Cruise Report
Regional Monitoring Program
Summer 2000 Bivalve Retrieve Report
September 18-22, 2000

1 INTRODUCTION

This report describes activities associated with the 2000 dry-season bivalve retrieval cruise of the Regional Monitoring Program for Trace Substances in the San Francisco Estuary. Bivalves were attached to moorings at 12[1] 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. During June deployments, three species of bivalves, *Mytilus californianus*, *Mytilus edulis*, and *Crassostrea gigas* were deployed at different locations depending upon the expected range of salinity. *M. californianus* were collected from Bodega Head, *M. edulis* were collected from Tomales Bay, and *C. gigas* were obtained from a commercial grower in Tomales Bay. Bivalve cages tested on previous cruises were used at five sites, with deployments of both *M. californianus* and *C. gigas*. Additionally, specimens of *Corbicula fluminea* were collected from the native populations in areas adjacent to the historical mooring sites in the Sacramento River and San Joaquin River.

2 CRUISE REPORT

2.1 Objectives

The objectives of this cruise were:

1) Retrieve all bivalves deployed during June deployments.
2) Examine the bivalve moorings and make note of any needed repairs
3) Obtain data from a CTD cast at each bivalve station
4) Obtain survival data for alternative species.
5) Divide surviving bivalves into three groups for analysis of trace organics by Texas A&M University (GERG), trace elements by Bay Area Dischargers Authority (BADA) and Brooks-Rand, Ltd, and condition by Applied Marine Sciences.

[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:

Name	Affiliation	Duties
David Bell	AMS	Cruise Manager, Dive Master
Nicole David	SFEI	Assistance with Bivalve Processing, 9/19-20
Jordan Gold	AMS	Clam Collections, Diver, Vessel Skipper 9/21-22
David Morgan	Romberg Tiburon Center	Vessel Skipper 9/18-20
George Pollock	AMS	Clam Collections, Dive Tender 9/21
Paul Salop	AMS	Diver, Dive Tender

2.3 Activities

Date	Time	Activity
9/18/00	0800-0910	Mobilized gear aboard *R/V Questuary*, Emeryville Marina. Departed for Pinole Point site (BD30).
	1014-1038	Retrieved bivalves from Pinole Point, departed for San Pablo Bay site (BD20).
	1058-1116	Retrieved bivalves from San Pablo Bay, departed for Petaluma River site (BD15).
	1154-1200	Retrieved bivalves from Petaluma River, departed for Emeryville Marina.
	1440-1510	Arrived at Emeryville Marina, demobilized vessel.
9/19/00	0830-0912	Mobilized gear aboard vessel *R/V Questuary*, Emeryville Marina. Departed for Red Rock site (BC61).
	1002-1017	Retrieved bivalves from Red Rock, departed for Horseshoe Bay site (BC21).
	1108-1127	Retrieved bivalves from Horseshoe Bay, departed for Yerba Buena Island site (BD30).
	1208-1220	Retrieved bivalves from Yerba Buena Island, departed for Emeryville Marina.
	1240-1339	Arrived Emeryville Marina, completed processing of bivalves and demobilized vessel.
9/20/00	0845-0925	Mobilized gear aboard *R/V Questuary*, Emeryville Marina. Departed for Alameda site (BB71).

Date	Time	Activity
	1013-1029	Retrieved bivalves from Alameda, departed for Redwood Creek site (BA40).
	1141-1154	Retrieved bivalves from Redwood Creek, departed for Dumbarton Bridge site (BA30).
	1225-1254	Retrieved bivalves from Dumbarton Bridge, departed for Coyote Creek site (BA10).
	1320-1354	Retrieved bivalves from Coyote Creek, departed for Emeryville Marina.
	1620-1650	Arrived at Emeryville Marina, demobilized vessel.
9/21/00	0930-1005	Mobilized gear and conducted safety briefing on *M.E. II* at Emeryville Marina. Departed for Napa River site (BD50).
	1010-1040	Retrieved bivalves from Napa River, departed for Davis Point site (BD40).
	1048-1104	Retrieved bivalves from Davis Point. Departed for Vallejo public boat launch.
	1145-1245	Arrived Vallejo public launch ramp, processed bivalves and demobilized vessel.
9/22/00	1330-1400	Mobilized gear and conducted safety briefing on *M.E. II* at Antioch Public Launch Ramp. Departed for San Joaquin River site (BG30).
	1410-1432	Dredged for resident clams at San Joaquin River site, depart for Sacramento River site (BG20).
	1450-1505	Dredged for resident clams at Sacramento River site, depart for Antioch Public launch Ramp.
	1353-1430	Arrived at Antioch Public Launch Ramp, processed bivalves and demobilized vessel.

2.4 Discussion

Site Locations

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

Site Name/Code	Latitude (N)	Longitude (W)	Comments
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”

Site Name/Code	Latitude (N)	Longitude (W)	Comments
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:

Site Name/Code	Date	Number per Species
Coyote Creek/BA10	6/26/00	134 *C. gigas* 81 *M. californianus* 78 *M. edulis*
Dumbarton Bridge/BA30	6/26/00	132 *C. gigas* 38 *M. californianus*
Redwood Creek/BA40	6/27/00	35 *C. gigas* 123 *M. californianus* (caged) 40 *M. californianus* (bagged) 41 *M. edulis*
Alameda/BB71	6/27/00	35 *C. gigas* 108 *M. californianus* 76 *M. edulis*
Yerba Buena Island/BC10	6/28/00	40 *M. californianus* (bagged) 89 *M. californianus* (caged) 80 *M. edulis*
Horseshoe Bay/BC21	6/28/00	80 *M. californianus* (bagged) 80 *M. californianus* (caged) 40 *M. edulis*
Site Name/Code	**Date**	**Number per Species**

Red Rock/BC60	6/28/00	155 *M. californianus* 40 *M. edulis*
Pinole Point/BD30	6/29/00	113 *M. californianus* 40 *M. edulis* 32 *M. edulis*
San Pablo Bay/BD20	6/29/00	73 *C. gigas* (bagged) 72 *C. gigas* (caged)
Petaluma River/BD15	6/22/00	124 *C. gigas* 40 *M. californianus* 40 *M. edulis*
Davis Point/BD40	6/21/00	139 *C. gigas* 40 *M. Californianus* 40 *M. edulis*
Napa River/BD50	6/21/00	106 *C. gigas* (bagged) 36 *C. gigas*(caged) 80 *M. californianus* 80 *M. edulis*
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. Survival of bivalves is presented in Appendix 1. The thermosalinograph deployed during the June cruise was removed during the Maintenance Cruise and determined to be inoperative. Therefore, the thermosalinograph was not redeployed.