

Cruise Plan Regional Monitoring Program 2000 Summer Water Cruise Plan

July 10-15, 17-19, 2000

Objectives

The objectives of this RMP water cruise are to:

1. Collect water samples from 26 sites for analysis of total and dissolved trace elements. As was done during the 2000 winter cruise, Mn, Co, Fe, Mercury (Hg) and Monomethyl mercury (mmHg) will be sampled at all sites. Elemental mercury (aka dissolved gaseous mercury (DGHg)) will be sampled at ten sites.
2. Collect water samples from 26 sites for analysis of ammonia, chlorophyll-a, dissolved organic carbon, nitrate, nitrite, phaeophytin, phosphate, salinity, silicates, and total suspended sediments.
3. Collect water samples for analysis of total hardness at 13 sites, and where salinity is <5ppt.
4. Collect profiles of surface water and water-column conductivity, dissolved oxygen, optical back-scatterance, and temperature at 24 bay sites, and optical back-scatterance at watershed sites. The CTD profile will be of surface water for the majority of time at each sampling site. At the end of the sample collections at each site, the CTD will be lowered to the bottom and brought to the surface, to profile the water column. Additionally, TSS grab samples will be taken from multiple sites to enable calibration of the OBS meter on the CTD.
5. Collect particulate trace metals (except Cr and Mn) samples from six sites.
6. Collect water samples for silica analysis for the Episodic Toxicity Pilot Project from Pacheco Creek, Sacramento river, and San Joaquin river sites.
7. Collect water samples for analysis of total Hg and total and dissolved (filtered and unfiltered) trace metals, TOC, TSS, DOC, Salinity, and TDS from Coyote Creek, South Bay, San Jose and Dumbarton Bridge sites for the City of San Jose.
8. Collect water column toxicity samples from six sites.
9. Collect samples for bacterial analysis from 26 sites.

Personnel

The personnel and work assignments for this cruise will be as follows:

| <u>Name</u> | <u>Affiliation</u> | <u>Duties</u> |
|-------------------------------------|--------------------|--|
| Corinne Bacon (7/17-19) | UU | Organic Chemistry |
| Kim Bracchi (7/10-14, 17-19) | UCSC | Trace Metal Chemistry |
| Melanie Forbes (7/10-14) | UCSC | Trace Metal Chemistry |
| Jordan Gold (7/10-14, 17-19) | AMS | Cruise Manager, Bacterial Samples, CTD |
| Cameron Hales (7/10-12) | UU | Organic Chemistry |
| Sharon Hibdon (7/10-14) | UCSC | Trace Metal Chemistry |
| Christian Kasteler (7/10-14, 17-19) | UU | Organic Chemistry |
| Naree Kim (7/13-14) | UU | Organic Chemistry |
| Alison Leungen (7/17-19) | UCSC | Trace Metal Chemistry |
| Jennifer Ostrowski (7/17-19) | UCSC | Trace Metal Chemistry |
| Genine Scelfo (7/17-19) | UCSC | Trace Metal Chemistry |
| Gordon Smith (7/10-15, 17-19) | UCSC | RV David Johnston Skipper |
| Sharon Squire (7/10-14) | UCSC | Trace Metal Chemistry |

Representatives of program sponsors may be aboard the *RV David Johnston* during portions of the cruise to observe sampling operations.

Mr. Gold will oversee sampling operations, compliance with cruise plan and quality assurance guidelines, maintaining the sample field log, chain-of-custody procedures, CTD profiling, TSS grab samples for OBS calibration, and bacterial sampling. Captain Gordon Smith will be responsible for *RV David Johnston* operation and safety. Sharon Hibdon and Genine Scelfo will supervise the trace element and ancillary sample collection activities. Christian Kasteler will supervise the acquisition of samples for trace organics.

Cruise Schedule

The following cruise schedule assumes that an average of one hour and fifteen minutes will be required for sampling at each station. Sampling times will vary depending upon suspended sediment loads and other factors. Watershed sites will require between 2 and 3 hours sampling time, on average.

Day 1

| | | |
|---------------|--|-----------|
| July 10, 2000 | Sample from shore at Standish Dam on Coyote Creek. | 0930-1200 |
| | Sample from shore (South Bay Yacht Club Dock) at | 1300-1600 |
| | Guadalupe River in Alviso. Depart for motel in Emeryville. | |

Day 2

| | | |
|---------------|---|-----------|
| July 11, 2000 | Mobilize gear onto <i>RV David Johnston</i> at Emeryville marina, conduct safety briefing and depart Marina. Sample Oyster Point, San Bruno Shoal, Coyote Creek, and Redwood Creek sites. Transit to MARFAC (USGS marine facility in Redwood City). Demobilize gear and depart for motel. | 0700-1900 |
|---------------|---|-----------|

