Cruise Report
2000 Regional Monitoring Program
Summer Water Cruise

July 10-15, 17-19, 2000
1.0 INTRODUCTION

This report describes activities associated with the second of two water sampling cruises conducted in the year 2000 as part of the Regional Monitoring Program for Trace Substances in the San Francisco Estuary. Water sampling is one component of this program that is designed to provide long-term data on concentrations of trace metals and organic compounds as well as ancillary measurements, suitable for determining trends.

All sampling except for the two watershed sites, which are sampled from shore, was conducted from the R/V David Johnston. Water samples were collected and distributed in the following manner:

- Samples for the analysis of arsenic and selenium were collected from 26 sites by personnel from Dr. Russ Flegal’s laboratory at the University of California, Santa Cruz (Flegal) and were sent by Applied Marine Sciences Inc. personnel (AMS) to Brooks-Rand, Ltd. (BRL) in Seattle, Washington.
- Samples for the analysis of other trace elements (cadmium, copper, cobalt, manganese, lead, nickel, silver, and zinc) and cognates (salinity, dissolved organic carbon, total suspended sediments, chlorophyll a, ammonium, nitrate, nitrite, phaeophytin, silicates, and orthophosphate) were collected from 26 sites by Flegal and retained by them at the conclusion of the cruise.
- Samples for direct particulate measurement of aluminum, silver, cadmium, cobalt, chromium, copper, manganese, lead, nickel, and zinc were collected from 6 sites by Flegal and retained by them for shipment to Dr. Rob Mason at the University of Maryland Chesapeake Biological Laboratory (UMCBL).
- Samples for analysis of total mercury and methyl mercury from 26 sites and dissolved gaseous mercury (Hg0) from 10 sites were collected by Flegal and sent by AMS to UMCBL at the conclusion of the cruise.
- Samples for analysis of hardness were collected from 15 sites by Flegal and retained by AMS for delivery to Union Sanitary District in Union City.
- Samples for analysis of silica were collected from four sites by Flegal and retained by AMS for delivery to Sequoia Analytical Inc.
- Measurement of surface water salinity, temperature, conductivity, pH, and dissolved oxygen were conducted by Flegal at each site, and the water column at each site was profiled by AMS for conductivity, temperature, salinity, dissolved oxygen, and optical back-scatterance.
- Samples for analysis of toxicity were collected from six sites by AMS and were picked up by Pacific Eco-Risk Laboratory Inc. personnel at various locations during the cruise.
- Samples for bacterial analysis from 26 sites were collected by AMS and shipped by Flegal to Dr. Brian Palenik of UCSD.
- Samples from four (south bay) sites for analysis of total suspended solids, total dissolved solids, total organic carbon, total and dissolved nickel and copper, and total mercury were collected by Flegal and delivered by hand to personnel of the city of San Jose.
2.0 CRUISE REPORT

2.1 Objectives

The objectives of this cruise were to:

1. Collect water samples from 26 sites for analysis of total and dissolved trace elements, and from six sites for particulate trace element analysis.

2. 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.

3. Collect water samples for analysis of total hardness at 13 sites and any additional sites where salinity is <5ppt.

4. Collect profiles of water-column temperature, conductivity, salinity, dissolved oxygen, and optical back-scatterance at 26 sites.

