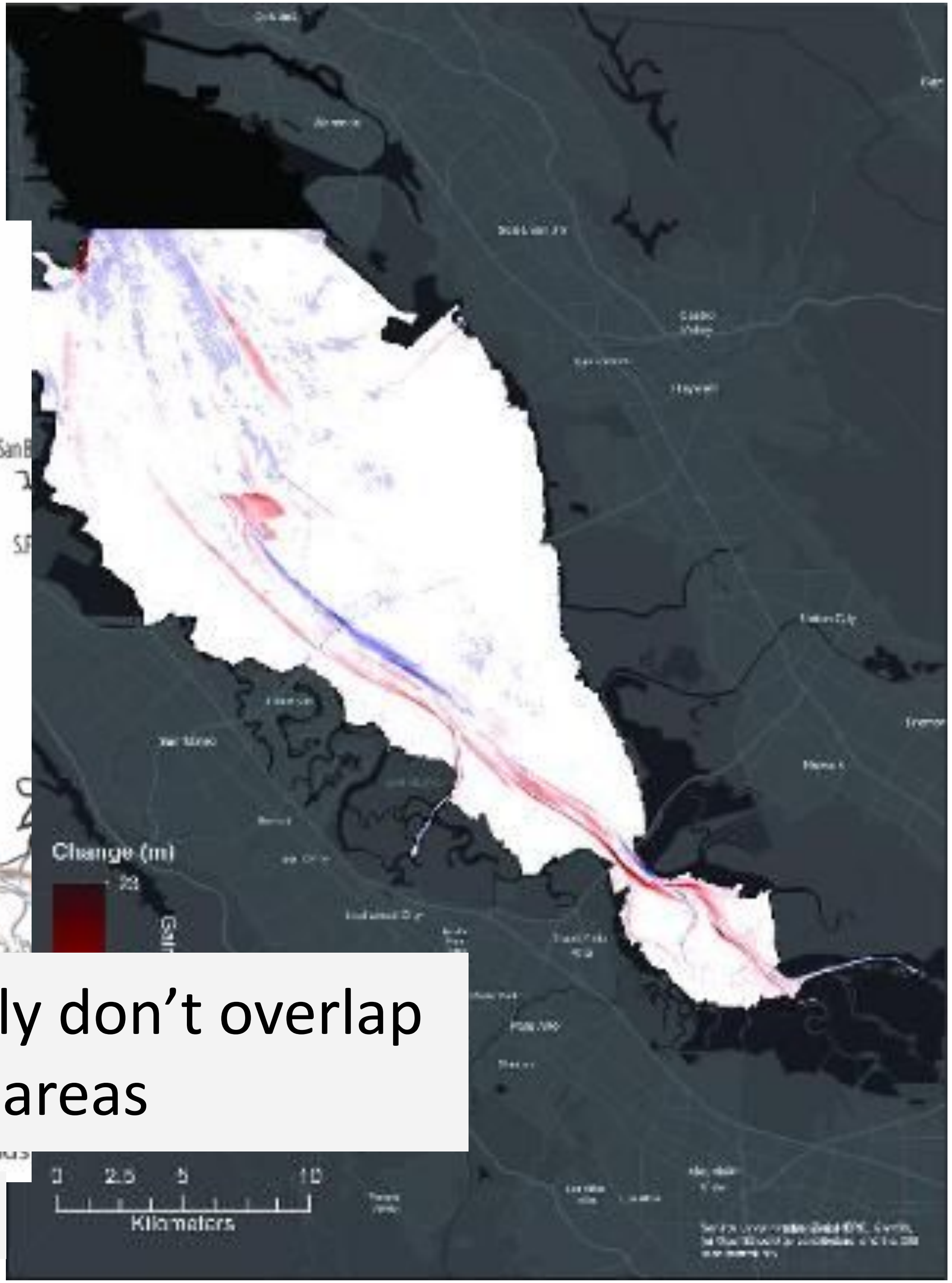




Current erosional areas largely don’t overlap with post WWII depositional areas

https://pubs.usgs.gov/of/2006/1287/of2006-1287.pdf

Bed Erosion Takeaway

A major Hg input from bed erosion is highly unlikely

- Areas depositional during peak Hg period (WWII-1980) limited
- Areas recently erosional also <5% of Bay
- Overlap of the above even smaller
- Peak sediment Hg ~3x current ambient

Some areas might see erosion of historical deposits, but are probably localized and small in scope

Long term budget with flat profile, no change with erosion likely closer to reality on a regional scale

- Decision: Keep prior eroding deposit assumption as (extreme) bounding scenario? Or drop entirely?

