Padilla Bay (PDB) NERR Water Quality Metadata
January – December 2007
Latest Update: August 26, 2010

I. Data Set & Research Descriptors

1) Principal investigator & contact persons:

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2) Entry verification:

The data are downloaded from the YSI 6600 sondes to a Windows based PC. Graphs of all data are printed using EcoWatch software and are examined for suspect, anomalous, or outlying data and notes are made of any unusual data during the deployment. Files are exported from EcoWatch in a comma-delimited format (.CDF) and uploaded to the CDMO where they undergo automated primary QAQC and become part of the CDMO's online provisional database. Excessive pre- and post-deployment data are removed from the file prior to upload with up to 2 hours of pre- and post-deployment data retained to assist in data management. During primary QAQC, data are flagged if they are missing or out of sensor range. The edited file is then returned to the Reserve where it is opened in Microsoft Excel and processed using the CDMO's NERRQAQC Excel macro. The macro inserts station codes, creates metadata worksheets for flagged data, and graphs the data for review. It allows the user to apply QAQC flags and codes to the data, remove remaining pre- and post-deployment data, append files, and export the resulting data file to the CDMO for tertiary QAQC and assimilation into the CDMO's authoritative online database. Where deployment overlap occurs between files, the data produced by the newly calibrated sonde is generally accepted as being the most accurate. For more information on QAQC flags and codes, see Sections 11 and 12.

Edited and raw files are archived on a PC hard drive at Padilla Bay NERR as well as on the Padilla Bay server. Paula Margerum completed this process of entry verification for the 2007 data. Paula Margerum and Douglas Bulthuis completed final verification and this metadata documentation.

3) Research objectives:

The Bay View Channel site has been set out to detect and monitor short-term variability and long-term changes in the southern part of Padilla Bay. The Ploeg Channel site has been set out to detect and monitor short-term variability and long-term change in the northern part of Padilla Bay for comparison and contrast with water quality in the southern part of the bay. The Joe Leary Slough site has been set at the mouth of the slough to measure the effects of tidal "closure" of the tide gates on water in the slough and to detect long-term changes in water quality in the slough associated with implementation of a non point source pollution watershed action plan. The Gong

site has been set in the deep water strait west of the northern part of Padilla Bay to monitor short-term variability and long-term change in the waters that are a source for the tidal waters flowing into Padilla Bay. The four sites are set up to provide an indication of the salinity gradient from Joe Leary Slough (freshwater) through Bayview Channel (downstream of freshwater sources from Indian and No Name Sloughs) to Ploeg Channel (remote from freshwater sources but in a tidal channel) to Gong on the marine end of the gradient. Measurements are taken every 15 minutes at the Bayview, Ploeg, Gong and Joe Leary sites, unless otherwise noted.

4) Research methods:

YSI 6600 sondes were deployed in Joe Leary Slough in a vertical position, .7 m from the bottom of the slough in a 4 in. diameter ABS pipe with a metal bar secured at the bottom as a stop. That portion of pipe around the sensors is cut out so that only two one-inch wide strips of deployment pipe remain around the sensor guard to allow water circulation around the probes. The ABS pipe is attached to a steel pipe that was driven into the sediment. (This slough was dredged in the fall of 2000 so the area of deployment is much deeper than it had been from 1995 to 2000. To keep the data comparable the YSI is deployed at the same height relative to Mean Sea Level. The slough near the deployment site slowly fills with sediment and is periodically dredged. The height above the bottom thus varies from year to year and during the year. This slough was dredged again in the summer of 2006).

YSI 6600 sondes were deployed in Padilla Bay in a tributary of Bayview Channel. They were deployed using the same design as that in Joe Leary Slough, except that the ABS pipe was attached to two steel pipes. To keep marine fauna from interfering with operation of the sensors "Gutter Guard" (a sheet of plastic ¼ “ mesh) is formed into a cylinder to fit inside the sensor guard. The depth of the YSI was –1.1 m (depth below MLLW) and about 0.75 m above the bottom along the sloping edge of a small channel draining the surrounding intertidal flats.

YSI 6600 sondes were deployed in Ploeg Channel using the same design as that in Bayview Channel including the use of mesh to protect the sensors. The depth of the datalogger was –1.54 m (depth below MLLW) and 0.5 m above the bottom along the sloping edge of a channel draining the surrounding intertidal flats. The pole and ABS deployment pipe at Ploeg Channel were replaced in July 2005.