| | | |
|-------------------------|--|-----------|
| Day 3 July 12, 2000 | Mobilize gear onto <i>RV David Johnston</i> at MARFAC, conduct safety briefing and depart marina. Sample at Dumbarton Bridge, Sunnyvale, San Jose, and South Bay sites. Transit to Emeryville marina. Demobilize gear and depart for motel. | 0645-2000 |
| Day 4 July 13, 2000 | Mobilize gear onto <i>RV David Johnston</i> at Emeryville marina conduct safety briefing and depart marina. Sample Golden Gate, Richardson Bay, and Red Rock sites. Return to Emeryville marina. Demobilize gear and depart for motel. | 0800-1745 |
| Day 5 July 14, 2000 | Mobilize gear onto <i>RV David Johnston</i> at Emeryville marina, conduct safety briefing and depart marina. Sample at Pt. Isabel, Alameda, and Yerba Buena Island sites. Return to Emeryville marina. Demobilize gear, bring As, Se, and Hg samples to AMS facility, depart for motel and home. | 0800-1630 |
| Day 6 July 15, 2000 | Captain Smith transits <i>RV David Johnston</i> to Benicia marina. | 0800-1200 |
| Day 7 July 17, 2000 | Mobilize gear onto <i>RV David Johnston</i> at Benicia Marina, conduct safety briefing and depart marina. Sample at Petaluma River, San Pablo Bay, Pinole Pt, and Davis Pt. sites. Return to Benicia marina, demobilize gear and depart for motel. | 0630-1900 |
| Day 8 July 18, 2000 | Mobilize gear onto <i>RV David Johnston</i> at Benicia Marina, conduct safety briefing and depart marina. Sample at Honker Bay, Grizzly Bay, and Napa river sites. Return to Benicia marina, demobilize gear and depart for motel. | 0630-1630 |
| Day 9 July 19, 2000 | Mobilize gear onto <i>RV David Johnston</i> at Benicia Marina, conduct safety briefing and depart marina. Sample at Pacheco Creek, Sacramento River, and San Joaquin River sites. Return to Benicia marina, demobilize gear, bring As, Se, and Hg samples to AMS facility, and depart for home. | 0700-1830 |
| Day 10 July 20, 2000 | Ship As, Se samples to Brooks Rand, Hg samples to Rob Mason, and Hardness samples to Union Sanitary District. | 0800-1000 |

Lodging

Each sampling team will be responsible for their lodging arrangements. The following are suggested facilities:

| <u>Location</u> | <u>Dates</u> | <u>Hotel</u> |
|-----------------|----------------|---|
| Milpitas | July 9 | Crown Plaza 777 Bellew Dr. Milpitas CA (408) 321-9500 |
| Emeryville | July 10, 12-14 | Four Points by Sheraton 1603 Powell St. Emeryville, CA (510) 547-7888 |
| Redwood City | July 11 | Holiday Inn Express 2834 El Camino Real Redwood City, CA (650) 366-2000 (ask for Max for \$100 rate) |
| Benicia | July 16-18 | Best Western Heritage Inn 1955 East 2 nd St. Benicia, CA 94510 (707) 746-0401 |

Station Locations and Sampling Activities

Station location information is presented in Table 1. Specific sampling requirements for each station are presented in Table 2.

Table 1. Coordinates of Regional Monitoring Program Water Sampling Sites

| Site/Code | Latitude | Longitude | Depth (m) | Comments |
|-------------------------|------------|-------------|-----------|---|
| Standish Dam/BW10 | 37° 27.10' | 121° 55.29' | shore | Downstream side of Standish Dam |
| Guadalupe River/BW15 | 37° 25.34' | 121° 58.45' | shore | South Bay Yacht Club Docks |
| San Jose/BA05 (C-3-0) | 37° 27.85' | 122° 01.60' | 2 | Just W of Railroad Bridge in Coyote Creek |
| Sunnyvale/BA06 (C-1-3) | 37° 26.08' | 122° 00.64' | 2 | Approximately 2.23 nmi up Guadalupe Slough from channel marker "1" |
| Coyote Creek/BA10 | 37° 28.20' | 122° 03.80' | 5 | 75 m S of Channel marker "18" |
| South Bay/BA20 | 37° 29.69' | 122° 05.34' | 5 | 200 m W of channel marker "16" |
| Dumbarton Bridge/BA30 | 37° 30.90' | 122° 08.11' | 9 | 20 m E of channel marker "14" |
| Redwood Creek/BA40 | 37° 33.67' | 122° 12.57' | 6 | 100 m SSE of channel marker "12" |
| San Bruno Shoal/BB15 | 37° 37.00' | 122° 17.00' | 10 | 0.83 nmi NE of channel marker "8" |
| Oyster Point/BB30 | 37° 40.20' | 122° 19.75' | 8 | 50 m W of channel marker "4" |
| Alameda/BB70 | 37° 44.66' | 122° 19.30' | 10 | 20 m SSE of buoy "A" |
| Yerba Buena Island/BC10 | 37° 49.36' | 122° 20.96' | 6 | 0.25 nmi N of Bay Bridge between bridge supports K and L |
| Golden Gate/BC20 | 37° 51.81' | 122° 32.20' | 13 | Location varies, depending on salinity |
| Richardson Bay/BC30 | 37° 51.81' | 122° 28.66' | 2 | 30 m NW of channel marker "4" |
| Point Isabel/BC41 | 37° 53.30' | 122° 20.55' | 2 | 0.61 nmi from Brooks Island and 0.81 nmi from Fleming Point |
| Red Rock/BC60 | 37° 55.00' | 122° 26.00' | 12 | 0.67 nmi SW of Red Rock |
| Petaluma River/BD15 | 38° 06.66' | 122° 29.00' | 4 | 50 m W of channel marker "19" |
| San Pablo Bay/BD20 | 38° 02.92' | 122° 25.19' | 6 | 100 m S of channel marker "2" |
| Pinole Point/BD30 | 38° 01.48' | 122° 21.65' | 6 | 0.5 nmi from marker off end of pier and 0.7 nmi from channel marker "7" |
| Davis Point/BD40 | 38° 03.12' | 122° 16.62' | 6 | 0.2 nmi SW from W end of barge pier |
| Napa River/BD50 | 38° 05.79' | 122° 15.61' | 2 | 50 m off concrete seawall and E of NE corner of Mare Island Naval Shipyard building |
| Pacheco Creek/BF10 | 38° 03.09' | 122° 05.80' | 10 | 0.2 nmi N of buoy "7" |
| Grizzly Bay/BF20 | 38° 06.96' | 122° 02.31' | 2 | 0.1 nmi S of dolphin |
| Honker Bay/BF40 | 38° 04.00' | 121° 56.00' | 1.5 | 0.65 nmi N of Simmons Point |
| Sacramento River/BG20 | 38° 03.56' | 121° 48.59' | 9 | 0.1 nmi W of channel marker "8" |
| San Joaquin River/BG30 | 38° 01.40' | 121° 48.45' | 7 | 0.1 nmi E of channel marker "8" |