Dredging Removal

DMMO 2021 Annual Report

Year	In Bay Disposal	Reuse Upland	Ocean Disposal	Total Dredging
2017	1,219,727	883,475	922,594	3,025,796
2018	1,096,379	763,391	643,308	2,503,078
2019	643,835	1,709,984	246,188	2,600,007
2020	716,535	848,208	1,010,317	2,575,060
2021	1,046,278	420,289	770,964	2,237,531
5yr avg	944,551	925,069	718,674	2,588,294

Dredging Removal

Upland + Reuse + Ocean Disposal

- Average 1.6M cy per year (2017-2021)
- Subtidal dry bulk density ~30 lb/ft3 = 810 lb/cy
- Non-Bay disposal ~1.3e9 lb/year = 5.9e8 kg sediment
- Bay avg mercury ~0.25 mg/kg dw
- 1.47e8 mg of Hg in disposed sediment
- ~ 150 kg/year exported?

Validate with DMMO Hg testing data?

MERCURY LOADS TO THE BAY (kg/year)

PATHWAY	TMDL ALLOCATION	TMDL LOAD ESTIMATE	LATEST LOAD ESTIMATE	COMMENTS
POTWs	20	20	2.9	SFBRWQCB (2012)
Industry			0.4	SFBRWQCB (2012)
Urban Stormwater	82	160	120	McKee et al. (2015)
Central Valley	330	440	190	David et al. (2015)
Atmospheric Deposition	7	27.2	–	New estimate not available
Bed Erosion	220	460	–	New estimate not available
Guadalupe River	2	92	90	McKee et al. (2015)
Non-urban Stormwater	25	25	–	New estimate not available
Sediment Dredging and Disposal	0	Net loss	–	New estimate not available

Item 6
Discussion: Mercury Synthesis Update – Lester's Sections

Lester's Slides

- Guadalupe River Watershed Loading update - 24 hours
- Central Valley Large Rivers Loading update - 24 hours

Guadalupe River Loads

Proposed section outline

- Introduction: Quick history of mining, previous estimates of loads, finishing with the objectives of this section
- Methods: Brief outline of the data and information sources, compilation process, and interpretive techniques
- Results: Tabular and graphical summaries of <u>measured wet season</u> concentrations, particle ratios, and loads during sampled years
- Discussion (Synthesis)
  - What are the annual and average annual loads?
  - What are the rolling 5-year average mercury particle ratios and loads? (note this will be based on <u>monthly</u> time steps)
  - What are the trends - evidence for and against, expected trajectories and their theoretical basis

