I. Introductions and Agenda Review

No comments on the summary of the September 13, 2016, meeting.

II. Project Updates & Upcoming Events

Announcements are attributed to Stephen McCord (MEI) unless otherwise noted.

- Lori Chumney (OEHHA): New fish consumption advisories have been issued recently for Alamo River and the New River in Imperial County, “California Coastal Locations without Site-Specific Advice”, Lake Gregory in San Bernardino County, Los Angeles County’s Castaic Lake and Castaic Lagoon, Lake Havasu, and Shasta Lake. Three more advisories are due this spring.
Mine Site Cleanups

- The Corona and Twin Peaks Mines Drainage Treatment project now has all regulatory approvals needed to proceed and is engaging. Tracer studies are underway to characterize the connectivity between the mine workings and the lower drain tunnel. The three-year project will include soil stabilization, mine feature closures, and drainage treatment.

- The Brownfields Coalition Assessment Project is assessing mine-scarred lands that can be characterized as brownfields in the Cache and Putah creeks watersheds in the counties of Colusa, Lake, Napa, Yolo, and Solano. A memo synthesizing the mercury mine site inventory and prioritization scheme has been completed. The project team is identifying properties and getting EPA approval of eligibility. The next step is conduct Phase 1 site assessments, and then two Phase 2 assessments and cleanup plans. See for more information: [http://www.westsideirwmbrownfields.org/](http://www.westsideirwmbrownfields.org/).

- Carrie Monahan (The Sierra Fund): [1] TSF is mapping and developing remediation strategies for hydraulic mine-scarred lands and associated debris control dams in the Tahoe National Forest Service under its Prop. 1 grant. [2] Golder Assoc. consultants are supporting additional work at Malakoff Diggins. [3] Champion Mine features have been sampled, Phase I and II ESAs completed, and hotspots identified; TSF is now applying for brownfield cleanup funds.

Mercury Studies and Monitoring Activities

- The Delta Regional Monitoring Program initiated mercury monitoring at 6 sites for fish (annually for sportfish) and 5 for water (quarterly for mercury and ancillary parameters). The planning budget for 2017-2018 is greater, so the program may conduct additional monitoring soon.

- The Sacramento River Watershed Program’s new water quality portal includes a mercury issue page. The site designer needs to change the site hosting to SRWP and then the site will be publicized.

- Carrie Monahan (The Sierra Fund): [1] The last round of fish sampling to update OEHHA consumption advisories will be done this summer. The study may add an isotopic analysis to help identify dominant mercury sources in fish. [2] Angler surveys are being conducted at reservoirs with advisories to characterize effectiveness. [3] TSF is applying for a Prop 84 grant to cleanup a hydraulic mine site and conduct pre- and post-project monitoring.

Regional and Statewide Mercury Regulation

- Patrick Morris (RWQCB): [1] The Mercury Exposure Reduction Program (MERP) fish consumption advisory signs for the Delta have been received and are being distributed. [2] The Regional Board continues working on their Staff Report for the statewide reservoirs mercury TMDL. [3] Three new beneficial uses and associated water quality objectives for mercury are being proposed by the State Board. A hearing is scheduled for May 2017.
Recent & Upcoming Conferences

- The Sierra Fund’s Reclaiming the Sierra Conference will be held May 8 and 9, 2017, at Sacramento State. See www.reclaimingthesierra.org for more information.
- The International Conference on Mercury as a Global Pollutant will be held in Providence, RI, July 16-21. See http://mercury2017.com/ for more information.

