

**2010-2011 Water Quality Monitoring of Physical Parameters in  
San Diego Bay, San Diego, CA  
Port of San Diego Agreement No. 55783/Tierra Data Inc. No. 09-11  
Status Report**

**Date of Work:** August 1, 2011 – Sept 30, 2011

**Cumulative Dollar Costs Incurred:** \$100,226.82

**Percentage of Work Completed:** 87.11%

**Expected Completion Date:** December 31, 2012

**Project Manager:** Derek Lerma, Senior Marine Biologist, Tierra Data Inc., 10110 W. Lilac Road, Escondido, CA 92026, phone (760) 749-2247, email: derek@tierradata.com

**1) Monitoring results:**

- a) Data sondes are in place and collecting data within specified parameters and displaying expected results at all three stations. Changes in physical water quality parameters followed expected seasonal weather conditions over the last two months with a gradual increase in water temperatures and sustained chlorophyll concentrations observed. Data collection at stations B and C were collected without issue but reoccurring battery failure at Station A interrupted the data stream intermittently.
- b) The notable increases in chlorophyll A levels observed initially in the spring and early summer at each of the three monitoring stations has persisted into the late summer early fall. Vertical casts conducted at each of the three stations has displayed an increase in chlorophyll A concentrations at depth during the last two months and variability continues to show a diurnal relationship. Temperatures increased to expected seasonal averages and salinity displayed expected spatial fluctuations based on their proximity to the ocean.

**2) Discussion of activities conducted:**

- a) Initial sonde deployment occurred on April 20<sup>th</sup>, 2010 at all three stations. Water quality monitoring units, YSI 6920 V2 sondes, are currently in place and collecting data at Stations A, B, and C (Figure 1). Data files were reviewed after each servicing for accuracy and integrated into station working files for analysis and graphical display. Working data files are continuously being analyzed for assimilation into quarterly reports and the October 2011 quarterly report is currently being developed at this time.
- b) Data was collected at each of the three sampling locations and vertical casts were performed using an YSI 6920 V2 sonde on August 10<sup>th</sup>, August 30<sup>th</sup>, September 14<sup>th</sup>, and October 3<sup>rd</sup>. Additional vertical casts with sondes deployed at each of the three stations were initiated on April 25<sup>th</sup> were performed on each of the above dates and will continue through the duration of the contract period to investigate vertical stratification of chlorophyll A. Vertical casts are using the stations sondes after calibration as they are outfitted with chlorophyll A probes unlike the standard vertical cast sonde that is outfitted with a dissolved oxygen probe instead.

## 2010-2011 Water Quality Monitoring of Physical Parameters - Status Report

### 3) Problems encountered/resolutions:

Battery connection problems associated with the buildup of corrosion on sondes deployed at Station A caused a loss of data on September 28<sup>th</sup>.

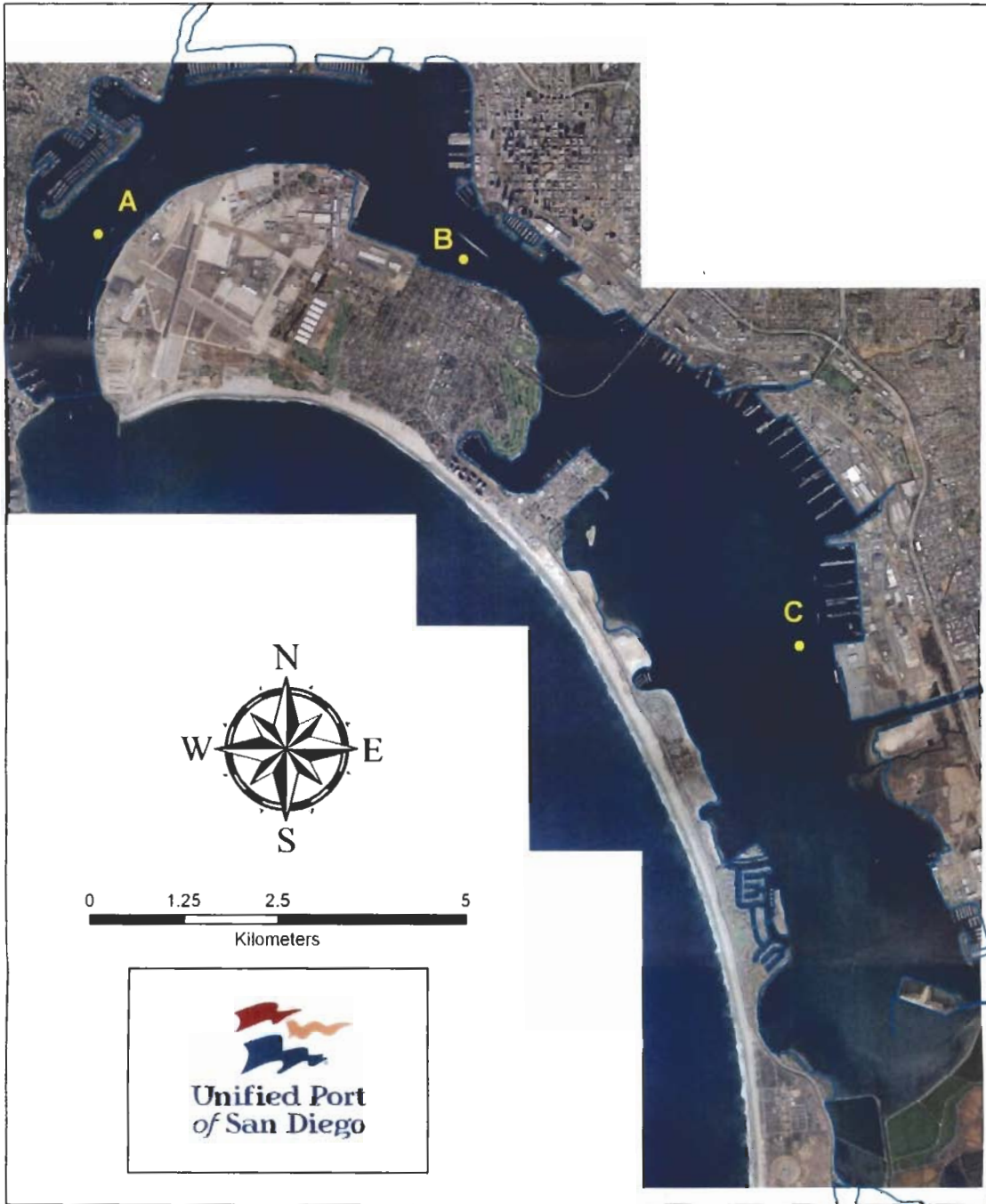
### 4) Activities planned for next reporting period:

- a) Upcoming service dates at regular two week intervals are planned to occur on October 17<sup>th</sup> and November 2<sup>nd</sup>, 2011.

**Table 2. Project Deliverables:**

<b>Quarterly Progress Reports</b>	April 1, 2010 – combined with July 1, 2010 Report due to late start.
	July 1, 2010 – submitted
	October 1, 2010 – submitted
	January 1, 2011 – submitted
	April 1, 2011 – to be combined with July 1
	July 1, 2011 – submitted
	October 1, 2011
<b>Draft Report</b>	October 31, 2011
<b>Final Report</b>	December 31, 2011

### Location Map for Port of San Diego Water Quality Sensors





**2010-2011 Water Quality Monitoring of Physical Parameters in  
San Diego Bay, San Diego, CA  
Port of San Diego Agreement No. 55783/Tierra Data Inc. No. 09-11  
Status Report**

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**Date of Work:** October 1, 2011 – October 31, 2011

**Cumulative Dollar Costs Incurred:** \$106,121.80

**Percentage of Work Completed:** 92.23%

**Expected Completion Date:** December 31, 2012

**Project Manager:** Derek Lerma, Senior Marine Biologist, Tierra Data Inc., 10110 W. Lilac Road, Escondido, CA 92026, phone (760) 749-2247, email: derek@tierradata.com

**1) Monitoring results:**

- a) Data sondes are in place and collecting data within specified parameters at all three stations with mixed results. The data collection at each of the three sites has become increasingly problematic with individual sondes beginning to experience technical issues related to service needs and long term deployment. Changes in physical water quality parameters followed expected seasonal weather conditions with the data displaying observable decreases in water temperature and chlorophyll concentration during the month of October.
- b) Spikes in average chlorophyll A levels observed during deployment periods in August and September at Station A and to a lesser extent at Stations B & C were not evident observed in October. Vertical casts conducted at each of the three stations has displayed colorations between levels of chlorophyll A concentrations and turbidity (ntu) values. Additionally vertical casts continue to show the stratification of the various physical water quality characteristics to varying degrees and depths at all three stations. Temperatures decreased slightly relative to previous month and salinity displayed expected spatial fluctuations based on their proximity to the ocean.

**2) Discussion of activities conducted:**

- a) Initial sonde deployment occurred on April 20<sup>th</sup>, 2010 and ended on November 3, 2011 at all three stations. Water quality monitoring units, YSI 6920 V2 sondes previously placed at Stations A, B, and C (Figure 1) and now been removed. All data files have now been removed and reviewed for accuracy and integration into station working files for analysis and graphical display is in progress. Working data files are currently being analyzed for assimilation into quarterly reports and the October 2011 quarterly report and Draft final report are currently being developed at this time.
- b) Data was collected at each of the three sampling locations using an YSI 6920 V2 sonde until November 3, 2011. No vertical casts were performed at any of the three stations after October 3, 2011.

## 2010-2011 Water Quality Monitoring of Physical Parameters - Status Report

### 3) Problems encountered/resolutions:

Battery connection problems associated with the buildup of corrosion on sondes deployed at each of the three stations caused a loss of data intermittently near the conclusion of the investigation..

### 4) Activities planned for next reporting period:

- a) Submit October quarterly report and Draft Final report .

**Table 2. Project Deliverables:**

<b>Quarterly Progress Reports</b>	April 1, 2010 – combined with July 1, 2010 Report due to late start.
	July 1, 2010 – submitted
	October 1, 2010 – submitted
	January 1, 2011 – submitted
	April 1, 2011 – to be combined with July 1
	July 1, 2011 – submitted
	October 1, 2011 in prep
<b>Draft Report</b>	October 31, 2011 in prep
<b>Final Report</b>	December 31, 2011

### Location Map for Port of San Diego Water Quality Sensors