DRAFT results - measured concentrations

Graph not yet prepared

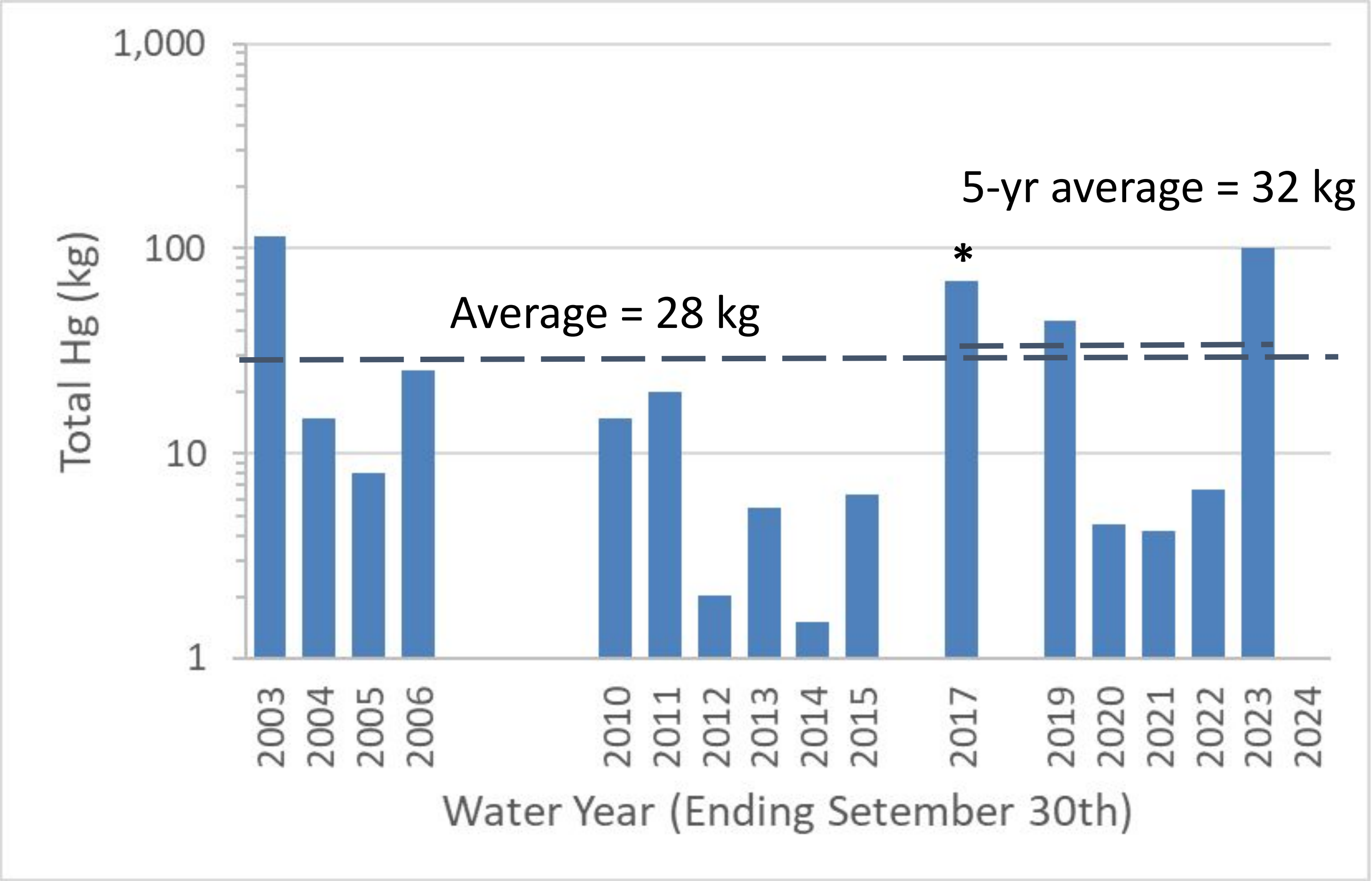
DRAFT results - measured particle ratios