YSI6600 sondes were not deployed at the Gong site this year due to difficulties with the deployment apparatus. On 10/31/2006 the buoy apparatus that houses the sonde broke free from its mooring, it was probably hit by a large wave or boat. Repair of the deployment apparatus was not completed in 2007.

In all cases, measurements of temperature, specific conductivity, salinity, percent saturation of dissolved oxygen, depth, pH and turbidity are recorded every 15 minutes. At the end of each deployment, the YSI 6600 is brought back into the laboratory for downloading, cleaning, and recalibration. Before final cleaning and recalibration a post-deployment check is done that consists of recording sensor readings in the standard solutions. The results of these checks are used to help evaluate the validity of the logged data.

All calibrations are conducted according to the protocols in the YSI Environmental Operations Manual for the 6-Series Environmental Monitoring Systems. For the conductivity calibration a conductivity standard of 50 mS/cm was used. The pH calibration is a 2-point calibration using standard buffer solutions with a pH of 7 and 10. The KCl solution and Teflon membranes on the rapid-pulse dissolved oxygen probes are changed prior to each YSI 6600 deployment and the new

oxygen membrane is allowed to stabilize overnight in water-saturated air before calibration. ROX oxygen probes only require yearly membrane maintenance and are calibrated in saturated water using 2 air stones to obtained 100% saturation. A 2-point calibration is used for the turbidity probe and the wiper pad is changed prior to each deployment. The standards used are distilled/deionized water for zero and 4000 NTU Formazin solution diluted to 100 NTU.

A Sutron Sat-Link2 transmitter was installed at the Joe Leary station on 12/20/05 and transmits data to the NOAA GOES satellite, NESDIS ID #3B004470 (Where # 3B004470 is the GOES ID for that particular station.) The transmissions are scheduled hourly and contain four (4) data sets reflecting fifteen minute data sampling intervals. Upon receipt by the CDMO, the data undergoes the same automated primary QAQC process detailed in Section 2 above. The "real-time" telemetry data become part of the provisional dataset until undergoing secondary and tertiary QAQC and assimilation in the CDMO's authoritative online database. Provisional and authoritative data are available at http://cdmo.baruch.sc.edu.

5) Site location and character:

General: Padilla Bay (48º 30' N; 122º 30' W) is a shallow embayment in northern Puget Sound. The tide flats are dominated by the eelgrass *Zostera marina*, which covers approximately 3,000 ha. *Zostera japonica*, a recent introduction to the region, now covers about 350 ha of the bay. Tides are mixed semi-diurnal with a mean range of 1.55 m. Salinity varies from about 23 to 32 PSU.
Padilla Bay is an "orphaned" estuary in that the Skagit River no longer empties directly into it. Most of the land in the 9300 ha Padilla Bay watershed is agricultural, and is drained by four sloughs which empty into the bay. The salinity in Padilla Bay reflects both the sloughs that flow into the bay and the greater Puget Sound-Georgia Basin estuary in which Padilla Bay is located. Major freshwater flows into this area of the Puget Sound-Georgia Basin estuary come from the Fraser and Nooksack Rivers to the north and from the Skagit River to the south. The small Samish River discharges directly north of Padilla Bay.

Joe Leary Slough Site: (48º 31' 05.3" N; 122º 28' 22.8" W) Joe Leary Slough drains land that is predominantly annual crop agriculture and pasture land with some low-density housing. The slough is characterized by high fecal and nutrient inputs, high turbidity, and low dissolved oxygen concentrations. During the summer, there is low flow and the depth ranges from 0.5-1.5 m. During winter flooding, the slough can reach a depth of 4 m. There is a dam at the mouth of the slough with twelve 4 ft. diameter outfall pipes that have one-way hinged tide gates. Upstream water flows out of Joe Leary Slough when water height in Padilla Bay is lower than water height in Joe Leary Slough (i.e. ebbing tide and low water). Some saline water from Padilla Bay seeps through the tide gates during high water. The bottom of the slough is composed of very soft sediment, which is periodically dredged, most recently October 2006. The deployment site is on the freshwater side of the tide gates. The latitude/longitude were measured with a Trimble GeoExplorer II and differentially corrected with post processing providing a manufacturer's stated accuracy of ± 5 m.

Bayview Channel Site: (48º 29' 46.6" N; 122º 30' 01.8" W) Bayview Channel, a major Padilla Bay tributary/distributary, floods and drains intertidal flats including eelgrass beds, mats of macroalgae, and flats without macro-vegetation. The datalogger is located in a tributary channel to Bayview Channel. The tributary drains predominately eelgrass (*Zostera marina* and *Z. japonica*) covered intertidal flats. Bottom sediments beneath the deployment site are fine silt and clay overlying sand. Depth at this site is –1.53 m (depth below MLLW). Pollutants entering the

bay include general non-point source, agricultural non-point source, and fecal coliform bacteria from agriculture, failing septic tanks and wildlife. The latitude/longitude were measured with a Trimble GeoExplorer II and differentially corrected with post processing providing a manufacturer's stated accuracy of ± 5 m.