5. Collect samples for analysis of silica from four sites.

6. Collect water samples for bacterial analysis from 26 sites.

7. Collect water samples for methyl mercury analysis from 26 sites, and dissolved gaseous mercury from 10 sites.

8. Collect water samples for toxicity analysis from six sites.

9. Collect water samples from four sites for the city of San Jose.

10. Document current and recent weather conditions at each site.
2.2 Personnel

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
<th>Duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corinne Bacon (7/17-19)</td>
<td>UU</td>
<td>Organics</td>
</tr>
<tr>
<td>Kim Bracchi (7/10-14)</td>
<td>UCSC</td>
<td>Trace Metal Chemistry</td>
</tr>
<tr>
<td>Christian Casteller (7/10-14, 17-19)</td>
<td>UU</td>
<td>Organics</td>
</tr>
<tr>
<td>Jordan Gold (7/10-14, 17-19)</td>
<td>AMS</td>
<td>Cruise Manager, Bacterial and toxicity Samples, CTD, weather</td>
</tr>
<tr>
<td>Melanie Forbes (7/17-19)</td>
<td>UCSC</td>
<td>Trace Metal Chemistry</td>
</tr>
<tr>
<td>Sharon Hibdon (7/10-14)</td>
<td>UCSC</td>
<td>Trace Metal Chemistry</td>
</tr>
<tr>
<td>Cameron Hales (7/10-14)</td>
<td>UU</td>
<td>Organics</td>
</tr>
<tr>
<td>Naree Kim (7/10-14)</td>
<td>UU</td>
<td>Organics</td>
</tr>
<tr>
<td>Allison Leungen (7/17-19)</td>
<td>UCSC</td>
<td>Trace Metal Chemistry</td>
</tr>
<tr>
<td>Jennifer Ostrowski (7/10-14)</td>
<td>UCSC</td>
<td>Trace Metal Chemistry</td>
</tr>
<tr>
<td>Paul Salop (7/14)</td>
<td>AMS</td>
<td>Training</td>
</tr>
<tr>
<td>Genine Scelfo (7/17-19)</td>
<td>UCSC</td>
<td>Trace Metal Chemistry</td>
</tr>
<tr>
<td>Gordon Smith (1/31-2/4, 2/7-2/9)</td>
<td>UCSC</td>
<td><em>RV David Johnston</em> Skipper</td>
</tr>
<tr>
<td>Joan Smith (7/11)</td>
<td>Guest</td>
<td>none</td>
</tr>
<tr>
<td>Hillary Smith (7/19)</td>
<td>Guest</td>
<td>none</td>
</tr>
<tr>
<td>Sharon Squire (7/10-14)</td>
<td>UCSC</td>
<td>Trace Metal Chemistry</td>
</tr>
<tr>
<td>Richard Looker (7/18)</td>
<td>RWQCB</td>
<td>Observer</td>
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## 2.3 Sampling Activities