Graph not yet prepared

DRAFT results - measured wet season loads

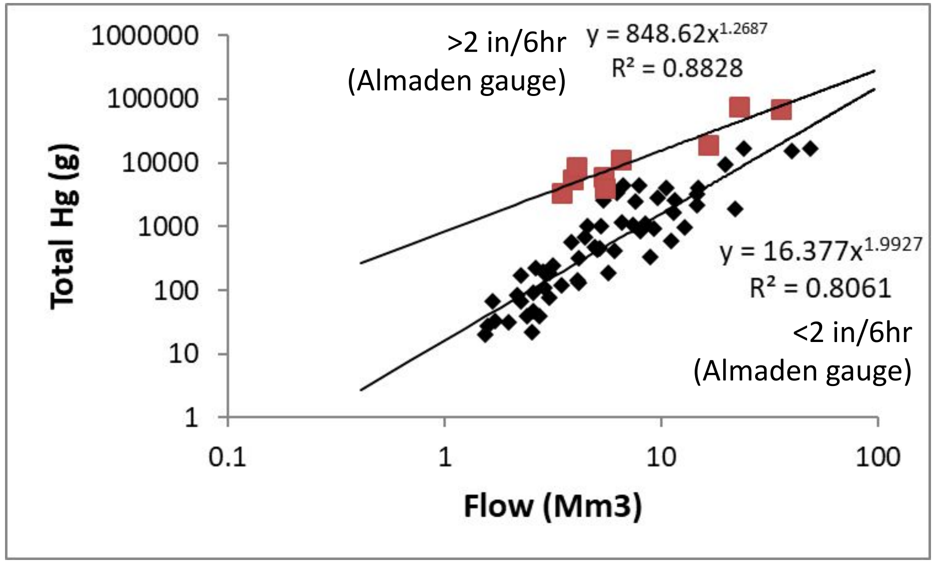
***Single storm**

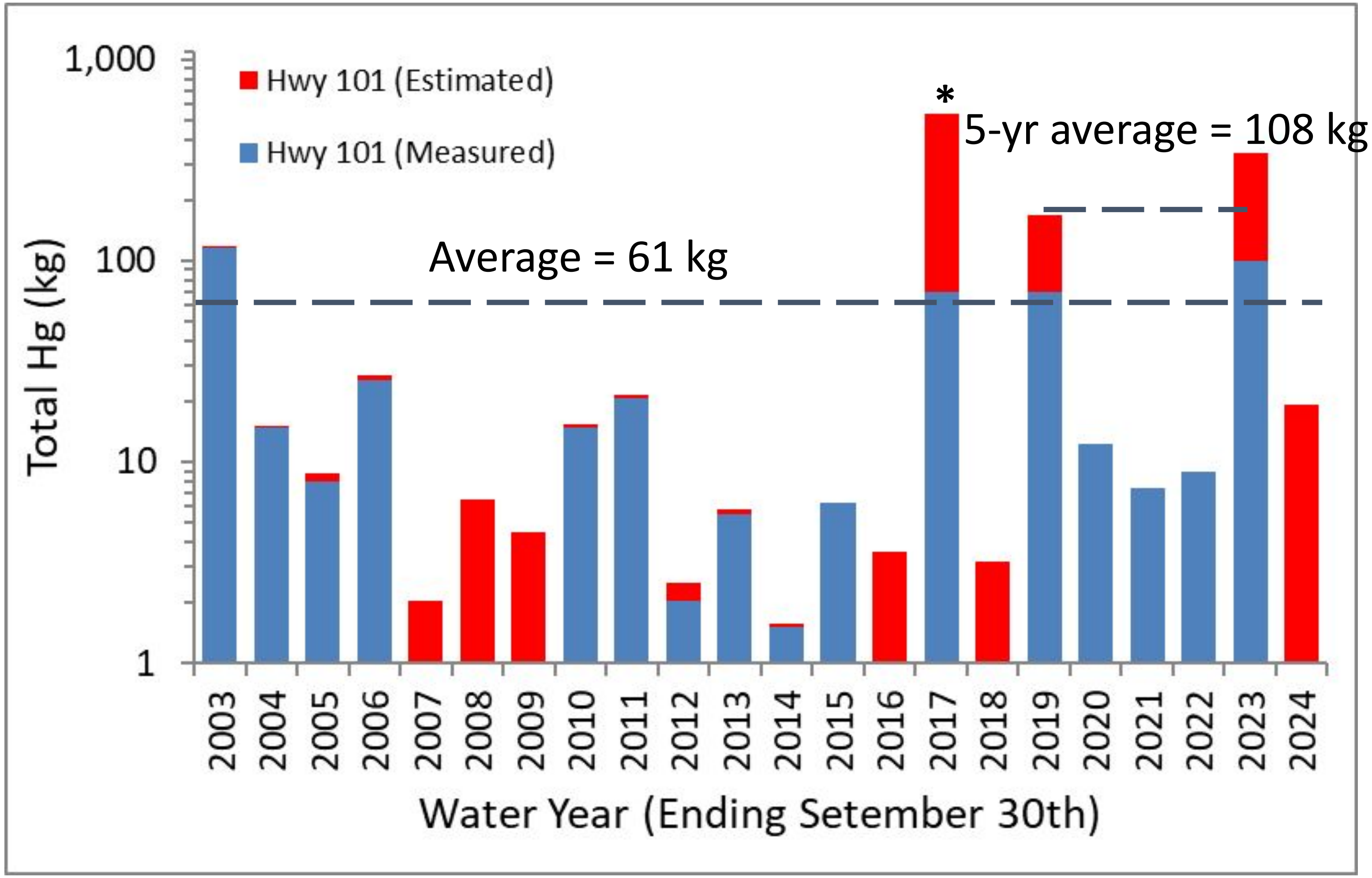
Water Year	HgT (kg)	Information Source
2003	116	McKee et al. (2017a)
2004	14.8	McKee et al. (2017a)
2005	8.02	McKee et al. (2017a)
2006	25.6	McKee et al. (2017a)
2010	14.8	McKee et al. (2017a)
2011	20	Balance Hydrologics (2011)
2012	2.04	McKee et al. (2017a)
2013	5.48	McKee et al. (2017a)
2014	1.52	McKee et al. (2017a)
2015	6.3	AECOM (2015)
2017	70	McKee et al., 2017b)
2019	69.3	TetraTech (2024) Table 3-17.
2020	12.18	TetraTech (2024) Table 3-17.
2021	7.36	TetraTech (2024) Table 3-17.
2022	9	TetraTech (2024) Table 3-17.
2023	100.5	TetraTech (2024) Table 3-17.