Ploeg Channel Site: (48º 33' 23.5" N; 122º 31' 46.7" W) Ploeg Channel floods and drains intertidal flats at the north end of Padilla Bay that are comprised of intertidal flats with eelgrass beds (*Zostera marina* and *Z. japonica*) and intertidal flats without macro-vegetation in approximately equal amounts. Bottom sediments beneath the deployment site are fine silt. Depth at this site is –1.54 m (depth below MLLW). Pollutants entering the bay include general non-point source, agricultural non-point source, and fecal coliform bacteria from agriculture, failing septic tanks and wildlife. The latitude/longitude were measured with a Trimble GeoExplorer II and differentially corrected with post processing providing a manufacturer's stated accuracy of ± 5 m.

Gong Site: (48º 33' 30" N; 122º 34' 21" W) The Gong site is located at –18 m water depth on a gradually sloping bottom (from –1 m to –75 m over 2 km) in the strait between Samish and Guemes Islands. Water in the strait flows north and south with tidal currents, the net water movement is apparently south toward the inlet to Guemes Channel. Water from the strait flows onto the intertidal flats in the northern part of Padilla Bay with each tidal cycle. Bottom sediments are mud. YSI 6600 sondes are deployed near the surface at this site 0.5 m below the water surface. The only apparent pollution sources are the general sources of pollution to the Strait of Georgia and Northwest Straits. The latitude/longitude were measured with a Trimble GeoExplorer II and differentially corrected with post processing providing a manufacturer's stated accuracy of ± 5 m.

6) Data collection period: Data collection was continuous from January 1 to December 31 2007 at Joe Leary Slough, Bay View Channel, and Ploeg Channel except as noted in the flagged data (explained in section 11).
Deployment and retrieval times are listed below. The times indicate the first and last measurements made with each deployment. Initial collection began at Bayview and Joe Leary sites in 1995, and at the Ploeg Channel site in 2001.

Bayview Channel

Dec. 19/06	15:15	Jan. 10/07	10:00
Jan. 10/07	10:30	Jan. 31/07	13:45 *first deployment at 15 min. intervals
Jan. 31/07	14:00	Feb. 16/07	11:15
Feb. 16/07	11:30	Mar. 7/07	13:45
Mar. 7/07	14:00	Mar. 22/07	10:15
Mar. 22/07	10:30	Apr. 5/07	09:00
Apr. 5/07	09:15	Apr. 18/07	14:15
Apr. 18/07	14:30	May 9/07	09:30
May 9/07	09:45	May 23/07	09:15
May 23/07	09:30	June 7/07	09:00
June 7/07	09:15	June 21/07	08:45
June 21/07	09:00	July 12/07	14:00
July 12/07	14:15	July 26/07	13:45
July 26/07	14:00	Aug.8/07	09:15
Aug. 8/07	09:30	Aug. 30/07	11:15
Aug. 30/07	11:45	Sept. 12/07	11:00 *missed 8/30/07 11:30 reading
Sept. 12/07	11:15	Sept. 27/07	10:00

Sept. 27/07	10:15	Oct. 10/07	10:00
Oct. 10/07	10:15	Oct. 24/07	09:45
Oct. 24/07	10:00	Nov. 20/07	10:30
Nov. 20/07	10:45	Dec. 13/07	10:00
Dec. 13/07	10:15	Jan. 16/08	09:00*removed sonde for pile installation

Ploeg Channel

Dec. 19/06	14:59	Jan. 12/07	10:30
Jan. 12/07	11:00	Jan. 31/07	14:15 *first deployment at 15 min. intervals
Jan. 31/07	14:30	Feb. 16/07	11:00
Feb. 16/07	11:15	Mar. 7/07	14:30
Mar. 7/07	14:45	Mar. 22/07	09:15
Mar. 22/07	09:30	Apr. 5/07	09:15
Apr. 5/07	09:30	Apr. 18/07	13:00
Apr. 18/07	13:30	May 9/07	09:15 *missed 4/18/07 13:15 reading
May 9/07	09:30	May 23/07	10:00
May 23/07	10:15	June 6/07	08:45
June 7/07	09:00	June 21/07	09:00
June 21/07	09:15	July 12/07	14:15
July 12/07	14:30	July 26/07	14:00
July 26/07	14:15	Aug. 8/07	10:30
Aug. 8/07	10:45	Aug. 30/07	10:00
Aug. 20/07	10:15	Sept. 12/07	10:00
Sept. 12/07	10:15	Sept. 27/07	09:00
Sept. 27/07	09:15	Oct. 10/07	09:15
Oct. 10/07	09:30	Oct. 24/07	09:15
Oct. 24/07	09:30	Nov. 20/07	10:45
Nov. 20/07	11:00	Dec. 13/07	10:30
Dec. 13/07	10:45	Jan. 16/08	10:30 *removed sonde for pile installation

