RMP Technical Review Committee Meeting

September 19, 2023
1. Introductions and Review Agenda (10 minutes)
# Technical Review Committee

September 19, 2023  
9:00 AM – 12:20 PM

**HYBRID MEETING**  
In Person  
SFEI 1st Floor Conference Room

Remote Access  
https://us06web.zoom.us/j/88380356016  
Meeting ID: 883 8035 6016

Dial by your location  
+1 669 900 6833 US (San Jose)  
+1 253 215 8782 US (Tacoma)

## AGENDA

<table>
<thead>
<tr>
<th>1.</th>
<th>Introductions and Review Agenda</th>
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<tr>
<td>9:00 (10 min)</td>
<td>Bridgette DeShields</td>
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<tr>
<th>2.</th>
<th>Decision: Approve Meeting Summary from June 20, 2023, and Confirm/Set Dates for Future Meetings</th>
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<td>9:10 (10 min)</td>
<td>Bridgette DeShields</td>
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### Materials:
- TRC Meeting Summary, see pages 5-17

### Desired outcomes:
- Approve meeting summary

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<th>3.</th>
<th>Information: SC Meeting Summary from August 24, 2023</th>
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<td>9:20 (15 min)</td>
<td>Amy Kleckner</td>
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Topics discussed at the August SC meeting included:
- Approved special studies for 2024 and updated SEP list
- Multi-Year Planning Workshop agenda
- Update on WQIF Proposal PFAS Sources to Solutions and approved use of RMP funds as match.
- Annual Meeting and RMP Update planning

### Materials: SC Meeting Summary, see pages 18-39

### Desired outcome:
- Informed Committee

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<th>4.</th>
<th>Discussion: Workgroup Strategy Updates and Multi-Year Plan Workshop Planning</th>
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<td>9:35 (20 min)</td>
<td>Jay Davis</td>
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An update on Workgroup efforts to update their strategies will be provided. Discuss priorities for the MYP Workshop.

### Materials: Slides presented at meeting

### Desired outcomes:
- Informed Committee
- Priority agenda items for MYP Workshop

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<th>5.</th>
<th>Information: S&amp;T Monitoring Update</th>
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<td>Amy Kleckner</td>
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Update on implementation of the new S&T design: monitoring and interlab comparison activities. Preview of 2024.

### Materials: Slides presented at meeting

### Desired outcomes:
- Informed Committee
- Input on S&T implementation
|   | Discussion: Communications Update | 10:15  
|   | Discuss review of the RMP Update and Annual Meeting plans. | (30 min)  
|   | Materials: None | Jay Davis  
|   | Desired outcomes: |  
|   | ● Informed Committee |   
| 7. | Information: Status of Deliverables and Action Items | 10:45  
|   | Materials: Deliverables and Action Item tables, pages 32-42 | (5 min)  
|   | Desired outcome: | Amy Kleckner  
|   | ● Informed committee |   
| 8. | Discussion: Plan Agenda Items for Future Meetings | 10:50  
|   | Desired outcome: | Jay Davis  
|   | ● Identify future agenda items |   
|   | Break | 10:55  
|   | | (20 min)  
|   | RMP staff will present their slides for Annual Meeting presentations on PFAS and S&T CECs. | (60 min)  
|   | Materials: None | Diana Lin, Ezra Miller  
|   | Desired outcome: |  
|   | ● Feedback on presentations |   
| 10. | Discussion: Plus/Delta | 12:15  
|   | | (5 min)  
|   | | Bridgette DeShields  
|   | Adjourn | 12:20 |
2. Decision: Approve Meeting Summary, Set Future Meeting Dates (15 minutes)

- Approve June meeting summary
- Set dates for future TRC Meetings
Meeting Schedule

Steering Committee meetings
● MYP Workshop/SC meeting: November 1, 2023
● January 22, 2024 (proposed)

Technical Review Committee Committee meetings
● December 7, 2023
● March 2024 - TBD

RMP Annual Meeting 2023
● October 12
3. Information: SC Meeting Summary (10 minutes)
  ● Informed committee
Steering Committee Summary