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>July 10, 2000</td>
<td>1020–1250</td>
<td>Sampled at Standish Dam (BW10), departed for Guadalupe River site (BW15).</td>
</tr>
<tr>
<td></td>
<td>1330–1530</td>
<td>Sampled at Guadalupe River, departed for Emeryville to mobilize gear onto the R/V David Johnston.</td>
</tr>
<tr>
<td></td>
<td>1730–1800</td>
<td>Mobilized gear onto the R/V David Johnston, departed for the motel.</td>
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<tr>
<td>July 11, 2000</td>
<td>0630–0755</td>
<td>Departed from the motel, mobilized additional gear onto the vessel at Emeryville marina, conducted safety briefing, and departed for Oyster Point site (BB30).</td>
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<tr>
<td></td>
<td>0902–1034</td>
<td>Sampled at Oyster Point, departed for San Bruno Shoal site (BB15).</td>
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<tr>
<td></td>
<td>1102–1150</td>
<td>Sampled at San Bruno Shoal, departed for Redwood Creek site (BA40).</td>
</tr>
<tr>
<td>July 11, 2000</td>
<td>1229–1340</td>
<td>Sampled at Redwood Creek, departed for South Bay site (BA20).</td>
</tr>
<tr>
<td></td>
<td>1541–1649</td>
<td>Sampled at South Bay, departed for MARFAC (USGS Marine Facility in Redwood City).</td>
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<tr>
<td></td>
<td>1808–1840</td>
<td>Arrived at MARFAC, demobilized gear and departed for the motel.</td>
</tr>
<tr>
<td>July 12, 2000</td>
<td>0700–0810</td>
<td>Departed from the motel, mobilized gear onto the vessel and departed for Coyote Creek site (BA10).</td>
</tr>
<tr>
<td></td>
<td>0914–1024</td>
<td>Sampled at Coyote Creek, departed for San Jose site (C-3-0).</td>
</tr>
<tr>
<td></td>
<td>1056–1206</td>
<td>Sampled at San Jose, departed for Sunnyvale site (C-1-3).</td>
</tr>
<tr>
<td></td>
<td>1307–1409</td>
<td>Sampled at Sunnyvale, departed for Emeryville marina.</td>
</tr>
<tr>
<td></td>
<td>1752–1915</td>
<td>Arrived at Emeryville marina, demobilized gear off of the vessel and departed for the motel.</td>
</tr>
<tr>
<td>Date</td>
<td>Time</td>
<td>Activity</td>
</tr>
<tr>
<td>------------</td>
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<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>July 13, 2000</td>
<td>0730–0810</td>
<td>Departed from the motel, mobilized gear onto the vessel at Emeryville marina and departed for Golden Gate site (BC20).</td>
</tr>
<tr>
<td></td>
<td>1021–1130</td>
<td>Sampled at Golden Gate, departed for Richardson Bay site (BC30).</td>
</tr>
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<td></td>
<td>1245–1342</td>
<td>Sampled at Richardson Bay, departed for Red Rock site (BC60).</td>
</tr>
<tr>
<td></td>
<td>1420–1524</td>
<td>Sampled at Red Rock, departed for Point Isabel site (BC41).</td>
</tr>
<tr>
<td></td>
<td>1600–1657</td>
<td>Sampled at Pt. Isabel, departed Emeryville marina.</td>
</tr>
<tr>
<td></td>
<td>1729–1800</td>
<td>Arrived at Emeryville marina, demobilized gear off of the vessel and departed for the motel.</td>
</tr>
<tr>
<td>July 14, 2000</td>
<td>0730–0811</td>
<td>Departed from the motel, mobilized gear onto the vessel at Emeryville marina and departed for Alameda site (BB70).</td>
</tr>
<tr>
<td></td>
<td>0857–1006</td>
<td>Sampled at Alameda, departed for Yerba Buena Island site (BC10).</td>
</tr>
<tr>
<td></td>
<td>1048–1158</td>
<td>Sampled at Yerba Buena Island, departed for Emeryville marina.</td>
</tr>
<tr>
<td></td>
<td>1218–1250</td>
<td>Arrived at Emeryville marina, demobilized gear off of the vessel and departed for home.</td>
</tr>
<tr>
<td>July 15, 2000</td>
<td>0730–1115</td>
<td>Captain Smith transited the vessel to Benicia marina and then departed for home.</td>
</tr>
<tr>
<td>July 17, 2000</td>
<td>0600–0727</td>
<td>Departed from the motel, mobilized gear onto the vessel at Benicia marina, conducted safety briefing and departed for Davis Point site (BD40).</td>
</tr>
<tr>
<td></td>
<td>0803–0940</td>
<td>Sampled at Davis Point, departed for Pinole Point site (BD30).</td>
</tr>
<tr>
<td></td>
<td>1018–1126</td>
<td>Sampled at Pinole Point, departed for San Pablo Bay site (BD20).</td>
</tr>
<tr>
<td></td>
<td>1159–1307</td>
<td>Sampled at San Pablo Bay, departed for Petaluma River site (BD15).</td>
</tr>
<tr>
<td>Date</td>
<td>Time</td>
<td>Activity</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>1350–1516</td>
<td>Sampled at Petaluma River, departed for Napa River site (BD50).</td>
</tr>
<tr>
<td></td>
<td>1700–1811</td>
<td>Sampled at Napa River, departed for Benicia Marina.</td>
</tr>
<tr>
<td></td>
<td>1859–1930</td>
<td>Arrived at Benicia marina, demobilized gear off of the vessel, delivered toxicity samples to PERL personnel and departed for the motel.</td>
</tr>
<tr>
<td>July 18, 2000</td>
<td>0815–0850</td>
<td>Departed from the motel, mobilized gear onto the vessel at Benicia marina and departed for Pacheco Creek site (BF10).</td>
</tr>
<tr>
<td></td>
<td>0928–1040</td>
<td>Sampled at Pacheco Creek, departed for Grizzly Bay site (BF20).</td>
</tr>
<tr>
<td>July 18, 2000</td>
<td>1132–1305</td>
<td>Sampled at Grizzly Bay, departed for Honker Bay site (BF40).</td>
</tr>
<tr>
<td></td>
<td>1407–1510</td>
<td>Sampled at Honker Bay, departed for Benica marina.</td>
</tr>
<tr>
<td></td>
<td>1645–1707</td>
<td>Arrived at Benicia marina, demobilized gear off of the vessel, delivered toxicity samples to PERL personnel and departed for the motel.</td>
</tr>
<tr>
<td>July 19, 2000</td>
<td>0730–0807</td>
<td>Departed from the motel, mobilized gear onto the vessel at Benicia marina, conducted safety briefing and departed for Sacramento River site (BG20).</td>
</tr>
<tr>
<td></td>
<td>0928–1054</td>
<td>Sampled at Sacramento River, departed for San Joaquin River site (BG30).</td>
</tr>
<tr>
<td></td>
<td>1132–1300</td>
<td>Sampled at San Joaquin River, departed for Benicia marina.</td>
</tr>
<tr>
<td></td>
<td>1455–1630</td>
<td>Arrived at Benicia marina, demobilized gear off of the vessel and departed for home.</td>
</tr>
</tbody>
</table>

2.4 Discussion

Sampling was conducted at the locations documented in Table 1. Samples collected from each site are documented in Table 2. Times of sample collections are documented in Table 3. Weather collections during sampling are documented in table 4.