Joe Leary

Dec. 21/06	09:33	Jan. 10/07	13:30
Jan. 10/07	14:00	Feb. 1/07	09:45 *missed 1/10/07 13:45 reading
Feb. 1/07	10:00	Feb. 20/07	13:30
Feb. 20/07	13:45	Mar.7/07	15:45
Mar. 7/07	16:00	Mar. 23/07	10:45
Mar. 23/07	11:00	Apr. 10/07	13:15
Apr. 10/07	13:30	Apr. 26/07	08:15
Apr. 26/07	08:30	May 17/07	12:15
May 17/07	12:30	June 1/07	08:30
June 1/07	08:45	June 20/07	14:15
June 20/07	14:30	July 19/07	10:30
July 19/07	10:45	Aug. 10/07	08:45
Aug. 10/07	09:00	Sept. 5/07	13:00
Sept. 5/07	13:15	Oct. 3/07	14:00
Oct. 3/07	14:30	Oct. 24/07	11:00 *missed 10/3/07 14:15 reading
Oct.24/07	11:15	Nov. 20/07	11:45
Nov. 20/07	12:00	Dec. 13/07	11:30
Dec. 13/07	11:45	Jan. 16/08	14:10

7) Distribution

NOAA/ERD retains the right to analyze, synthesize and publish summaries of the NERRS System-wide Monitoring Program data. The PI retains the right to be fully credited for having collected and processed the data. Following academic courtesy standards, the PI and NERR site where the data were collected will be contacted and fully acknowledged in any subsequent publications in which any part of the data are used. Manuscripts resulting from this NOAA/OCRM supported research that are produced for publication in open literature, including refereed scientific journals, will acknowledge that the research was conducted under an award from the Estuarine Reserves Division, Office of Ocean and Coastal Resource Management, National Ocean Service, National Oceanic and Atmospheric Administration. The data set enclosed within this package/transmission is only as good as the quality assurance and quality control procedures outlined by the enclosed metadata reporting statement. The user bears all responsibility for its subsequent use/misuse in any further analyses or comparisons. The Federal government does not assume liability to the Recipient or third persons, nor will the Federal government reimburse or indemnify the Recipient for its liability due to any losses resulting in any way from the use of this data.

NERR water quality data and metadata can be obtained from the Research Coordinator at the individual NERR site (please see Principal Investigators and Contact Persons), from the Data Manager at the Centralized Data Management Office (please see personnel directory under the general information link on the CDMO home page) and online at the CDMO home page http://cdmo.baruch.sc.edu/. Data are available in text tab-delimited format.

8) Associated researchers and projects:

The Padilla Bay NERR collects weather parameters that include Temperature, Relative Humidity, Barometric Pressure, Wind Speed, Wind Direction, LI-COR and Precipitation. The weather station is located at the Southern end of Padilla Bay and can be viewed in near real-time at http://cdmo.baruch.sc.edu.
In addition, water samples are collected at all 4 YSI sites and are filtered for nutrients and chlorophyll a.
*See Meteorological and Nutrient data at http://cdmo.baruch.sc.edu for more information.

II. Physical Structure Descriptors

9) Sensor Specifications:
PDB NERR deployed 6600EDS sondes in 2007. Rapid-pulse DO sensors were used at BY and BP sites until October 24/07 and at JL until June 20/07. ROX sensors were used at all sites for the remainder of the year.