- Approved special studies for 2024 and updated SEP list
- Multi-Year Planning Workshop agenda
- Update on WQIF Proposal PFAS Sources to Solutions and approved use of RMP funds as match
- Annual Meeting and RMP Update planning
4. Discussion: Workgroup Strategy Updates and Multi-Year Plan Workshop Planning (20 minutes)

- Informed Committee
- Priority agenda items for MYP Workshop
Workgroup Strategy Development Updates August 2023
SPLWG

- Strategy meetings: First meeting held in April, **next meeting will be held at end of Sept**
- Pre-meetings: to be done in mid-Sept
- Status of Management Questions Update: Revised MQs agreed upon at SPLWG
- **Status of Strategy Update:** Outline sent to core group in August, will be written in Sept
- **Status of MYP Update:** Will be done concurrently with Strategy Update in Sept
- Current projects with overlap: CEC stormwater groundwork (ECWG), IWBMS (PCBWG, ECWG, SedWG, MPWG)
- Planned future projects with overlap: CECs in stormwater M&M, WDM application, MPs monitoring in stormwater
SPLWG MQs (Current)

Q1. What are the loads or concentrations of Pollutants of Concern (POCs) from small tributaries to the Bay?
Q2. Which are the “high-leverage” small tributaries that contribute or potentially contribute most to Bay impairment by POCs?
Q3. How are loads or concentrations of POCs from small tributaries changing on a decadal scale?
   Q3.1 What are the trends in source control, use patterns, or mass removal in tributary watersheds?
   Q3.2 What are the trends in concentration or loads at small tributary locations? - Individual watersheds -
   Q3.3 What are the current and projected trends in concentration or loads in relation to specific management actions?
Q4. Which sources or watershed source areas provide the greatest opportunities for reductions of POCs in urban stormwater runoff?
Q5. What are the measured and projected impacts of management action(s) on loads or concentrations of POCs from small tributaries, and what management action(s) should be implemented in the region to have the greatest impact?
1. What are the sources, pathways, and loadings of pollutants and sediment to the Bay?
2. Which are the priority sources and pathways of pollutants that adversely impact or potentially adversely impact the Bay’s environmental quality?
3. Are levels of individual pollutants or pollutant classes changing over time in the sources, pathways and loadings? What factors or management interventions have contributed to the change?
4. What are the effective management actions that can be implemented in the region to address pollutant pathways and sources, and where should they be implemented to have the greatest benefit?

*These are the draft revised Management Questions based on the May 23rd, 2023 Sources, Pathways and Loadings Workgroup Meeting. Note: “Pollutants” includes sediment, microplastics, and CECs.
SedWG

- Status of Management Questions Update: MQs 3-5 have been expanded based on WG input, MQs 1-2 will be revisited in late 2023/early 2024
- Status of Workplan Development: Will be completed in Sept 2023 (currently in the process of addressing WG comments)
- Status of MYP Update: Will be done in October 2023 based on the Workplan
- Current projects with overlap: In-Bay model (PCBWG), IWBMS (SPLWG)
- Planned future projects with overlap: In-Bay model (PCBWG), WDM applications (SPLWG)
SedWG MQs

1. What are acceptable levels of chemicals in sediment for placement in the Bay, baylands, or restoration projects?

2. Are there effects on fish, benthic species, and submerged habitats from dredging or placement of sediment?

3. What are the sources, sinks, pathways and loadings of sediment and sediment-bound contaminants to and within the Bay and subembayments?

4. How much sediment is passively reaching tidal marshes and restoration projects and how could the amounts be increased by management actions?

5. What are the concentrations of suspended sediment in the Estuary and its segments?
### SedWG MQs

3. What are the sources, sinks, pathways and loadings of sediment and sediment-bound contaminants to and within the Bay and subembayments?

