

## Vertical Control

All sounding data were initially reduced to mean lower low water (MLLW) using unverified tidal data from three tide stations located in Warm Spring Bay, False Bay, and Mitchell Bay, AK. Sub-contractor John Oswald & Associates LLC (JOA) operated the gauges and e-mailed the data to the R/V Davidson at the end of every Julian day.

**Table 3 - Tide Gauges**

<b>Gauge</b>	<b>Model</b>	<b>Gauge Type</b>	<b>Location</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Operational</b>
9451625	H350XL/355	Digital Bubbler	Warm Spring Bay, AK	57°05'18"N	134°49'30" W	April-September
9452328	H350XL/355	Digital Bubbler	False Bay, AK	57°40'00"N	134°56'06" W	April-September
9451953	H350XL/355	Digital Bubbler	Mitchell Bay, AK	57°32'24"N	134°25'30" W	August-September

## TIDES

All sounding data were reduced to MLLW initially using unverified tidal data from the three tide stations located in Warm Spring Bay, False Bay, and Mitchell Bay, AK. Tidal data for a twenty-four hour period UTC, (Alaska Daylight Time to UTC was +8 hours) was assembled by JOA and e-mailed to the R/V Davidson at the end of every Julian Day. A cumulative file for the gauges was updated each day by appending the new data. Refer to the OPR-O322-KR-07 Horizontal and Vertical Control Report for additional tidal information and station descriptions.

The tidal zoning was modified by JOA, providing a more elaborate zoning scheme from those zones issued in the Statement of Work. For additional information, refer to JOA's Final Technical Report.

November 5, 2007, JOA issued verified tidal data and final zoning for H11696, H11697, H11698, H11699, H11702, H11703, H11704, H11705, H11706, H11707, & H11708 of OPR-O322-KR-07. On January 2, 2008, JOA issued verified tidal data and final zoning for

H11700 & H11701 of OPR-O322-KR-07. All sounding data were then re-merged using CARIS HIPS and SIPS tide routine. Verified tidal data were used for all final Navigation BASE surfaces and S57 Feature files.<sup>11</sup>