YSI 6600EDS data sonde:

Parameter: Temperature
Units: Celsius (C)
Sensor Type: Thermistor
Model #: 6560

Range: -5 to 45 °C
Accuracy: +/-0.15 °C
Resolution: 0.01 °C

Parameter: Conductivity
Units: milli-Siemens per cm (mS/cm)
Sensor Type: 4-electrode cell with autoranging
Model #: 6560
Range: 0 to 100 mS/cm
Accuracy: +/-0.5% of reading + 0.001 mS/cm
Resolution: 0.001 mS/cm to 0.1 mS/cm (range dependent)

Parameter: Salinity
Units: parts per thousand (ppt)
Sensor Type: Calculated from conductivity and temperature
Range: 0 to 70 ppt
Accuracy: +/- 1.0% of reading or 0.1 ppt, whichever is greater
Resolution: 0.01 ppt

Parameter: Dissolved Oxygen % saturation
Units: percent air saturation (%)
Sensor Type: Rapid Pulse – Clark type, polarographic
Model #: 6562
Range: 0 to 500 % air saturation
Accuracy: 0-200 % air saturation, +/- 2 % of the reading or 2 % air saturation, whichever is greater; 200-500 % air saturation, +/- 6 % of the reading
Resolution: 0.1 % air saturation

Or

Sensor Type: Optical probe w/ mechanical cleaning
Model#: 6150 ROX
Range: 0 to 500% air saturation
Accuracy: 0-200% air saturation: +/-1% of the reading or 1% air saturation, whichever is greater
200-500% air saturation: +/- 15% or reading
Resolution: 0.1% air saturation

Parameter: Dissolved Oxygen mg/L (Calculated from % air saturation, temperature and salinity)
Units: milligrams per Liter (mg/L)
Sensor Type: Rapid Pulse – Clark type, polarographic
Model #: 6562
Range: 0 to 50 mg/L
Accuracy: 0 to 20 mg/L, +/- 2 % of the reading or 0.2 mg/L, whichever is greater; 20 to 50 mg/L, +/- 6 % of the reading
Resolution: 0.01 mg/L

Or

Units: milligrams/Liter (mg/L)Sensor Type: Optical probe w/ mechanical cleaning
Model#: 6150 ROX
Range: 0 to 50 mg/L
Accuracy: 0-20 mg/L: +/-0.1 mg/l or 1% of the reading, whichever is greater
20 to 50 mg/L: +/-15% of the reading
Resolution: 0.01 mg/L

Parameter: Non-Vented Level – Shallow (Depth)
Units: feet or meters (ft or m)
Sensor Type: Stainless steel strain gauge
Range: 0 to 30 ft (9.1 m)
Accuracy: +/- 0.06 ft (0.018 m)
Resolution: 0.001 ft (0.001 m)

Parameter: pH (EDS flat probe)
Units: pH units
Sensor Type: Glass combination electrode
Model #: 6561
Range: 0 to 14 units
Accuracy: +/- 0.2 units
Resolution: 0.01 units

Parameter: Turbidity
Units: nephelometric turbidity units (NTU)
Sensor Type: Optical, 90 ° scatter, with mechanical cleaning
Model #: 6136
Range: 0 to 1000 NTU
Accuracy: +/- 5 % reading or 2 NTU (whichever is greater)
Resolution: 0.1 NTU

Depth qualifier:
The NERR System-Wide Monitoring Program utilizes YSI data sondes that can be equipped with either depth or water level sensors. Both sensors measure water depth, but by convention, level sensors refer to atmospherically vented measurements and depth refers to non-vented measurements. Readings for both vented and non-vented sensors are automatically compensated for water density change due to variations in temperature and salinity; but for all non-vented depth measurements, changes in atmospheric pressure between calibrations appear as changes in water depth. The error is equal to approximately 1.03 cm for every 1 millibar change in atmospheric pressure, and is eliminated for level sensors because they are vented to the atmosphere throughout the deployment time interval.

Beginning in 2006, NERR SWMP standard calibration protocol calls for all non-vented depth sensors to read 0 meters at a (local) barometric pressure of 1013.25 mb (760 mm/hg). To achieve this, each site calibrates their depth sensor with a depth offset number, which is calculated using the actual atmospheric pressure at the time of calibration and the equation provided in the SWMP calibration sheet or Digital Calibration Log. This offset procedure standardizes each depth calibration for the entire NERR System. If accurate atmospheric pressure data are available, non-vented sensor depth measurements at any NERR site can be corrected. The Research Coordinator at the specific NERR site should be contacted in order to obtain information regarding atmospheric pressure data availability. All sondes used at the Padilla Bay NERR are non-vented.

10) Coded variable indicator and variable code definitions:

Sampling station:	Sampling site code:	Station code:
Bayview Channel	BY	pdbbywq
Ploeg Channel	BP	pdbbpwq
Joe Leary	JL	pdbjlwq
Gong Surface	GS	pdbgswq

11) **QAQC flag definitions –** This section details the automated and secondary QAQC flag definitions.