<table>
<thead>
<tr>
<th>Modeling/monitoring questions</th>
<th>Rank</th>
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<tbody>
<tr>
<td>#3.1 How will watershed sediment load to the Bay change in relation to changing climate, vegetation cover, and land use?</td>
<td>High</td>
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<tr>
<td>#3.2 What is the flux of sediment through the Golden Gate and other Bay cross-sections and how will this change with estuarine dynamics linked to climate change, changing watershed supply, dredge material fate, sand mining, sea level rise, and wetland restoration?</td>
<td>High</td>
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<td>#3.3 What are the main sediment transport processes and pathways within subembayments, including from deep Bay channels to marsh edges?</td>
<td>High</td>
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<tr>
<td>#3.4 Are marsh edges and shorelines undergoing net erosion or net accretion in relation to wave energy (wind direction and fetch), mudflat morphology, or other factors and how will erosional dynamics change with changing supply and sea level?</td>
<td>Med</td>
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<tr>
<td>#3.5 What is the current sediment budget and how is the sediment budget changing for each subembayment with climate, land use and sediment management?</td>
<td>Med</td>
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<tr>
<td>#3.6 What are the sources and pathways of coarse sediment to beaches around the Bay, and is there adequate supply under changing conditions?</td>
<td>Low</td>
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SedWG MQs

4. How much sediment is passively reaching tidal marshes and restoration projects and how could the amounts be increased by management actions?

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<th>Modeling/monitoring questions</th>
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<tr>
<td>#4.1 What are the best tools to evaluate restoration goals and inform restoration investments?</td>
<td>High</td>
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<tr>
<td>#4.2 What actions can we undertake to increase deposition rates in restoration sites, and how are these influenced by the main variables that determine sediment deposition rates (SSC, elevation, inundation, wind waves, and others)?</td>
<td>High</td>
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<td>#4.3 Is large-scale marsh restoration likely to erode mudflats? What are the potential trade-offs between marshes and mudflats and are any trade-offs consistent around Bay and how will it change through time?</td>
<td>Low</td>
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<tr>
<td>#4.4 What are the accretion/erosion rates and fluxes between individual marshes, mudflats, and shallow subtidal shoals (locally and regionally) in relation to wave exposure, local sediment supply and other factors, and how is it expected to change with deeper water and other factors associated with sea level rise?</td>
<td>High</td>
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<tr>
<td>#4.5 How can we design an integrated monitoring program to inform future restoration designs (i.e., water levels, accretion rates, sediment supply) of both natural and restored marshes?</td>
<td>Med</td>
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### SedWG MQs (as of 4/1/23)

5. **What are the concentrations of suspended sediment in the Estuary and its segments?**

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<th>Modeling/monitoring questions</th>
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<tbody>
<tr>
<td>#5.1 What are the predicted trends for suspended sediment concentrations, and how does it vary spatially and temporally around the Bay?</td>
<td>High</td>
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<tr>
<td>#5.2 How does bed erodibility vary around the Bay in relation to physical factors such as texture, tides, and waves, and biotic factors such as phytobenthos and bioturbation?</td>
<td>Med</td>
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<tr>
<td>#5.3 How do flocculation processes and floc sizes vary throughout the Bay in relation to SSC, water column depth, tides, wind, and other drivers, and how do these influence settling velocity?</td>
<td>Med</td>
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<tr>
<td>#5.4 What are the concentrations and fluxes of suspended sediment in nearshore areas over tidal cycles, spring and neap tides, and seasonally?</td>
<td>High</td>
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PCBWG

- Strategy and MQs are updated
- WG meeting date(s): will meet in December for a modeling update and update from the WB on the plan for the TMDL
- Current projects with overlap: In-Bay model (ECWG, SedWG, Nutrients), IWBMS (SPLWG)
- Planned future projects with overlap: In-Bay model (ECWG, SedWG, Nutrients)
MPWG

- Strategy discussions: April MPWG meeting, July subgroup meeting
- Related efforts: OPC-funded state macro- and microplastics strategy; dryer microfiber study
- Status of Management Questions: Revised MQs drafted in April
- **Status of Strategy Revision: Outline reviewed in July, draft expected in fall, final document in February**
- Current projects with overlap: Stormwater monitoring (SPLWG, ECWG)
- Planned future projects with overlap: Stormwater monitoring (SPLWG, ECWG)
MPWG Management Questions

