

Cruise Report
Regional Monitoring Program
Bivalve Deployment Cruise #19
January 5-8, 1999

1 INTRODUCTION

This report describes activities associated with the 1999 wet-season bivalve deployment cruise of the Regional Monitoring Program for Toxic Contaminants in the San Francisco Estuary. Bivalves were attached to moorings at 12¹ sites. Measurement of contaminant bioaccumulation in transplanted bivalves during wet-season and dry-season deployments is one component of this program that is designed to provide long-term data on concentrations of trace metals and organic compounds in water, sediments, and tissues, as well as toxicity throughout the estuary.

Contaminant bioaccumulation in bivalves is being measured in this program by attempting to collect bivalves from sites that are known to be contaminant-free and transplanting them to separate mooring locations in the Estuary. Two species of bivalves, *Mytilus californianus* and *Crassostrea gigas* were deployed at different locations depending upon the expected range of salinity. *M. californianus* was deployed at the most saline sites, from San Pablo Bay southward to the Dumbarton Bridge and *C. gigas* was deployed at sites with intermediate salinities between the Carquinez Strait and San Pablo Bay and south of the Dumbarton Bridge. *M. californianus* was collected from Bodega Head and *C. gigas* were obtained from a commercial grower in Tomales Bay. In addition, *Mytilus edulis*, triploid *Crassostrea gigas* and *Ostreaola conchaphila* were deployed at three sites to test their suitability for future bioaccumulation studies. Finally, a thermosalinograph was deployed at the Napa River site to allow for continuous measurement of temperature and salinity.

2 CRUISE REPORT

2.1 Objectives

The objectives of this cruise were:

- 1) Collect *M. californianus* from Bodega Head and deploy them at eight sites and obtain *C. gigas* from Tomales Bay (Hog Island Oyster Co.) and deploy them at seven sites.
- 2) Obtain *M. edulis*, triploid *C. gigas* and *O. Conchaphila* and deploy them at three sites.
- 3) Examine the bivalve moorings and make any necessary repairs.
- 4) Deploy a thermosalinograph at the Napa River site.

¹ Bivalves were not deployed at Grizzly Bay, Sacramento River and San Joaquin River stations.

2.2 Personnel

The personnel and work assignments for this cruise are shown in the following table:

<u>Name</u>	<u>Affiliation</u>	<u>Duties</u>
David Bell	AMS	Bivalve Collections, Cruise Manager, Dive Master
Brad Cortright	AMS	Dive Tender
Jordan Gold	AMS	Vessel Skipper
Dane Hardin	AMS	Diver
Jay Johnson	AMS	Bivalve Collections
Paul Salop	AMS	Bivalve Collections, Diver

2.3 Activities

<u>Date</u>	<u>Time</u>	<u>Activity</u>
12/17/98	1100-1700	Bell, Gold and Salop collect <i>M. Californianus</i> at Bodega Head. All bivalves are transferred to mesh bags and placed into holding tanks at Bodega Marine Laboratory (BML).
12/28/98	1000-1500	Gold picks up <i>M. edulis</i> , triploid <i>C. gigas</i> and <i>O. conchaphila</i> at Hog Island Oyster Company. Bivalves are transferred to mesh bags and placed into holding tanks at BML.
1/4/99	1200-1700	Gold picks up all bivalves from BML.
1/5/99	0900-1020	Mobilized gear and conducted safety briefing aboard <i>M.E. II</i> at Vallejo public launch ramp. Departed for Napa River site (BD50).
	1030-1115	Deployed bivalves and thermosalinograph at Napa River, departed for Davis Point site (BD40).
	1130-1230	Deployed bivalves at Davis Point, departed for Vallejo public launch ramp.
	1300-1345	Arrived Vallejo public launch ramp, demobilized vessel.
1/6/99	0930-0950	Mobilized gear aboard <i>M.E. II</i> , Black Point Marina. Departed for Petaluma River site (BD15).