What are the estimated annual loads?

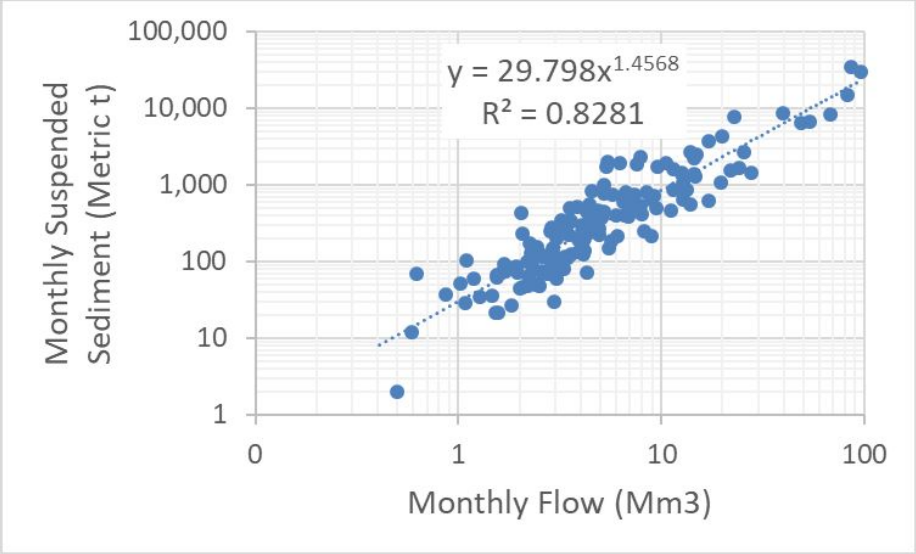
(Established flow-based method) (McKee et al., 2004, 2005, 2010, 2017)