1. What are concentrations of microplastics in the Bay?
2. What are the health risks?
3. What are the sources, pathways, loadings, and processes leading to microplastic pollution in the Bay?
4. Have the concentrations of microplastics in the Bay increased or decreased?
5. What management actions could be effective in reducing microplastic pollution?
MPWG Management Questions

1. What are levels of microplastics in the Bay? What are the risks of adverse impacts?
2. What are the sources, pathways, processes, and relative loadings leading to levels of microplastics in the Bay?
3. Are microplastic concentrations changing over time? What are potential drivers contributing to changes?
4. What are the anticipated effects of management actions?
ECWG

- Strategy discussions: 2 ECWG meetings, 2 subgroup meetings (2022-23)
- Status of Management Questions: Revised MQs drafted; further refinement is possible based on ECWG feedback
- **Status of Strategy Revision:** 2 chapters reviewed in April, draft expected in fall, final document in February
- Current projects with overlap: Stormwater monitoring (SPLWG, ECWG)
- Planned future projects with overlap: Stormwater monitoring & modeling (SPLWG, ECWG, MPWG), in-Bay modeling (PCBWG)
ECWG Management Questions

1. Which CECs have the potential to adversely impact beneficial uses in San Francisco Bay?
2. What are the sources, pathways and loadings leading to the presence of individual CECs or groups of CECs in the Bay?
3. What are the physical, chemical, and biological processes that may affect the transport and fate of individual CECs or groups of CECs in the Bay?
4. Original, 2017: Have the concentrations of individual CECs or groups of CECs increased or decreased in the Bay?
   a. Possible revision, 2023: Have levels of individual CECs or groups of CECs changed over time in the Bay or pathways? What are potential drivers contributing to change?
5. Are the concentrations of individual CECs or groups of CECs predicted to increase or decrease in the future?
6. What are the effects of management actions?
Multi-Year Planning Workshop

- November 1
- Small group of TRC and Steering Committee members to complete the Multi-year Workshop Agenda: Chris Sommers, Adam Olivieri, and Luisa Valiela
- Tom Mumley, his team, and Luisa Valiela with the EPA will work together to create a working draft of updated regulatory drivers
- Recognize new participants (Karin)
- WQIF – update and strategizing
5. Discussion: S&T Monitoring Update (20 minutes)

- Informed Committee
- Input on S&T implementation
## Timing of activities

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Toxic Contaminants in Water – Wet Season

- 4 targeted near-field and 4 deep Bay stations
- Sampled three storms this year (WY2023)
- Near-field: 11/9/2022, 12/28/2022, 2/25/2023
- Deep Bay: 11/15/2022, 1/23/2023, 3/1/2023
- CECs – PFAS, bisphenols, OPEs
- **Dry season comparison samples to be collected the same week as the water cruise.**
Toxic Contaminants in Water – Dry Season

- 22 stations distributed across the five Bay segments
  - 6 fixed: 1 in each of the 5 subembayments and an additional 1 in the LSB.
  - 16 random: selected using the GRTS framework.
- PFAS, bisphenols, OPEs, Cu, CN, Ancillary
- August 28 - September 1 - DELAYED
- TomCat (MARE) - engine repairs in progress
Toxic Contaminants in Sediment – Dry Season

Near-field Bay Sediment
- 12 targeted stations to overlap with wet season water sampling.
- August 2023
- PFAS, bisphenols, TOC, N % solids, grain size
- Sample collection by Marco Sigala (SJSURF) - complete!

Margins Bay Sediment (btw MHHW and -1ft below MLLW)
- 24 stations (9 CB, 9 SB, 6 LSB?)
- August 2023
- PFAS, bisphenols, TOC, N % solids, grain size
- Sample collection by Marco Sigala (SJSURF) - complete!

