

Cruise Plan
Regional Monitoring Program
Water Sampling Cruise #21
July 13-17, 19-22, 1999

Objectives

The objectives of this Regional Monitoring Plan (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 18 sites for analysis of particulate and dissolved organic contaminants.
3. Collect water samples from 26 sites for analysis of salinity, total suspended solids, chlorophyll a, nutrients (ammonium, nitrate, nitrite, orthophosphate, silicate), and dissolved organic carbon.
4. Collect water samples for analysis of total hardness at 13 sites, and where salinity is <5ppt.
5. Collect profiles of water-column temperature, conductivity, salinity, dissolved oxygen, and optical back-scatterance at 24 sites (not done at watershed sites).
6. Collect total and dissolved (filtered and unfiltered) water samples from Coyote Creek, San Jose, South Bay, and Dumbarton Bridge sites for the city of San Jose.
7. Collect samples for the analysis of methyl mercury from 10 sites.
8. Collect samples for bacterial analysis and foraminiferan analysis from 26 sites.
9. Collect samples for toxicity analysis from 6 sites.

Personnel

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

Name	Affiliation	Duties
Corrine Bacon (7/19-22)	UU	Organic Chemistry
Kim Bracchi (7/13-16, 19-22)	UCSC	Trace Metal Chemistry
Priya Ganguli (7/13-16)	UCSC	Trace Metal Chemistry
Jordan Gold (7/13-16, 19-22)	AMS	Cruise Manager, Bacterial Samples, CTD, Toxicity, Foraminiferans
Sharon Hibdon (7/19-22)	UCSC	Trace Metal Chemistry
Lisa Jacobsen (7/13-16, 19-22)	UU	Organic Chemistry
Theresa Lowe (7/13-16)	UU	Organic Chemistry
Allison Luengen (7/13-16)	UCSC	Trace Metal Chemistry
Jennifer Ostraski (7/13-16)	UCSC	Trace Metal Chemistry
Rachael Mills (7/19-22)	UCSC	Trace Metal Chemistry
Gordon Smith (7/13-17, 19-21)	UCSC	RV David Johnston Skipper
Lindsay Whalin (7/19-22)	UCSC	Trace Metal Chemistry

Mr. Gold will oversee sampling operations, compliance with cruise plan and quality assurance guidelines, maintaining the sample field log, chain-of-custody procedures, CTD profiles, bacterial samples, toxicity samples, and shipping As, Se samples to Brooks Rand. Captain Gordon Smith will be responsible for *RV David Johnston* operation and safety. Priya Ganguli, Sharon Hibdon, and Lisa Jacobsen will supervise their respective sample collection activities. Representatives of program sponsors may be aboard the *RV David Johnston* during portions of the cruise to observe sampling operations.

Cruise Schedule

The following cruise schedule assumes that an average of one hour and twenty 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 13, 1999	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.	0700-0845
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Cruise Schedule (cont.)

Day 2 July 14, 1999	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 and home.	0645-2000
Day 3 July 15, 1999	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 and home.	0800-1745
Day 4 July 16, 1999	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, ship As, Se samples to Brooks-Rand, depart for motel and home.	0800-1630
Day 5 July 17, 1999	Captain Smith transits <i>RV David Johnston</i> to Benicia marina.	0800-1200
Day 6 July 19, 1999	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 7 July 20, 1999	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 8 July 21, 1999	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, ship As, Se samples to Brooks Rand and depart for motel and home.	0700-1830

Cruise Schedules (cont.)

Day 9 July 22, 1999	Sample from shore at Standish Dam on Coyote Creek.	0700-1130
	Sample from shore (South Bay Yacht Club Dock) at Guadalupe River in Alviso. Ship As, Se samples to Brooks Rand and depart for home.	1200-1800

Lodging

Each sampling team will be responsible for arranging their own lodging. The following are suggested motels:

Location	Dates	Hotel
Emeryville	July 12, 14, 15, 16	Sheraton Four Point Inn 1603 Powell St. Emeryville (510) 547-7888
Redwood City	July 13	Holiday Inn Express 2834 El Camino Real, Redwood City (650) 366-2000 (ask for Max for \$90 rate)
Benicia	July 18, 19, 20	Best Western Heritage Inn 1955 East 2nd St. Benicia (707) 746-0401
Milpitas	July 21	Holiday Inn 777 Bellew Dr. Milpitas, (408) 321-9500

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"

• = Sample to be collected at this site.

1 = Samples for analysis of methyl mercury will be collected from these sites.

2 = Filtered samples will be collected for analysis of total hardness at these sites, and all sites with salinities <5 parts per thousand.

Total and dissolved (filtered and unfiltered) samples will be taken for the city of San Jose at Coyote Creek, Dumbarton Bridge, San Jose and South Bay sites. Samples for bacterial analysis and foraminiferan analysis will be taken at all sites. Hg intercalibration samples (filtered and unfiltered) will be collected from three sites and sent to Brooks Rand for analysis.