General Comments

All cruise objectives were accomplished within the scheduled number of days.

As was done during the Winter 2000 water cruise, the CTD was left at the surface from shortly after arriving on site, until after the last sample was acquired. At which point the water column was profiled by lowering it to the bottom and then retrieving it at approximately 0.5 meters per second. This was done to allow analysis of changes in surface water conductivity and optical back-scatterance at each site during the duration of water sampling activities. The time of initiation of the filling of sample containers was documented to allow comparison with concurrent conductivity and optical back-scatterance data collected by the CTD. Unfortunately, full casts were not obtained at all sites, due to malfunction of the CTD.
### Table 1. Coordinates of Water Samples Collected

<table>
<thead>
<tr>
<th>Site Name/Code</th>
<th>Latitude (N)</th>
<th>Longitude (W)</th>
<th>Depth When Sampled (m)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standish Dam/BW10</td>
<td>37° 27.152'</td>
<td>121° 55. 481'</td>
<td>shore</td>
<td>Standish Dam on E bank</td>
</tr>
<tr>
<td>Guadalupe/River/BW15</td>
<td>37° 25.554'</td>
<td>121° 58. 786'</td>
<td>shore</td>
<td>South Bay Yacht Club Dock</td>
</tr>
<tr>
<td>Oyster Point/BB30</td>
<td>37° 40.142'</td>
<td>122° 19. 725'</td>
<td>10</td>
<td>50 m W of channel marker “4”</td>
</tr>
<tr>
<td>San Bruno Shoal/BB15</td>
<td>37° 36.873'</td>
<td>122° 16. 936'</td>
<td>13</td>
<td>1 nmi NE of channel marker “8”</td>
</tr>
<tr>
<td>Redwood Creek/BA40</td>
<td>37° 33.529'</td>
<td>122° 12. 533'</td>
<td>3</td>
<td>50 m W of channel marker “12”</td>
</tr>
<tr>
<td>Dumbarton Bridge/BA30</td>
<td>37° 30.804'</td>
<td>122° 08. 057'</td>
<td>4</td>
<td>20 m E of channel marker “14”</td>
</tr>
<tr>
<td>San Jose/C-3-0</td>
<td>37° 27.615'</td>
<td>121° 58. 526'</td>
<td>3</td>
<td>Just W of railroad bridge in Coyote Creek</td>
</tr>
<tr>
<td>Sunnyvale/C-1-3</td>
<td>37° 26.060'</td>
<td>122° 00. 606'</td>
<td>3</td>
<td>Approximately 2.23 nmi up Guadalupe Slough from channel marker “1”</td>
</tr>
<tr>
<td>Coyote Creek/BA10</td>
<td>37° 28.102'</td>
<td>122° 03. 754'</td>
<td>6</td>
<td>75 m S of channel marker “18”</td>
</tr>
<tr>
<td>South Bay/BA20</td>
<td>37° 29.575'</td>
<td>122° 05. 250'</td>
<td>4</td>
<td>200 m W of channel marker “16”</td>
</tr>
<tr>
<td>Golden Gate/BC20</td>
<td>37° 47.493'</td>
<td>122° 40. 490'</td>
<td>30</td>
<td>Offshore of Golden Gate (?) miles</td>
</tr>
<tr>
<td>Point Isabel/BC41</td>
<td>37° 53.223'</td>
<td>122° 20. 540'</td>
<td>3</td>
<td>0.61 nmi from Brooks Island and 0.81 nmi from Fleming Point</td>
</tr>
<tr>
<td>Red Rock/BC60</td>
<td>37° 55.071'</td>
<td>122° 26. 140'</td>
<td>10</td>
<td>0.7 nmi SW of Red Rock</td>
</tr>
<tr>
<td>Richardson Bay/BC30</td>
<td>37° 51.706'</td>
<td>122° 28. 705'</td>
<td>3</td>
<td>30 m NW of channel marker “4”</td>
</tr>
<tr>
<td>Alameda/BB70</td>
<td>37° 44.514'</td>
<td>122° 19. 314'</td>
<td>10</td>
<td>20 m SSE of Buoy “A”</td>
</tr>
<tr>
<td>Yerba Buena Island/BC10</td>
<td>37° 49.290'</td>
<td>122° 20. 962'</td>
<td>8</td>
<td>0.25 nmi N of Bay Bridge between bridge supports K and L</td>
</tr>
<tr>
<td>Davis Point/BD40</td>
<td>38° 03.015'</td>
<td>122° 16. 667'</td>
<td>5</td>
<td>0.2 nmi SW from W end of barge pier</td>
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<tr>
<td>San Pablo Bay/BD20</td>
<td>38° 02.908'</td>
<td>122° 25. 293'</td>
<td>4.0</td>
<td>100 m S of channel marker “2”</td>
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<tr>
<td>Petaluma River/BD15</td>
<td>38° 06.638'</td>
<td>122° 29. 205'</td>
<td>5</td>
<td>50 m W of channel marker “19”</td>
</tr>
<tr>
<td>Pinole Point/BD30</td>
<td>38° 01.453'</td>
<td>122° 21. 749'</td>
<td>5</td>
<td>0.5 nmi from marker off end of pier and 0.7 nmi from channel marker “7”</td>
</tr>
<tr>
<td>Honker Bay/BF40</td>
<td>38° 04.021'</td>
<td>121° 56. 050'</td>
<td>2</td>
<td>0.65 nmi N of Simmons Point</td>
</tr>
<tr>
<td>Grizzly Bay/BF20</td>
<td>38° 06.975'</td>
<td>122° 02. 345'</td>
<td>1.5</td>
<td>100 m S of dolphin</td>
</tr>
<tr>
<td>Pacheco Creek/BF10</td>
<td>38° 03.065'</td>
<td>122° 05. 951'</td>
<td>10</td>
<td>0.2 nmi N of buoy “7”</td>
</tr>
<tr>
<td>Napa River/BD50</td>
<td>38° 05.793'</td>
<td>122° 15. 630'</td>
<td>4</td>
<td>50 m off concrete seawall and E of NE corner of Mare Island Naval Shipyard building</td>
</tr>
<tr>
<td>Sacramento River/BG20</td>
<td>38° 03.581'</td>
<td>121° 48. 604'</td>
<td>10</td>
<td>0.1 nmi W of channel marker “8”</td>
</tr>
<tr>
<td>San Joaquin River/BG30</td>
<td>38° 01.229'</td>
<td>121° 48. 310'</td>
<td>10</td>
<td>0.11 nmi E of channel marker “8”</td>
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</table>
Table 2. Samples Collected During 2000 Winter Water Cruise