Deep Bay Sediment
- 16 stations, 4 targeted “historic” stations (1 each from CB/SB/LSB + 1 Pinole Point) and 12 random stations (4 CB, 4 SB, 4 LSB).
- PFAS, bisphenols, TOC, N % solids, grain size
- PBDEs (to be discontinued after this year)
- SFEI/AMS on Questuary (CSUM) July 24 - 28 - complete!
★ 229 containers of sediment collected over 4 days.
Toxic Contaminants in Prey Fish – Dry Season

- 12 stations
- PFAS, ancillary tissue parameters
- Archiving for potential analysis of bisphenols, OPEs, other CECs
- Topsmelt, Mississippi silverside, staghorn sculpin
- Sample collection by Marco Sigala (SJSURF) - Completed on 9/14!

★ Fishing has been good. XX Topsmelt composites and xx sculpin composites collected.
Toxic Contaminants in Marine Mammals

- 2023 is year one of a two year special study
- Goal: 10 harbor seals and 10 harbor porpoises
- Animals recovered within the Bay are priority
- PFAS analysis of liver and serum - SGS AXYS
- Non target analysis (NTA) of liver and blubber - Crimmins lab (AEACS, Clarkson Univ.)
- NTA of blubber - Hoh lab (SDSU)
- Marine Mammal Center is collecting the samples starting now (April 2023)
- Deliverable: S&T study design recommendation
  - June 2025.

★ Liver and Blubber samples from 3 harbor seals
★ Serum samples from 6 harbor seals
★ Zero harbor porpoises.
★ Samples have been sent to the labs.
S&T Lab Intercomparison Study

- PFAS in water
  - SGS AXYS - Eurofins - Enthalpy
  - To be collected on the water cruise date TBD and nearfield station (PA001) date TBD.
- SST
  - Caltest - CCSF
- Cu (particulate and dissolved)
  - Brooks Applied Labs - CCSF
- Hardness
  - Brooks Applied Labs - CCSF

Comparison Criteria:
- Precision (internal consistency on lab replicate)
- Recovery (results relative to each other and expected/historical value)
- CEDEN reporting ability
- Communication and timeliness
- Cost
6. Communications
(30 minutes)

Desired Outcomes:
● Identify moderators
● Informed Committee
Annual Meeting

- General
  - Tom’s perspective - Keynote
  - Amy - Program update: MYP update, wet season, S&T focus on CECs

- Nutrients and Sediment
  - Nutrients: HAB update - Dave
  - Nutrients: DO monitoring and threshold development - Ari Chelsky
  - Sediment: Suspended sediment loads from creeks in drought and flood years - Alicia

- PFAS
  - Phase 2 BACWA PFAS - Diana and Lorien
  - PFAS in fish - Jay/Miguel
  - PFAS in cosmetics as source to POTWs - Simona Balan (DTSC)

- Stormwater CECs
  - CECs in stormwater (highlights from screening study) - Becky
  - DTSC action update: tire listing, adding microplastics, draft work plan - Jen Jackson (DTSC)
  - Tires - Ezra Miller

Looking for moderators!

2022: Bridgette
2021: Luisa, Ian, Chris
2020: Luisa, Richard
RMP Update

- Featured Project: CECs in stormwater
- Content out for review tomorrow
- One week turnaround
- Probably just a pdf for the Annual Meeting
Program Update: EMERGING CONTAMINANTS

Background
Contaminants of emerging concern (CECs) are generally un- or under-regulated and not routinely monitored, yet they have the potential to enter the environment and harm people or ecosystems through their concentration in the water. The EDCs are of concern because they have been identified as persistent, bioaccumulative, and toxic substances that are not adequately regulated. The NPS database identifies 65 chemicals of concern, including PAHs, flame retardants, and endocrine disruptors.

Uses of Program Area Data for Management Decisions
- Regional Action Plans for CECs
- Early management intervention, including green chemistry and pollution prevention
- State and federal pesticide regulatory programs
- State Water Board CEC Program
- DPRC safer consumer products program

Priority Questions
Which CECs have the potential to adversely impact beneficial uses in San Francisco Bay?

What are the sources, pathways, and loadings leading to the presence of individual CECs or groups of CECs in the Bay?

What are the physical, chemical, and biological processes that may affect the transport and fate of individual CECs or groups of CECs in the Bay?