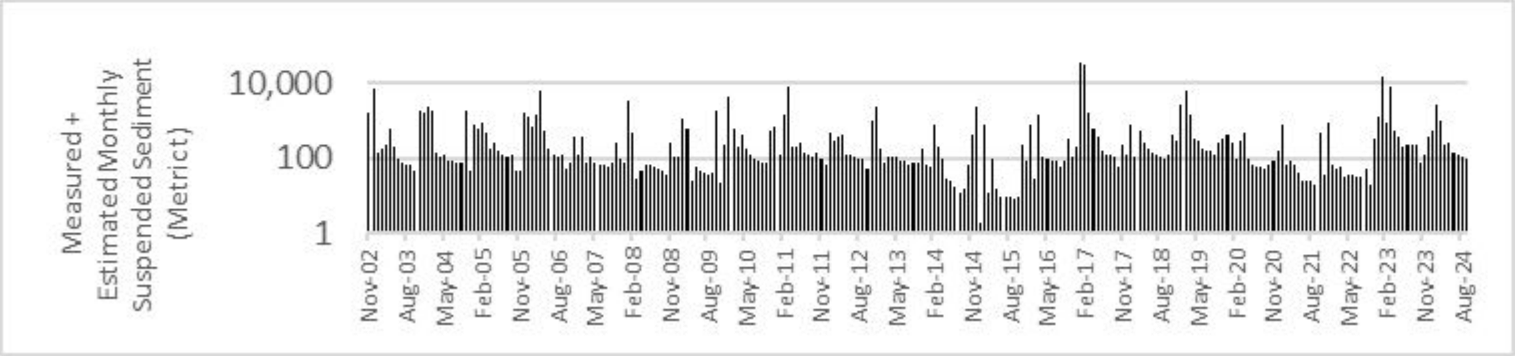


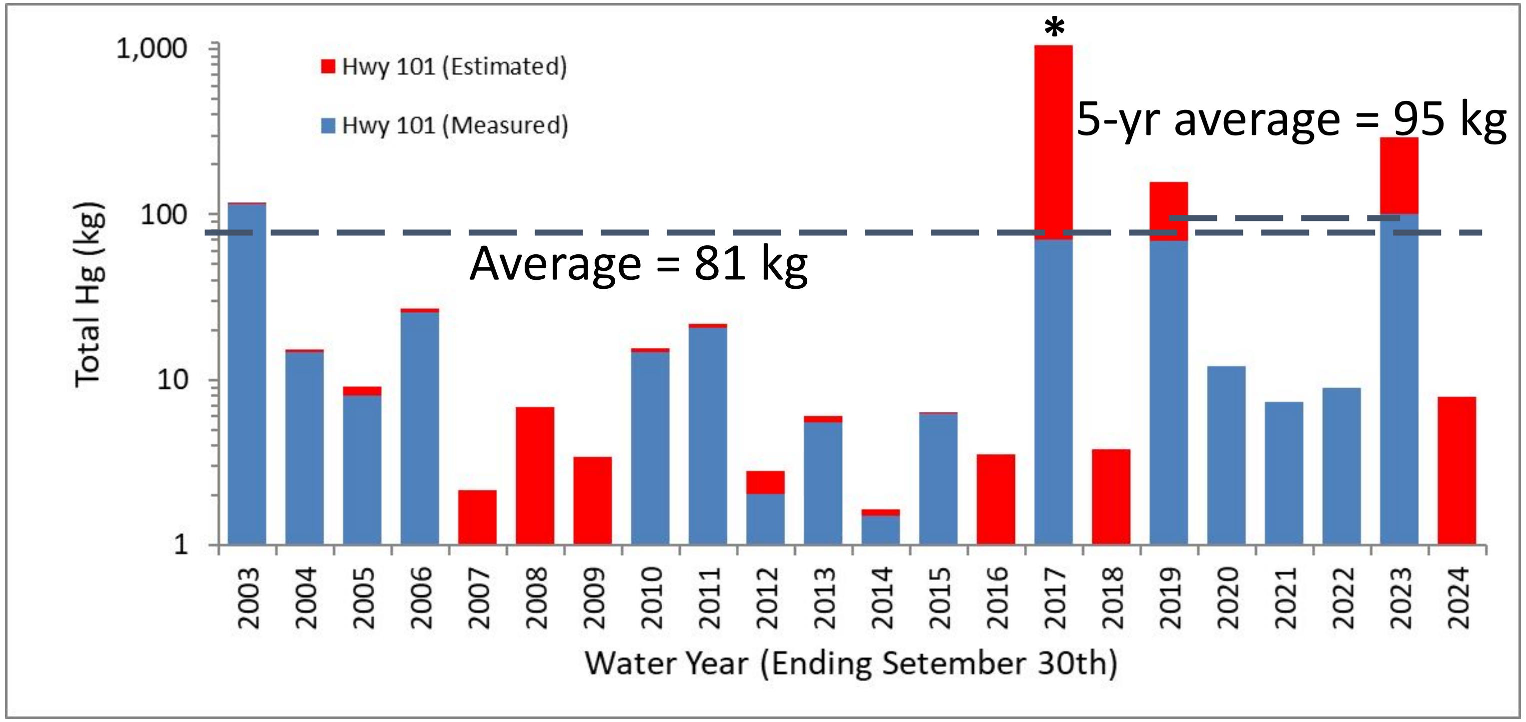


* Note this is ~ half of that published in the 2019 Pulse (1,072 kg). That is the nature of following a method that evolves as data evolves. It probably indicates that the method is not perfect. I suspect if I were to compute the loads in a variety of ways it would show a variety of results. The problem lies with the small data set - a few points can have a large influence on the evolving regression equations.

What are the estimated annual loads?
(New alternative sediment-based method)







So now the question becomes what particle ratios to use?

Option 1: Use only measured data (Still being compiled)
Option 2. Derive as Hg loads/sediment loads for all measured months/storms.

Graph on the left shows results for Option 2.
* This (1,061 kg) compared closely to what we published in 2019 Pulse (1,072 kg)

Gerardo's and Richard’s questions

“[What is] the intra and inter-annual variability of the mercury particle concentrations ~~should be~~ [and is it] less than the variability of mercury loads?”

Method	Unit	WY 2003:2024				WY 2019:2023			
		Mean	Minimum	Maximim	Variation	Mean	Minimum	Maximim	Variation
Water	(kg)	61	1.6	539	344	108	7.4	343	47
Sediment	(kg)	81	1.7	1,061	641	95	7.4	291	40