<u>Date</u>	<u>Time</u>	<u>Activity</u>
	0955-1020	Deployed bivalves at Petaluma River, departed for Pinole Point site (BD30).
	1100-1150	Deployed bivalves at Pinole Point, departed for San Pablo Bay site (BD20).
	1210-1300	Deployed bivalves at San Pablo Bay, departed for Black Point Marina.
	1330-1400	Arrived at Black Point Marina, demobilized vessel.
1/7/99	0900-0945	Mobilized gear aboard vessel <i>M.E. II</i> , Embarcadero Cove. Departed for Red Rock site (BC60).
	1040-1115	Deployed bivalves at Red Rock, departed for Horseshoe Bay site (BC21).
	1140-1215	Deployed bivalves at Horseshoe Bay, departed for Yerba Buena Island site (BC11).
	1230-1315	Deployed bivalves at Yerba Buena Island, departed for Embarcadero Cove.
	1340-1415	Arrived Embarcadero Cove, demobilized vessel.
1/8/99	0900-0920	Mobilized gear aboard vessel <i>M.E. II</i> , Embarcadero Cove. Departed for Alameda site (BB71).
	0945-1040	Deployed bivalves at Alameda, departed for Redwood Creek site (BA40).
	1125-1215	Deployed bivalves at Redwood Creek, departed for Dumbarton Bridge site (BA30).
	1225-1250	Deployed bivalves at Dumbarton Bridge, departed for Coyote Creek site (BA10).
	1315-1405	Deployed bivalves at Coyote Creek, depart for Embarcadero Cove.
	1530-1610	Arrived Embarcadero Cove, demobilized vessel.

2.4 Discussion

Site Locations

The coordinates for all bivalve moorings are listed in the following table:

<u>Site Name/Code</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>	<u>Comments</u>
Coyote Creek BA10	37° 28.19'	122° 03.83'	Channel marker "18"
Dumbarton Bridge BA30	37° 30.80'	122° 08.08'	Channel marker "14"
Redwood Creek BA40	37° 32.82'	122° 11.70'	Channel marker "4"
Alameda BB71	37° 41.73'	122° 20.38'	Channel marker "1" 1.65 nmi. SE of Hunters Point
Yerba Buena Island BC10	37° 49.12'	122° 20.81'	Dolphin 0.1 nmi. N of Bay Bridge
Horseshoe Bay BC21	37° 49.87'	122° 28.65'	Dolphin 100 ft W of fishing pier
Red Rock BC60	37° 55.70'	122° 28.13'	Channel marker "2" for Larkspur ferry terminal
Pinole Point BD30	38° 01.00'	122° 22.05'	Channel marker "P"
San Pablo Bay BD20	38° 02.72'	122° 25.71'	Channel marker "1"
Petaluma River BD15	38° 06.77'	122° 30.05'	NE end of railroad bridge
Davis Point BD40	38° 03.26'	122° 15'.63	E side of UNOCAL loading dock
Napa River BD50	38° 04.84'	122° 14.82'	Mare Island Strait adjacent to General Foods facility, 0.7 nmi. from channel marker "2"
Grizzly Bay BF20	38° 06.49'	122° 03.37'	Channel marker "9" 1.0 nmi. NW of Garnet Point
Sacramento River BG20	38° 03'.58	121° 47.50'	Channel marker "8" N of Sherman Island
San Joaquin River BG30	38° 01.27'	121° 48.32'	Channel marker "8" 0.75 nmi. E of Antioch Marina

Bivalve Species at Each Site

Bivalve species were deployed at each site according to the following table:

<u>Site Name/Code</u>	<u>Date</u>	<u>Number per Species</u>
Coyote Creek/BA10	1/6/99	144 <i>C. gigas</i> 144 triploid <i>C. gigas</i> 160 <i>M. californianus</i> 160 <i>M. edulis</i>
Dumbarton Bridge/BA30	1/6/99	160 <i>M. californianus</i>
Redwood Creek/BA40	1/6/99	160 <i>M. californianus</i>
Alameda/BB71	1/6/99	160 <i>M. californianus</i>
Yerba Buena Island/BC10	1/7/99	144 <i>C. gigas</i> 144 triploid <i>C. gigas</i> 160 <i>M. californianus</i> 160 <i>M. edulis</i> 144 <i>O. conchaphila</i>
Horseshoe Bay/BC21	1/7/99	160 <i>M. californianus</i>
Red Rock/BC60	1/7/99	160 <i>M. californianus</i>
Pinole Point/BD30	1/8/99	144 <i>C. gigas</i> 160 <i>M. californianus</i>
San Pablo Bay/BD20	1/8/99	144 <i>C. gigas</i>
Petaluma River/BD15	1/8/99	116 <i>C. gigas</i>
Davis Point/BD40	1/5/99	144 <i>C. gigas</i>
Napa River/BD50	1/5/99	144 <i>C. gigas</i> 144 Triploid <i>C. gigas</i> 160 <i>M. californianus</i> 160 <i>M. edulis</i>
Grizzly Bay/BF20	-	No bivalves deployed
Sacramento River/BG20	-	No bivalves deployed
San Joaquin River/BG30	-	No bivalves deployed

General Comments

All cruise objectives were achieved. A thermosalinograph was installed on a new mooring placed at the Napa River site.