QAQC flags provide documentation of the data and are applied to individual data points by insertion into the parameter's associated flag column (header preceded by an F_). During primary automated QAQC (performed by the CDMO), -5, -4, and -2 flags are applied automatically to indicate data that is missing and above or below sensor range. All remaining data are then flagged 0, passing initial QAQC checks. During secondary and tertiary QAQC 1, -3, and 5 flags may be used to note data as suspect, rejected due to QAQC, or corrected.

-5	Outside High Sensor Range
-4	Outside Low Sensor Range
-3	Data Rejected due to QAQC
-2	Missing Data
-1	Optional SWMP Supported Parameter
0	Data Passed Initial QAQC Checks
1	Suspect Data
2	*Open - reserved for later flag*
3	*Open - reserved for later flag*
4	Historical Data: Pre-Auto QAQC
5	Corrected Data

12) **QAQC code definitions** – This section details the secondary QAQC Code definitions used in combination with the flags above.

QAQC codes are used in conjunction with QAQC flags to provide further documentation of the data and are also applied by insertion into the associated flag column. There are three (3) different code categories, general, sensor, and comment. General errors document general problems with the deployment or YSI datasonde, sensor errors are sensor specific, and comment codes are used to further document conditions or a problem with the data. Only one general or sensor error and one comment code can be applied to a particular data point.

General Errors

GIC	No Instrument Deployed Due to Ice
GIM	Instrument Malfunction
GIT	Instrument Recording Error; Recovered Telemetry Data
GMC	No Instrument Deployed Due to Maintenance/Calibration
GNF	Deployment Tube Clogged / No Flow
GOW	Out of Water Event
GPF	Power Failure / Low Battery

GQR Data Rejected Due to QA/QC Checks
GSM See Metadata

Sensor Errors
SBO Blocked Optic
SCF Conductivity Sensor Failure
SDF Depth Port Frozen
SDO DO Suspect
SDP DO Membrane Puncture
SIC Incorrect Calibration / Contaminated Standard
SNV Negative Value
SOW Sensor Out of Water
SPC Post Calibration Out of Range
SSD Sensor Drift
SSM Sensor Malfunction
SSR Sensor Removed / Not Deployed
STF Catastrophic Temperature Sensor Failure
STS Turbidity Spike
SWM Wiper Malfunction / Loss

Comments
CAB Algal Bloom
CAF Acceptable Calibration/Accuracy Error of Sensor
CAP Depth Sensor in Water, Affected by Atmospheric Pressure
CBF Biofouling
CCU Cause Unknown
CDA DO Hypoxia (<3 mg/L)
CDB Disturbed Bottom
CDF Data Appear to Fit Conditions
CFK Fish Kill
CIP Surface Ice Present at Sample Station
CLT Low Tide
CMC In Field Maintenance/Cleaning
CMD Mud in Probe Guard
CND New Deployment Begins
CRE Significant Rain Event
CSM See Metadata
CTS Turbidity Spike
CVT Possible Vandalism/Tampering
CWD Data Collected at Wrong Depth

13) **Post deployment information**
End of deployment post-calibration readings in standard solutions.

Site
BY

Date	SpCond (mS/cm)	DO%	pH (7)	pH (10)	Turb (0NTU)	Turb (100NTU)
01/10/07	49.18	102.5	6.90	10.06	-0.1	98.5
01/31/07	50.45	104.2	6.98	9.98	0.3	100.2
02/16/07	51.24	101.0	7.12	10.12	0.2	101.2

03/07/07	Temperature probe failure, no post-cal, all readings erratic					
03/22/07	50.31	101.5	6.87	9.84	0.4	99.5
04/05/07	50.35	98.8	7.06	10.04	0.3	99.8
04/18/07	50.58	99.9	7.04	10.01	-0.2	100.0
05/09/07	51.13	98.8	7.03	10.02	-0.1	99.7
05/23/07	50.22	42.6*hole	6.94	9.98	-0.1	97.7
06/07/07	48.13	82.5*hole	6.86	9.82	-0.2	96.0
06/21/07	49.91	79.9*hole	6.97	9.99	-0.2	101.0
07/12/07	50.52	99.9	6.90	9.88	0.3	105.6
07/26/07	50.36	99.7	6.95	10.03	0.0	100.5
08/08/07	50.69	83.0*hole	6.96	9.96	0.0	99.2
08/30/07	52.75	99.3	6.92	9.90	0.1	99.5
09/12/07	48.61	99.3	7.01	10.0	0.2	95.2
09/27/07	50.93	100.1	6.96	9.97	0.1	99.3
10/10/07	50.10	42.8*hole	6.93	9.92	0.0	99.6
10/24/07	49.77	101.3	7.05	10.03	0.2	98.6
11/20/07	50.31	104.3	7.00	10.00	0.0	100.3
12/13/07	50.68	101.0	7.04	10.04	0.2	99.2
01/16/08	49.84	95.7	6.99	10.00	0.0	98.5