Water	(mg/kg)	3.8	0.97	13	13	8.1	4.9	13	2.7
Sediment	(mg/kg)	3.9	1.0	15	15	7.6	4.9	12	2.5
Measured data	(ng/L)	Still compiling all the data from the technical reports (Balance Hydrologics, 2011; AECOM, 2015; TetraTech, 2019;2024)							
Measured data	(mg/kg)								

“How [would] estimated variability (across storms or water years) ~~would~~ influence the design of the monitoring program?”

- Program design remains the same: Measure Hg during storms when rainfall in Historic Mining District exceeds 2 inches/6 hours after at least 7 inches of rainfall-year-to-date. Once this trigger has been met, measure remaining larger storms for the season.
- The interpretive method “[to show that current Hg particle concentrations are at or below the suspended sediment target]” may need discussion and agreement.

What are the estimated rolling 5-year particle ratios?

- **cxcxc**

Graph not yet prepared

What are the estimated rolling 5-year loads?

- **cxcxc**

Graph not yet prepared

What are the trends?

- **cxcxc**

Materials not yet prepared

Questions?

- **Which of these data summaries not needed?**
- **Are there any additional data summaries you would like to see?**
- **Are you comfortable basing the 5-year rolling averages on estimates of continuous data or does it need to be based on measured observation only?**