Table 2. Samples to be collected during Regional Monitoring Program 2000 Summer Water Cruise July 10-15, 17-19, 2000.

| COLLECTION INFORMATION | | FILTERED AND UNFILTERED | | | | FILTERED | | | UNFILTERED | | | | | |
|------------------------|-----|-------------------------|----------------|----------|----------------------|----------|-----|----------|------------|-----|----|-----|-----|------|
| Site | Day | As, Se | mmHg, Hg, DGHg | Organics | Other Trace Elements | Nutr. | DOC | Hardness | Sal | Chl | Si | TSS | Tox | Bact |
| Standish Dam | 1 | • | •3 | • | • | • | • | | • | • | | •1 | | • |
| Guadalupe River | 1 | • | • | • | • | • | • | | • | • | | •1 | | • |
| Oyster Point | 2 | • | • | | • | • | • | | • | • | | • | | • |
| San Bruno Shoal | 2 | • | • | | • | • | • | | • | • | | • | | • |
| Coyote Creek | 2 | • | • | • | •2 | • | • | | • | • | | • | | • |
| Redwood Creek | 2 | • | • | • | • | • | • | | • | • | | • | | • |
| Dumbarton Bridge | 3 | • | • | • | •2 | • | • | | • | • | | • | • | • |
| Sunnyvale | 3 | • | • | | • | • | • | • | • | • | | • | • | • |
| San Jose | 3 | • | •3 | • | •2 | • | • | • | • | • | | • | • | • |
| South Bay | 3 | • | •3 | | •2 | • | • | • | • | • | | •1 | | • |
| Golden Gate | 4 | • | •3 | • | • | • | • | | • | • | | • | | • |
| Richardson Bay | 4 | • | • | | • | • | • | | • | • | | • | | • |
| Red Rock | 4 | • | • | • | • | • | • | | • | • | | • | | • |
| Alameda | 5 | • | • | • | • | • | • | | • | • | | • | | • |
| Point Isabel | 5 | • | • | | • | • | • | | • | • | | • | | • |
| Yerba Buena Island | 5 | • | • | • | • | • | • | | • | • | | •1 | | • |
| Petaluma River | 7 | • | •3 | • | • | • | • | • | • | • | | • | | • |
| San Pablo Bay | 7 | • | •3 | • | • | • | • | • | • | • | | •1 | | • |
| Pinole Point | 7 | • | • | • | • | • | • | • | • | • | | • | • | • |
| Davis Point | 7 | • | •3 | • | • | • | • | • | • | • | | • | | • |
| Napa River | 8 | • | • | • | • | • | • | • | • | • | | • | | • |
| Grizzly Bay | 8 | • | •3 | • | • | • | • | • | • | • | | • | • | • |
| Honker Bay | 8 | • | • | | • | • | • | • | • | • | | • | | • |
| Pacheco Creek | 9 | • | • | | • | • | • | • | • | • | | • | | • |
| Sacramento River | 9 | • | •3 | • | • | • | • | • | • | • | | •1 | | • |
| San Joaquin River | 9 | • | •3 | • | • | • | • | • | • | • | | • | • | • |

- = Sample to be collected at this site.
- Filtered samples will be collected for analysis of total hardness at all sites with salinities <5 parts per thousand.
- 1 = Particulate trace metals samples (except Cr and Mn) will be collected from these sites.
- 2 = Total and dissolved (filtered and unfiltered) samples will be taken for the City of San Jose at these sites.
- 3 = DGHg will be collected at these sites.