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MEMORANDUM

Date: January 30, 2009

To: Regional Monitoring Program Contaminant Fate Workgroup

From: Ben Greenfield and Katie Harrold, San Francisco Estuary Institute (SFEI)

Subject: DGT Plans for 2009

Background

In 2008, as part of the Mercury Strategy, DGTs were deployed at 20 small fish sites (Figure 1). These sites represented a variety of different environments and spanned the types of sites that the Small Fish project is sampling:

- Long-term sites (annually sampled Small Fish sites, beginning 2005)
- Potential source sites
    - Mercury mine creeks
    - Shallow water WWTP discharges
    - Industrial watershed drainages
    - Legacy sediment (identified through Bay Protection Toxic Cleanup Plan and CalFed Sediment Sites)
- Wetlands (both expected to be high and low in methylmercury)
- Bay margins (both enclosed and unenclosed regions)

Because only 20 sites had DGTs in 2008, only a small number of each site type were included.

In 2009, Small Fish will again be sampling approximately 44 sites, including 9 long-term sites (Figure 2).

2009 DGT Options

There are two proposed options for the 2009 DGT plans, with several variations on each option. In both options there are approximately 60 water DGTs available. If there is interest in deploying sediment DGTs as well the number of samples may decrease because they are more labor intensive. *Note: all DGT sample sizes are estimates that may be subject to change pending negotiations with project collaborators.*

A. Deploy DGTs at most Small Fish stations (N = 30 to 40) and investigate two to four source characterization studies.

B. Deploy DGTs at a smaller subset of Small Fish stations (N = 10 to 20) and investigate five to eight source characterization studies.

Source characterization studies consist of multiple deployments at selected Small Fish stations (Figure 2). These will focus on either spatial gradients within a station to identify potential MeHg hotspots, or multiple deployments to evaluate time trends. Possible source characterization studies could include:

1. Tributaries – gradient studies in tributaries of interest. In 2008, a gradient of sites in Alviso Slough was sampled for both fish and DGTs. This winter a gradient study is being pursued at Zone 4 Line A. It will consist of two deployments of five DGTs for a week each during two storm events.
2. Temporal variability – would entail deploying DGTs repeatedly over a period of months to investigate seasonal changes. Could be paired with on-going seasonal fish sampling at Martin Luther King Regional Shoreline.
3. WWTP – gradient studies at shallow-water WWTP discharges.
4. Wetlands – gradient studies within wetlands and sloughs draining wetlands
5. Sediment fluxes – investigate patterns in methylmercury concentrations at different heights in the water column. In 2008, eight sediment DGTs were deployed at a subset of the 20 DGT sites in addition to water DGTs. Based on initial data, it appears that the concentrations in the sediment DGTs just above the sediment-water interface are much higher than concentrations in the water DGTs at the same site.
6. Other suggestions from Science Advisory Panel or Stakeholders.

Goals

During the CFWG meeting, we will solicit feedback from the Committee on two topics:

- Recommendations regarding Option A vs. Option B.
- Priorities among the potential source characterization studies.