Central Valley Large River Loads

Proposed section outline

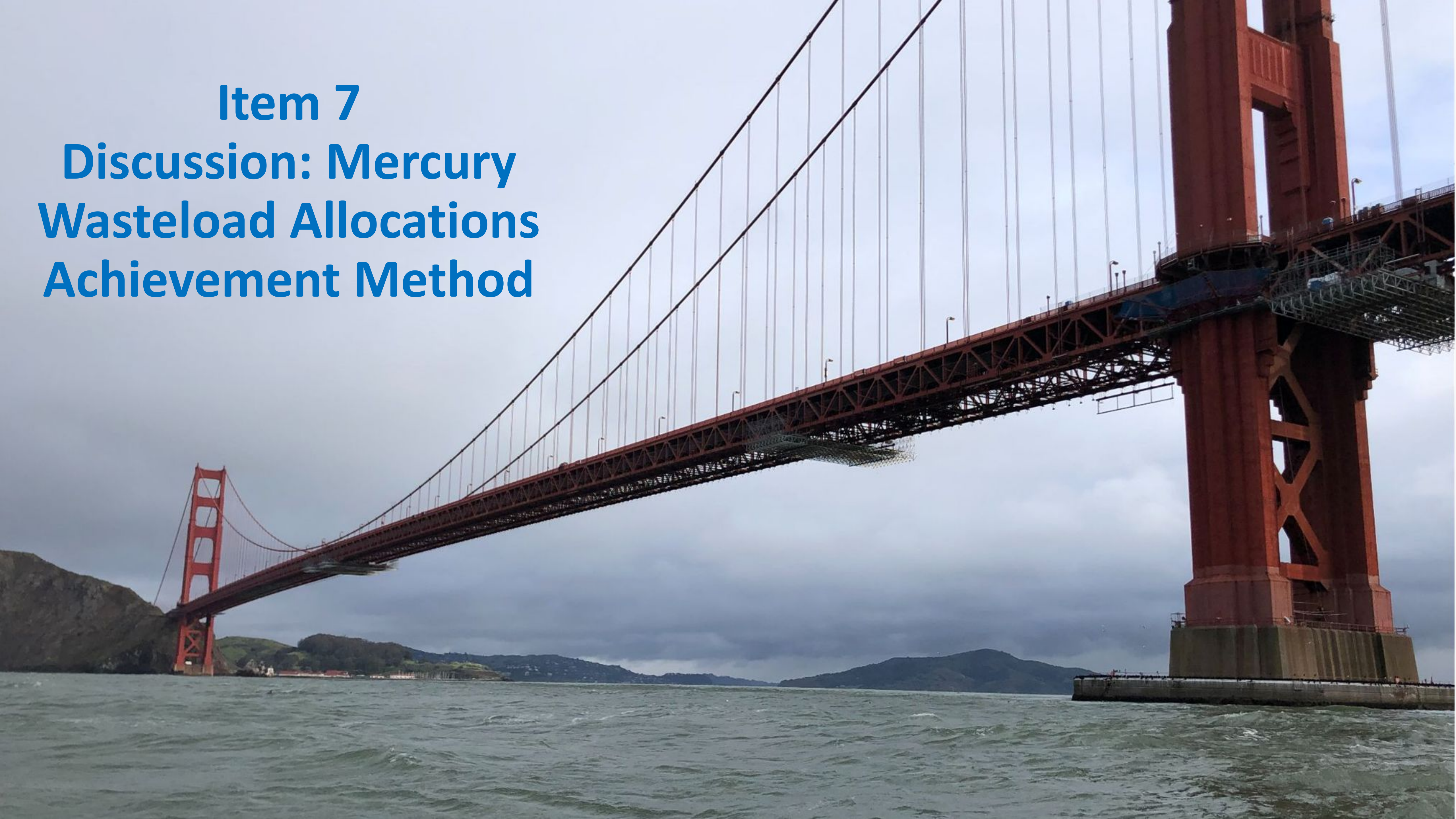
- Introduction: Brief history of use of Hg in gold extraction, previous estimates of loads, finishing with the objectives of this section
- Methods: Brief outline of the data and information sources, compilation process, and interpretive techniques
- Results: Tabular and graphical summaries of measured wet season concentrations, particle ratios, and loads during sampled years
- Discussion (Synthesis)
  - What are the annual and average annual loads?
  - What are the rolling 5-year average mercury particle ratios and loads? (note this will be based on daily time steps)
  - What are the trends - evidence for and against, expected trajectories and their theoretical basis

Central Valley Large River Loads

Methods

1. fdfd
2. fdfd
3.

Item 7
Discussion: Mercury Wasteload Allocations Achievement Method



Item 8
Next Steps

Next Steps

- Update the budget and if necessary ask for more funds
- Complete the draft modeling work
  - Watershed
  - In-Bay
- Complete the draft synthesis work
- Meet again when we have completed drafts to share