Other News & Updates

- [none]

III. Presentations

Four presentations were given:

1. Bay Delta Science Conference—Jacob Fleck (USGS) and Stephen McCord (MEI)
2. South Bay Salt Ponds Restoration—Mark Marvin-DiPasquale (USGS)
3. Bear River Sediment Removal Projects—Carrie Monohan (The Sierra Fund)
4. USEPA Mine Remediation Projects—John Hillenbrand (USEPA)

1 – Bay Delta Science Conference—Jacob Fleck (USGS) and Stephen McCord (MEI)

The Delta Science Program, Delta Conservancy and USGS continue working on a Bay-Delta mercury science synthesize with three outputs:

- Literature review of recent scientific advancements in understanding
- External perspective from the Independent Science Panel on the state of the science and management for mercury in the Bay-Delta ecosystem
- Communication paper translating the technical knowledge for a broader audience

DTMC meeting participants addressed the following three questions posed by Yumiko Henneberry.

1) The target audience for this document are managers tasked with making decisions related to restoration, mine clean up, discharge compliance, etc. that would potentially affect mercury exposure to wildlife, people, and fish. What specific information would be useful in the communications paper?

Questions that DTMC participants suggested including in the publications included:

- What is the scale of contributions of various Hg contamination sources/projects and their relative impacts (i.e., links to downstream contamination)?
- What are the costs and benefits of various Hg control options, locally and watershed-wide?
- What are the impacts of wetland restoration on mercury cycling and contamination? How can such impacts be minimized (design factors and information needed to assess)?
- What are the recommended monitoring protocols for characterizing effects of projects or controls?
• How should legacy sources (e.g., mine-scarred lands, and sediments in streambeds, streambanks, and reservoirs) be mitigated?

2) **What are the most important documents that we should be looking at to best understand your relevant management needs?**

Tough to answer at this stage—better to review the USGS literature review draft.

3) **Are there individuals we should reach out to in addition to those listed in the table?**

It wasn’t clear whether this question was seeking names for a “needs assessment” (to better understand the range of interests and potential topics) or to review the paper(s). Janis Cooke suggested that co-authors involved in policy or management, a small working group, or a review panel comprised of manager/policy staff could help ensure the product(s) are most effective.

Regardless, suggested edits to the table were:

- Remove Tim Stephens (retired)
- Add Jacob Iverson (Amanda Palumbo’s replacement since she transferred)
- Consider adding: Jay Davis (SFEI), Tim Crough (Nevada Irrigation District), Yuba Co. Water Agency (ask Carrie Monohan for names), Kirsten Struve (SCVWD), Tom Maurer (USFWS), Mike Fong for Englebright Res. and Cory Coger for dredging and more (USACE), Elwood Raley (USBR), Peter Graves and Harry McQuillen (BLM), Carol Purchase (Tahoe Nat. Forest)

For more information: Yumiko Henneberry, yumiko.henneberry@deltacouncil.ca.gov, 916-445-7690

2 – **South Bay Salt Ponds Restoration—Mark Marvin-DiPasquale (USGS)**

Restoration of 15,100 acres of former salt production ponds in South San Francisco Bay has concerns with historic Hg contamination. The studies presented address: Are there any negative effects of Hg mobilization or bioaccumulation? Where is mobilized Hg ultimately going?

High spatial and temporal variability in Hg conditions called for lots of sampling sites and events, including positive and negative controls, which reduced uncertainty considerably. Post-project conditions generally indicated improvements (or no change compared to reference sites) in mercury production and exposure in the sloughs and ponds. Some sites and indicators portrayed short-term spikes but then decreased below pre-project levels. Key bioavailability issues are that the partitioning coefficient increased because filtered fraction decreased more than particulate fraction decreased, that the particulate fraction’s relevance depends on its character (inorganic particles or organic detritus) and that salinity and DOC reductions may have played a role. Regardless, Hg in biosentinels also decreased in all pond sites. Key flux conditions were the general upstream flux over tidal cycles, but then the large-scale downstream flux during larger discharges from the watershed, and the generally lower flux than predicted. Since the breach, 50-150 kg of sediment-associated mercury has accumulated in Pond A6 with no apparent impacts.

Additional monitoring of water and biota will continue in 2017. A similar monitoring plan could be replicated at Delta restoration sites.