BP

Date	SpCond (mS/cm)	DO%	pH (7)	pH (10)	Turb (0NTU)	Turb (100NTU)
1/12/07	49.90	101.7	7.14	10.18	0.0	99.6
01/31/07	50.26	101.8	7.06	10.08	-0.1	97.4
02/16/07	49.56	103.3	7.07	10.10	0.1	99.7
03/07/07	49.46	101.3	7.00	10.08	0.0	97.3
03/22/07	49.57	101.0	7.04	10.05	0.0	96.8
04/05/07	50.16	99.5	6.94	9.94	0.3	99.3
04/18/07	50.42	99.9	6.98	10.03	0.0	99.8
05/09/07	50.14	100.4	6.98	9.95	-0.1	100.3
05/23/07	50.07	96.7	6.90	9.94	0.2	99.4
06/06/07	49.57	96.6	7.00	9.97	0.4	99.6
06/21/07	50.69	100.3	6.97	9.95	0.1	102.1
07/12/07	51.16	59.3*hole	7.02	10.02	0.0	93.7
07/26/07	49.69	101.3	7.05	10.07	0.0	101.3
08/08/07	52.14	100.4	7.00	9.99	0.1	98.2
08/30/07	52.22	90.5	6.92	9.92	-0.1	98.8
09/12/07	48.11	99.5	6.98	9.98	0.1	100.9
09/27/07	50.11	90.5	7.00	10.02	0.0	99.8
10/10/07	50.53	94.4	7.03	10.09	0.0	100.4
10/24/07	50.10	104.8	6.98	9.97	0.2	99.7
11/20/07	49.39	93.7*leak	6.92	9.97	0.1	100.1
12/13/07	50.57	101.9	7.01	10.00	0.1	99.1
01/16/08	50.50	103.6	7.07	10.14	0.0	99.4

JL

Date	SpCond (mS/cm)	DO%	pH (7)	pH (10)	Turb (0NTU)	Turb (100NTU)
1/10/07	49.92	101.5	7.03	10.02	0.0	100.1
02/01/07	50.28	100.3	7.02	9.98	0.7	100.3
02/20/07	50.93	103.2	7.14	10.13	-0.1	102.0
03/07/07	49.86	100.0	6.95	10.02	20.2	stopped comm.

03/23/07	50.23	103.5	7.07	10.05	-0.4	98.6
04/10/07	50.25	100.5	7.02	9.98	-0.5	98.8
04/26/07	51.28	99.0	7.02	9.97	-0.4	94.0
05/17/07	49.82	99.7	7.00	10.01	-0.1	101.1
06/01/07	50.57	97.9	6.98	9.96	0.0	99.5
06/20/07	49.63	100.0	7.02	10.04	0.2	101.9
07/19/07	51.59	93.3	7.00	9.96	0.1	98.1
08/10/07	50.82	100.2	7.05	10.06	-0.5	97.2
09/05/07	48.92	100.5	7.04	10.07	0.0	99.0
10/03/07	51.36	100.3	7.02	9.99	0.0	101.0
10/24/07	49.61	102.9	7.06	10.06	0.1	99.8
11/20/07	50.98	103.2	6.98	9.99	0.2	100.1
12/13/07	50.27	102.3	6.95	9.91	0.0	98.5
01/16/08	50.22	99.1	7.07	10.06	0.2	101.5

14) Other Remarks/notes

> Data are missing due to equipment or associated specific probes not being deployed, equipment failure, time of maintenance or calibration of equipment, or repair/replacement of a sampling station platform. Any NANs in the dataset stand for "not a number" and are the result of low power, disconnected wires, or out of range readings. If additional information on missing data is needed, contact the Research Coordinator at the reserve submitting the data.

Bayview Channel:
Our 15 minute data collection did not go into effect at this site until 01/10/07 @10:30 therefore the 15 minute and the 45 minute time series are missing for all parameters from 01/01/07 @ 00:15 until 01/10/07 @ 10:30.

The turbidity wiper for the period of 03/23/07 @ 03:15 until 04/05/07 @ 09:00 started parking erratically after being repaired by YSI.

