

Cruise Plan Regional Monitoring Program Water Sampling Cruise #19

February 1-5, 8-11, 1999

Objectives

The objectives of this cruise are:

- 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 sites 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, South Bay, and Dumbarton Bridge sites for the city of San Jose.
- 7) Collect samples for toxicity analysis from six stations.
- 8) Analyze total and dissolved methyl mercury from ten sites.
- 9) Collect samples for bacterial analysis from 26 stations.

Personnel

The personnel and work assignments for this cruise are as follows:

<u>Name</u>	<u>Affiliation</u>	<u>Duties</u>
Charlie Dunlap (2/1-4)	UCSC	Trace Metal Chemistry
Priya Ganguli (2/1-4)	UCSC	Trace Metal Chemistry
Jordan Gold (2/1-4, 8-11)	AMS	Cruise Manager, Toxicity, CTD, bacterial samples
Sharon Hibdon (2/8-11)	UCSC	Trace Metal Chemistry
Lisa Jacobsen (2/1-4)	UU	Organic Chemistry
Jennifer Ostrowski (2/8-11)	UCSC	Trace Metal Chemistry
Genine Scelfo (2/8-11)	UCSC	Trace Metal Chemistry
Gordon Smith (2/1-5, 8-11)	UCSC	Vessel Skipper
Nick Sosin (2/1-4)	UCSC	Trace Metal Chemistry
Martha Thomas (2/8-11)	UCSC	Trace Metal Chemistry
Jocelyn Vedder (2/1-4, 8-11)	UU	Organic Chemistry
Lindsay Whalin (2/1-4)	UCSC	Trace Metal Chemistry
TBA (2/8-11)	UU	Organic Chemistry

Representatives of program sponsors may be aboard the vessel 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 profiles, and bacterial sampling. Captain Gordon Smith will be responsible for vessel operation and safety. Priya Ganguli, Sharon Hibdon, and Jocelyn Vedder will supervise their respective sample collection activities.

Cruise Schedule

The following cruise schedule assumes that an average of one hour will be required for sampling at each station (stations where organics samples are taken require slightly more than one hour, and stations where organics samples are not taken require slightly less than one hour). Watershed sites average between 2 and 3 hours sampling time.

Day 1 February 1, 1999	Mobilize gear onto vessel at Emeryville Marina, conduct safety briefing, depart for South Bay sites. Sample Oyster Point, San Bruno Shoal, Coyote Creek, Redwood Creek, and South Bay. Transit to Redwood City (MARFAC).	0700-1700
Day 2 February 2, 1999	Depart Redwood City, sample Dumbarton Bridge, San Jose, and Sunnyvale sites. Transit to Emeryville Marina, transfer toxicity samples to PERL personnel.	0700-1700
Day 3 February 3, 1999	Depart Emeryville Marina, sample Yerba Buena Island, Alameda, Golden Gate and Richardson Bay sites. Transit to Emeryville Marina.	0700-1700
Day 4, February 4, 1999	Depart Emeryville Marina, sample Red Rock, and Point Isabel sites. Transit to Emeryville Marina, ship As and Se samples to Brooks Rand.	0800-1330
Day 5 February 5, 1999	Captain Smith transits vessel to Benicia Marina.	0700-1200
Day 6 February 8, 1999	Conduct Safety briefing, depart from Benicia Marina. Sample Davis Point, Pinole Point, San Pablo Bay, and Petaluma River sites. Transit to Benicia Marina, transfer toxicity samples to PERL personnel.	0700-1700
Day 7 February 9, 1999	Depart from Benicia Marina, sample Honker Bay, Napa river, and Pacheco Creek sites. Transit vessel to Benicia Marina.	0700-1700
Day 8 February 10, 1999	Depart from Benicia Marina, sample Grizzly Bay, Sacramento, and San Joaquin river sites. Transit to Benicia Marina, transfer toxicity samples to PERL personnel, demobilize gear off vessel.	0700-1700

Day 9
 February 11, 1999 Sample from shore at Standish Dam on Coyote Creek, 0900–1500
 sample from shore (South Bay Yacht Club Dock) at
 Guadalupe River in Alviso. Tides at Gold Street Bridge,
 Alviso Slough are 9.5 ft. @ 0837, 0.4 ft. @ 1658. Ship As
 and Se samples to Brooks Rand.

Lodging

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

<u>Location</u>	<u>Dates</u>	<u>Hotel</u>
Emeryville	January 31, February 2, 3	Holiday Inn 1800 Powell St. Emeryville, CA (510) 658-9300
Redwood City	February 1	Comfort Inn 1818 El Camino Real, Redwood City, CA (415) 599-9636
Benicia	February 7,8,9,10	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, and the required sampling activities at 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"

Site/Code	Latitude	Longitude	Depth (m)	Comments
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 o 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 Water Sampling
Cruise #19
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Site	Day	FILTERED AND UNFILTERED			FILTERED				UNFILTERED		
		As, Hg, Se	Cr	Other Trace Elements	Nutr.	DOC	Sal.	Org. Comp.	Chl	TSS	TOX
Standish Dam	9	•*	•	•	•	•	•	•	•	•	
Guadalupe River	9	•	•	•	•	•	•	•	•	•	
San Jose	2	•*	•	•	•	•	•	•	•	•	•
Sunnyvale	2	•	•	•	•	•	•		•	•	•
Coyote Creek	1	•	•	•	•	•	•	•	•	•	
South Bay	1	•*	•	•	•	•	•		•	•	
Dumbarton Bridge	2	•	•	•	•	•	•	•	•	•	•
Redwood Creek	1	•	•	•	•	•	•	•	•	•	
San Bruno Shoal	1	•	•	•	•	•	•		•	•	
Oyster Point	1	•	•	•	•	•	•		•	•	
Alameda	4	•	•	•	•	•	•	•	•	•	
Yerba Buena Island	4	•	•	•	•	•	•	•	•	•	
Golden Gate	3	•*	•	•	•	•	•	•	•	•	
Richardson Bay	3	•	•	•	•	•	•		•	•	
Point Isabel	4	•	•	•	•	•	•		•	•	
Red Rock	4	•	•	•	•	•	•	•	•	•	
Petaluma River	6	•*	•	•	•	•	•	•	•	•	
San Pablo Bay	6	•*	•	•	•	•	•	•	•	•	
Pinole Point	6	•	•	•	•	•	•	•	•	•	•
Davis Point	6	•*	•	•	•	•	•	•	•	•	
Napa River	7	•	•	•	•	•	•	•	•	•	
Pacheco Creek	7	•	•	•	•	•	•		•	•	
Grizzly Bay	8	•*	•	•	•	•	•	•	•	•	•
Honker Bay	7	•	•	•	•	•	•		•	•	
Sacramento River	8	•*	•	•	•	•	•	•	•	•	
San Joaquin River	8	•*	•	•	•	•	•	•	•	•	•

Filtered samples will be collected for analysis of total hardness at 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, and South Bay sites.

*Methyl mercury will be measured at these sites.

Bacterial samples will be taken at all sites.