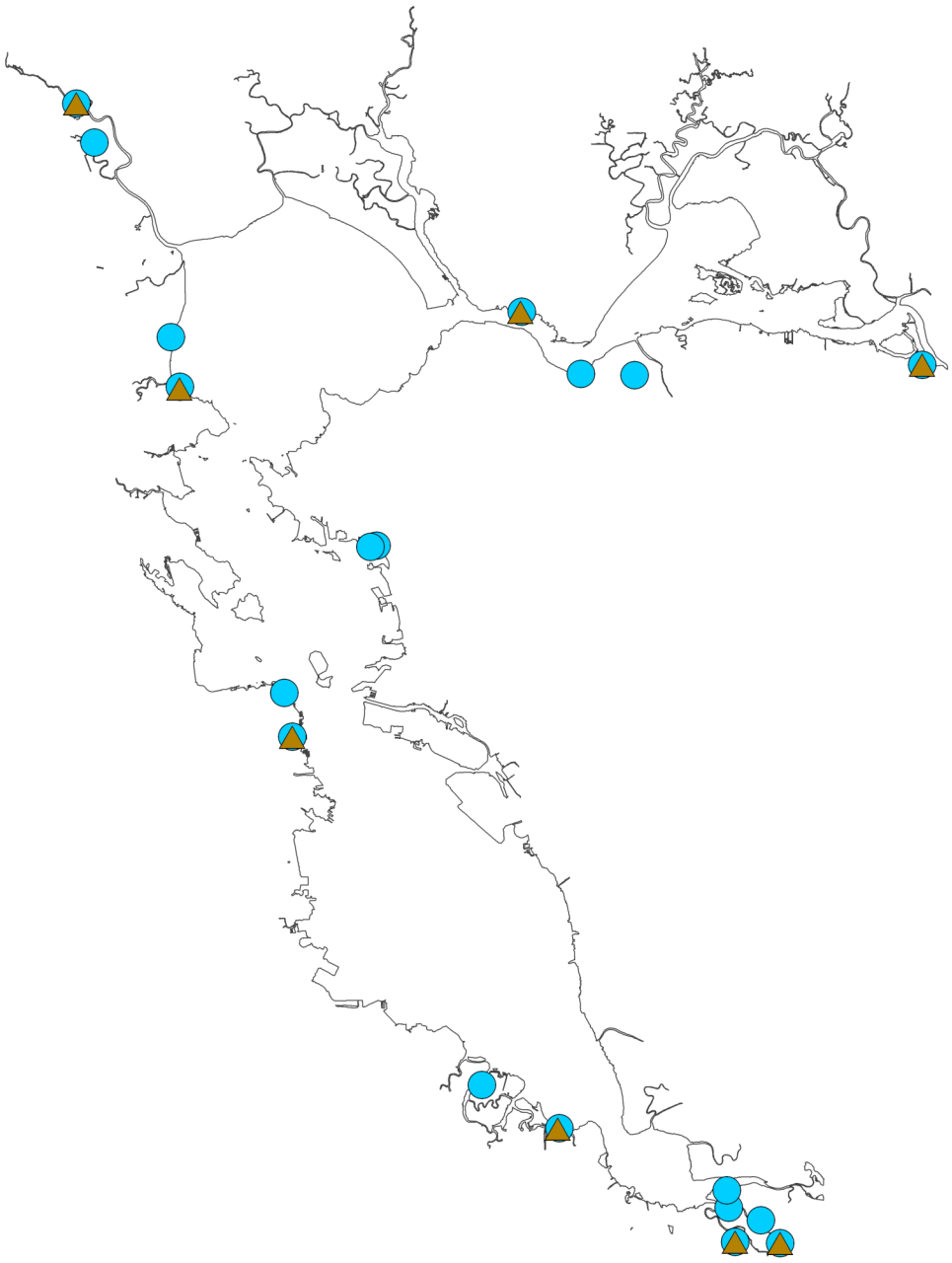

Figure 1. 2008 DGT deployment locations. Blue dots represent water DGTs. Brown triangles represent sediment DGTs.

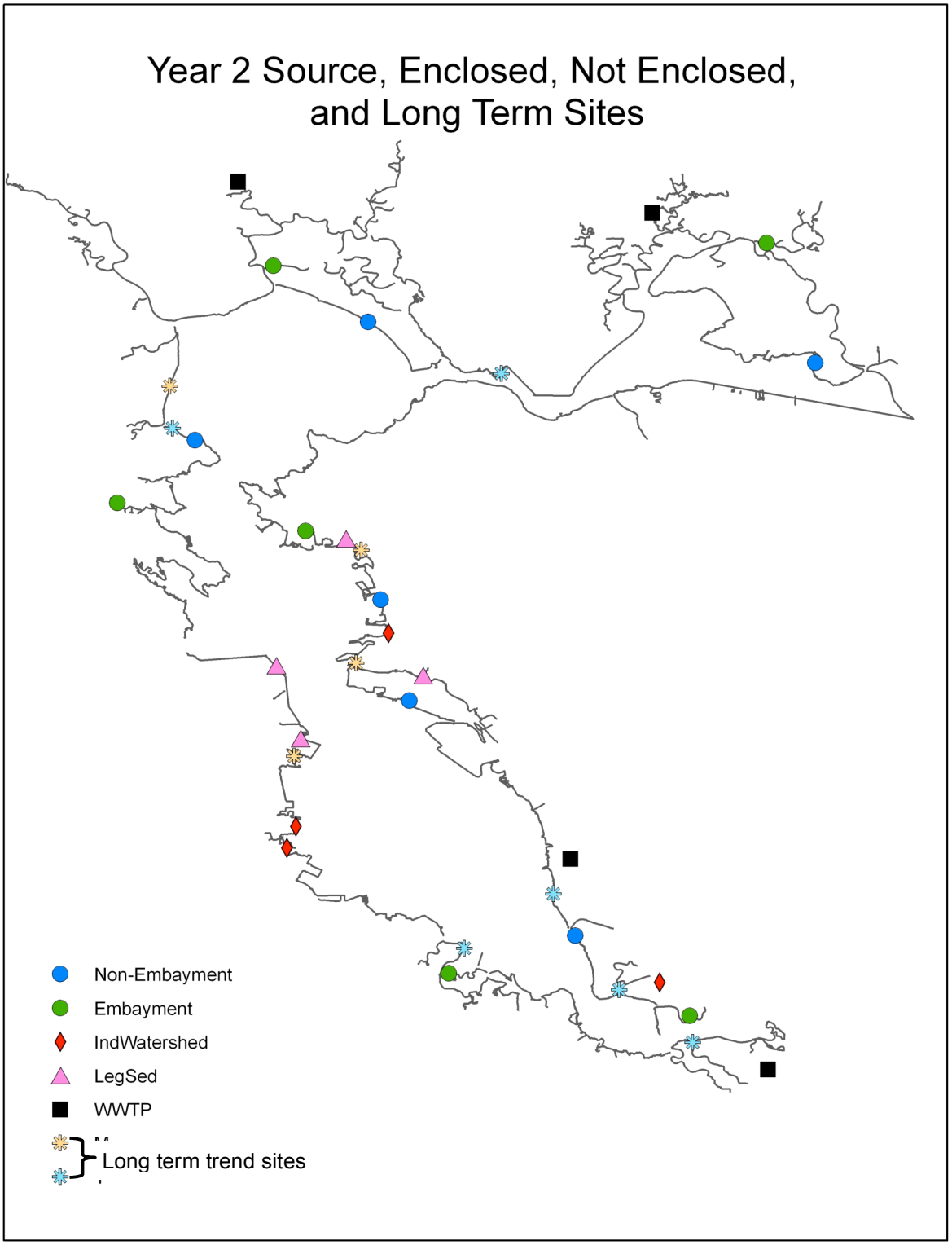

Figure 2. 2009 Small Fish sites.