

Regional Monitoring Program 2001 Summer Water Cruise Plan

July 30-August 3, August 6-8, 2001

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.
2. Collect water samples from 26 sites for analysis of total and dissolved Mercury (Hg) and monomethyl mercury (mmHg).
3. 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.
4. Collect water samples from 26 sites for analysis of total and dissolved arsenic and selenium.
5. Collect water samples from 18 sites for analysis of dissolved and particulate trace organics.
6. Collect water samples for analysis of total hardness at 13 sites, and where salinity is <5ppt.
7. 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.
8. Collect particulate trace metals samples from six sites.
9. Collect water column toxicity samples from six sites.
10. Collect copper speciation samples from six sites.
11. Collect intercalibration samples for mercury and monomethyl mercury from five sites

Personnel

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

<u>Name</u>	<u>Affiliation</u>	<u>Duties</u>
David Bell (7/30)	AMS	Watershed Sampling
Andy Gunther (7/31-8/3)	AMS	Cruise Manager, CTD
Paul Salop (8/6-8/8)	AMS	Cruise Manager, CTD
Sharon Hibdon (7/30-8/3)	UCSC	Trace Metal Chemistry
Jennifer Ostrowski (7/30-8/8)	UCSC	Trace Metal Chemistry
Eric Grabowski (7/30-8/8)	UCSC	Trace Metal Chemistry
Mara Ranville (8/6-8/8)	UCSC	Trace Metal Chemistry
Iris Faraklas (7/30-8/3)	UUEGI	Trace Organics Chemistry
Ann Baynard (7/30-8/3)	UUEGI	Trace Organics Chemistry
Lauren Whatley (8/6-8/8)	UUEGI	Trace Organics Chemistry
Theresa Lowe (8/6-8/8)	UUEGI	Trace Organics Chemistry
Gordon Smith (2/5-2/9, 2/12-2/14)	UCSC	<i>RV David Johnston</i> Skipper

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

Dr. Gunther, Mr. Bell, and Mr. Salop will alternate responsibility of overseeing sampling operations, compliance with cruise plan and quality assurance guidelines, maintaining the sample field log, chain-of-custody procedures, CTD profiling, and toxicity 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.

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 30, 2001	Meet at 9:00 am at the Starbucks located in MCarthy Ranch.	0900-1200
	Sample from shore at Standish Dam on Coyote Creek.	
	Sample from shore (South Bay Yacht Club Dock) at	1200-1400
	Guadalupe River in Alviso. High tide at Guadalupe River is	
	7.3 ft. at 1127. Depart for motel in Emeryville.	

Day 2

July 31, 2001	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
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Day 3 Aug. 1, 2001	Mobilize gear onto <i>RV David Johnston</i> at MARFAC, conduct safety briefing (if new personnel on board) and depart marina. Sample at Dumbarton Bridge, Sunnyvale, San Jose, and South Bay sites. Transit to Emeryville Marina. PERL picks up toxicity samples. Demobilize gear and depart for motel.	0700-2000
Day 4 Aug. 2, 2001	Mobilize gear onto <i>RV David Johnston</i> at Emeryville Marina conduct safety briefing (if new personnel on board) 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 Aug. 3, 2001	Mobilize gear onto <i>RV David Johnston</i> at Emeryville Marina, conduct safety briefing (if new personnel on board) and depart marina. Sample at Pt. Isabel, Alameda, and Yerba Buena Island sites. Return to Emeryville Marina. Demobilize gear, ship As & Se samples to Brooks-Rand, store Hg samples at AMS facility, depart for motel and home.	0800-1630
Day 6 Aug. 4, 2001	Captain Smith transits <i>RV David Johnston</i> to Benicia marina.	0800-1200
Day 7 Aug. 6, 2001	Mobilize gear onto <i>RV David Johnston</i> at Benicia Marina, conduct safety briefing (if new personnel on board) and depart marina. Sample at Petaluma River, San Pablo Bay, Pinole Pt, and Davis Pt. sites. Return to Benicia marina, demobilize gear (PERL picks up toxicity sample) and depart for motel.	0630-1900
Day 8 Aug. 7, 2001	Mobilize gear onto <i>RV David Johnston</i> at Benicia Marina, conduct safety briefing (if new personnel on board) and depart marina. Sample at Honker Bay, Grizzly Bay, and Napa River sites. Return to Benicia marina, demobilize gear (PERL picks up toxicity sample), and depart for motel.	0630-1630
Day 9 Aug. 8, 2001	Mobilize gear onto <i>RV David Johnston</i> at Benicia Marina, conduct safety briefing (if new personnel on board) and depart marina. Sample at Pacheco Creek, Sacramento River, and San Joaquin River sites. Return to Benicia Marina, demobilize gear (PERL picks up toxicity sample), bring hardness, As & Se, and Hg samples to AMS facility, and depart for home.	0700-1830
Day 10-12 Aug. 13-15, 2001	Ship second set of As, Se samples to Brooks Rand, Hg/mmHg samples to UMCES, and hardness samples to Union Sanitary District.	0800-1500

Lodging

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

Location	Dates	Hotel
Milpitas	July 29	Crown Plaza 777 Bellew Dr. Milpitas CA (408) 321-9500
Emeryville	July 30, Aug 1-3	Four Points by Sheraton 1603 Powell St. Emeryville, CA (510) 547-7888
Redwood City	July 31	Pacific Inn 2610 El Camino Real Redwood City, CA (650) 368-1495
Benicia	Aug 5-7	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 2001 Summer Water Cruise.

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

• = 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 will be collected from these sites.
 2 = Two liter pre-cleaned containers to be supplied by Laura Lessin, UCSC