<table>
<thead>
<tr>
<th>COLLECTION INFORMATION</th>
<th>FILTERED AND UNFILTERED</th>
<th>FILTERED</th>
<th>UNFILTERED</th>
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<tbody>
<tr>
<td>Site</td>
<td>Day</td>
<td>As, Se</td>
<td>ddG</td>
</tr>
<tr>
<td>Standish Dam/BW10</td>
<td>1</td>
<td>•</td>
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<tr>
<td>Guadalupe River/BW15</td>
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<td>Oyster Point/BB30</td>
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<td>San Bruno Shoal/BB15</td>
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<tr>
<td>Redwood Creek/BA40</td>
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<tr>
<td>Dumbarton Bridge/BA30</td>
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<td>South Bay/BA20</td>
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<td>San Jose/C-3-0</td>
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<td>Sunnyvale/C-1-3</td>
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<td>Coyote Creek/BA10</td>
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<td>Golden Gate/BC20</td>
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<tr>
<td>Point Isabel/BC41</td>
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<td>Red Rock/BC60</td>
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<td>Richardson Bay/BC30</td>
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<td>Davis Point/BD40</td>
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<td>Petaluma River/BD15</td>
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<td>Pinole Point/BD30</td>
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<tr>
<td>Honker Bay/BF40</td>
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Table 2. Samples Collected During 2000 Winter Water Cruise (cont.)