Relation to Permit Requirements
- Municipal wastewater discharges may enter into the Permit Program through requirements with fees that provide additional funds to support the PAM and its CECs monitoring.
- Municipal wastewater dischargers have been asked to fulfill local tributary CECs monitoring requirements through an additional annual contribution for RMP CECs monitoring.

Recent Findings
The team is in the process of reviewing the CEC strategy that guides our monitoring and analysis. Actions at the regional, state, and federal levels to address CECs and within a CEC strategy will be established and science will assist in guiding management questions as well as the federal and state frameworks for CECs measured in the Bay. The next chapters of the CEC strategy describe a tiered management process consisting of CEC monitoring and mass evaluation, CEC monitoring and modeling in contaminant pathways, to the focus leading to CECs being blocked from sources. Use of novel approaches, including new CECs, including next-generation analysis and new approaches (e.g., targeted mass spectrometry, targeted mass spectrometry, and the review of the scientific literature and interactions with scientists around the world to learn from others and share expertise. We will complete the CEC strategy revision in 2024.

Workplan Highlights
- The risk analysis of CECs (RAPS) approach is being implemented and monitoring designs to maximize the value of the results of the monitoring.
- The use of vehicle contaminants in Bay Water: A multi-year study is underway to quantify existing and other contaminants derived from tires and vehicles through Bay Water. Results to date indicate that other water use, these contaminants reach detection levels near stormwater discharge locations, as well as in the order of the day. Surveys from sampling. In addition, this study identifies that contaminants may be of concern for aquatic organisms, including striped bass, in summer during storms and within the summer Bay water. The findings will inform placement of these contaminants within the NPS benthic risk-based framework for prioritizing CECs.
- The use of vehicle contaminants: Tires and vehicle contaminants (TVCs) analysis (e.g., tire and vehicle contaminants, including CECs, and non-vehicle contaminants, such as PAHs, flame retardants, and endocrine disruptors). The findings will inform placement of these contaminants within the NPS benthic risk-based framework for prioritizing CECs.
- Collaborators
- San Francisco Bay Area Water Quality Control Board
- San Diego County University of California, San Diego
- University of Minnesota
- University of Washington

2 EDC/OFPC 2022 PROGRAM HIGHLIGHTS
7. Deliverables and Action Items (5 minutes)
   ● Status of incomplete work
Deliverables & Action Items - completed!

- Deep Bay Sediment Cruise - SAP SFEI Contribution No. 1138
- 2023 S&T Deep Bay Sediment Cruise
- Quantifying Stormwater Flow and Sediment Flux to the Bay (SEP) - Technical Report (SFEI Contribution No. 1134)
- Floating Percentile Method Report - SFEI Contribution No. 1143
- Sediment Dynamics Assessment and Uncertainty Analysis for San Francisco Bay (SEP) - SFEI Contribution No. 1114
- S&T Lab Intercomp Study Design
Deliverables – Overdue…

- MTC Bay Area Land Use Update (SEP)
- Selenium in North Bay Clams and Water
- Stormwater Monitoring Strategy for CEC’s
- CEC modeling exploration
Deliverables – delayed

- STLS WY21 POC Recon Monitoring Final Report
- Impact of Remediation Actions on San Leandro Bay Recovery from PCB Contamination - Final Report
- Ethoxylated Surfactants Final Report
- PCB In Bay Contaminant Modeling Report
- Integrated Watershed Bay Modeling and Monitoring Implementation Strategy (SEP) - Final Report
- CECs in Urban Stormwater Manuscript
Deliverables – due before next TRC meeting

● Margins report final
● North Bay Selenium Clam and Water Report
● PCB monitoring at GE property data
● 2023 QAPP Update
● S&T Design Report
8. Agenda Items for Next Meeting (5 minutes)

• From annual calendar
  ○ Review annual report outline for next year
  ○ Informatics update
  ○ Present workplan for next year and outcome of Multi-Year Planning Workshop
  ○ Review intercalibration studies and plans

• Other
  ○ Watershed modeling update
  ○ Workgroup updates
  ○ Planning for unusual events - fires, HABs, floods
16. Plus/Delta (5 minutes)

- Feedback
Thank you!!