The dissolved oxygen membrane for the period of 05/23/07 @ 09:30 until 06/07/07 @ 09:00 had scratches on it upon retrieval and the post-calibration was reading out of range and continued to drop.

The dissolved oxygen membrane for the period of 06/07/07 @ 09:15 until 06/21/07 @ 08:45 had a loose o'ring and the post-calibration was reading out of range and continued to drop.

Turbidity values for the period of 07/30/07 @ 21:15 until 08/07/07 @17:45 do not appear to fit conditions and there were 2 large shrimp found in the guard upon retrieval.

The post-calibration reading for dissolved oxygen was out of range and continued to drop after several minutes although no puncture or damage was apparent to membrane; 07/26/07 @ 14:00 until 08/08/07 @ 09:15. Data were not flagged as being outside 2 or 3 standard deviations.

Turbidity brush was partly deteriorated upon retrieval. It appears to have affected the following period; 11/11/07 @ 15:30 until end of deployment on 11/19/07 @ 03:15.

A jellyfish was found inside the conductivity probe which probably caused the 'noise' at the end of the deployment from 12/11/07 @ 19:30 until 12/13/07 @ 10:00.

The batteries for the period of 12/28/07 @ 12:30 until 12/31/07 @ 23:45 started out at 11.5V and depleted abnormally after 17 days losing 4 volts in 4 days.

Ploeg Channel:
Our 15 minute data collection did not go into effect at this site until 01/12/07 @ 11:00 therefore the 15 minute and the 45 minute time series are missing for all parameters from 01/01/07 @ 00:15 until 01/12/07 @ 11:00.

The time stamp on the sonde for the deployment period of 03/22/07 @ 07:30 until 04/05/07 @ 7:15 was mistakenly set 2 hours behind the actual PST time; 03/22/07 @ 7:30 is actually 03/22/07 @ 9:30. The time stamp was manually changed to reflect the correct time for the whole deployment.

The dissolved oxygen data for the deployment of 06/21/07 @ 09:15 until 07/12/07 @ 14:15 were rejected because the post calibration value was 59.3% and it could not be determined exactly where during the deployment the integrity was lost.

The salinity for the period of 07/14/07 @ 05:30 until 07/26/07 @ 14:00 should be interpreted with caution. Although the post-calibration was 49.69mS/cm, the "noise" during this deployment indicates the probe is starting to fail.

The salinity for the period of 07/26/07 @14:15 until 08/08/07 @ 10:30 should be interpreted with caution because the probe was reading 52.14 mS/cm and the "noise" during this deployment indicates the probe is starting to fail. There was also some light fouling inside probe upon retrieval.

The salinity for the period of 08/08/07 @ 10:45 through 08/30/07 @ 10:00 should be interpreted with caution because the probe was reading 52.22 mS/cm during post cal and there were abnormal trends exhibited in the data.

The post-calibration for the dissolved oxygen for the period of 09/12/07 @10:15 until 09/27/07 @ 09:00 was reading 90.5% because the probe was bumped once back in the lab.

Several storm systems came through the area from 11/08/07 @ 23:45 until approximately 11/17/07 @ 23:45 that probably affected the turbidity values during these times.

A new ROX probe had moisture in the membrane upon retrieval for the deployment period of 10/24/07 @ 09:30 until 11/20/07 @ 10:45 causing an out of range post-calibration. It could not be determined at which point moisture occurred therefore the dissolved oxygen data were flagged as suspect.

The data logger appears to have been stuck in the deployment tube about 1.8m above standard deployment depth for the following period 12/13/07 @10:45 until 12/31/07 @ 23:45.

Joe Leary:

Turbidity values for the period of 01/02/07 @ 17:45 until 01/10/07 @ 13:30 are considered suspect because there were large amounts of hay surrounding the ABS pipe that houses the data logger.

Turbidity values for the period of 01/25/07 @ 16:45 until 02/01/07 @ 09:45 were rejected because there were large amounts of sludge covering the data logger and guard although probe tips were clean.

Although there was a very thin layer of sludge covering half of the turbidity optics, values for the period of 02/23/07 @ 11:00 until 03/07/07 @ 15:45 seem reasonable.

The dissolved oxygen for the period of 06/20/07 @ 14:30 until 07/19/07 @ 10:30 is consider suspect because this was the first deployment with new ROX probe and the post-calibration was 93.3% in saturated water indicating that moisture got inside the membrane. It could not be determined at which point this happened so the whole data set was flagged.

There were several arthropods inside the conductivity probe which may explain the high post-calibration values for the period of 09/05/07 @ 13:15 until 10/03/07 @ 14:00.