For more information: Mark Marvin-DiPasquale, mmarvin@usgs.gov, 650-329-4442.
3 – Bear River Sediment Removal Projects—Carrie Monohan (The Sierra Fund)

Three studies at two reservoirs (Combie and Rollins) on the Bear River are underway, with TSF leading the monitoring and Nevada Irrigation District leading the engineering. Full-scale dredging has not yet been undertaken. This Sierra Nevada watershed is severely impacted by hydraulic mining and mercury contamination, and its three major reservoirs are all mercury impaired. Results are intended to provide guiding principles for mercury best management practices for sediment removal in mercury impacted reservoirs. There are statewide implications as many reservoirs are mercury impaired and all are slowly losing storage capacity due to sediment accumulation.

Sediment removal at Combie is “wet”, encouraging a sediment removal process using coagulants to enhance settling of fines. Monitoring addresses baseline conditions in the lake (partnering with USGS), treatment process efficiency trials, and 401 Certification compliance. Key conditions learned were (1) the “nugget effect” such that large sample volumes were needed to provide representative concentrations and (2) Hg seems high in suspension but low as dried solids. Treatment process data provided a linear model linking effluent Hg concentrations to TSS, A254 and TDS.

Rollins Reservoir has ~20M cubic yards of accumulated sediment, which can be removed “dry” by dewatering and skimming. Key is to flush the dewatering channels or pipes to avoid creating a methylating environment. More monitoring is needed at Rollins—in the reservoir, dewatering channels, and shallow groundwater wells.

For more information: Carrie Monohan, carrie.monohan@sierrafund.org, 530-265-8454 x214.

4 – USEPA Mine Remediation Projects—John Hillenbrand (USEPA)

John shared updates on three related activities by USEPA.

1. California CERCLIS Mine Sites
10 sites are on the national priorities list; and 16 more are “removal” sites. Staff are actively managing projects to address these sites.

2. Abandoned Mine Ranking Method – MINESHAFT
This project is working with Tetra Tech to prioritize 42,000+ abandoned mines in California that are listed in the USGS Mineral Resources Data System according to their likelihood for exposure to people and ecological receptors using only desk-top, statewide geo-data. They are building on previous efforts to prioritize mine sites given the conditions that there is no field sampling data, output is analytical and experience based, the Excel tool is adaptable, and the algorithm is transparent and adjustable. DTSC is developing 25 input parameter data sets. Scores address three exposures: residential, recreational and ecological.

Current focus is adjusting the algorithm to represent the known priority sites, and thereby highlight other sites that have yet to be investigated.

3. Sulphur Bank Mine
The mine site has been extensively studied and some remediation work undertaken over several decades. The current treatment feasibility study is evaluating various options to cap and consolidate sediments, and to prevent Herman Pit water from passing through the waste rock dam. Recent years show increasing pH, and current pit water meets primary MCLs (but not all
secondary and aquatic standards). To address the effects of this year’s high rains, EPA is looking at options for raising spillway level and water treatment

For more information: John Hillenbrand, hillenbrand.john@epa.gov, 415-972-3494.

IV. Meeting Wrap-Up

Future Agenda Suggestions

- Mercury in fish-eating birds – SWAMP study (Josh Ackerman & Collin Eagle-Smith, USGS)
- Mercury speciation in urban runoff [or] long-term trends – Lester McKee (SFEI)
- Field-scale mercury cycling model—Peggy O'Day (UC Merced)
- Gold Rush in the Peruvian Amazon—Gerardo Martinez (UC Davis)
- Debris dam identification and remediation —Alan James
- Buena Vista Mine update —Carter Jessup (USEPA)
- Mercury isotopic analysis —Joel Blum (Univ. of Michigan)

Next Meeting

- Date: TBD, late May 2017
- Location: likely DWR (3500 Industrial Blvd., West Sacramento, CA 95691)