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<th>COLLECTION INFORMATION</th>
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<td>San Joaquin River/BG30</td>
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* = Sample was collected at this site.
1 = Total and dissolved (filtered and unfiltered) samples were taken for the City of San Jose at these sites.
As,Se = arsenic and selenium, dgHg = dissolved gaseous mercury, mmHg, Hg = methyl mercury, total mercury, OTE = other trace elements, Org. = organics, Nutr. = nutrients, DOC = dissolved organic carbon, Hard. = hardness, Sal. = salinity, Chl. = chlorophyll, Si. = Silica, TSS = total suspended solids, Tox. = toxicity, PM = particulate metals, Bact. = bacteria

Table 3A. Time of sample collection

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Table 3B. Time of sample collection

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<th>Hard</th>
<th>Sal</th>
<th>Nut.</th>
<th>DOC</th>
<th>Bact.</th>
<th>Org.</th>
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### Table 4. Weather conditions during sampling

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<th>Beaufort Scale</th>
<th>Tide Stage</th>
<th>Wind Speed (knots)</th>
<th>Wind Direction</th>
<th>Cloud Cover</th>
<th>Precip.</th>
<th>Comments</th>
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<td>calm</td>
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<td>ebb</td>
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<td>northwest</td>
<td>0%</td>
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<td>No rain for months.</td>
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<td>Guadalupe River/BW15</td>
<td>1</td>
<td>calm</td>
<td>0</td>
<td>ebb</td>
<td>&lt;5</td>
<td>northwest</td>
<td>0%</td>
<td>none</td>
<td>No rain for months.</td>
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<td>flood</td>
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<td>NA</td>
<td>100%</td>
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<td>8-10</td>
<td>north</td>
<td>5%</td>
<td>none</td>
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<td>ebb</td>
<td>15</td>
<td>north</td>
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<td>northwest</td>
<td>0%</td>
<td>none</td>
<td>No rain for months.</td>
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<td>0</td>
<td>ebb</td>
<td>10-15</td>
<td>northwest</td>
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<td>ebb</td>
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<td>NA</td>
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<td>8-10</td>
<td>west</td>
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<td>northwest</td>
<td>100%</td>
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<td>15%</td>
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<td>flood</td>
<td>8</td>
<td>southwest</td>
<td>100%</td>
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<td>flood</td>
<td>8</td>
<td>southwest</td>
<td>100%</td>
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Table 4. Weather conditions during sampling (cont.)

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<tr>
<th>Site</th>
<th>Day</th>
<th>Sea State</th>
<th>Beaufort Scale</th>
<th>Tide Stage</th>
<th>Wind Speed (knots)</th>
<th>Wind Direction</th>
<th>Cloud Cover</th>
<th>Precip.</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Honker Bay/BF40</td>
<td>8</td>
<td>1 ft. chop</td>
<td>1</td>
<td>flood</td>
<td>8-10</td>
<td>west</td>
<td>0%</td>
<td>none</td>
<td>No rain for months.</td>
</tr>
<tr>
<td>Grizzly Bay/BF20</td>
<td>8</td>
<td>1 ft. chop</td>
<td>1.5</td>
<td>flood</td>
<td>10</td>
<td>south</td>
<td>0%</td>
<td>none</td>
<td>No rain for months.</td>
</tr>
<tr>
<td>Pacheco Creek/BF10</td>
<td>8</td>
<td>1 ft. chop</td>
<td>2</td>
<td>ebb</td>
<td>12-15</td>
<td>west</td>
<td>0%</td>
<td>none</td>
<td>No rain for months.</td>
</tr>
<tr>
<td>Napa River/BD50</td>
<td>8</td>
<td>.5 ft. chop</td>
<td>1</td>
<td>ebb</td>
<td>5</td>
<td>southwest</td>
<td>20%</td>
<td>none</td>
<td>No rain for months.</td>
</tr>
<tr>
<td>Sacramento River/BG20</td>
<td>9</td>
<td>1-2 ft. chop</td>
<td>1.5</td>
<td>ebb</td>
<td>12</td>
<td>west</td>
<td>0%</td>
<td>none</td>
<td>No rain for months.</td>
</tr>
<tr>
<td>San Joaquin River/BG30</td>
<td>9</td>
<td>.5-1 ft. chop</td>
<td>0-1</td>
<td>ebb</td>
<td>10-12</td>
<td>west</td>
<td>100%</td>
<td>none</td>
<td>No rain for months.</td>
</tr>
</tbody>
</table>