

C. VERTICAL AND HORIZONTAL CONTROL

A summary of horizontal and vertical control for this survey follows.

Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83). Differential GPS (DGPS) was the sole method of positioning. The differential corrector beacons utilized for this survey are given in Table 2. RAINIER personnel established a temporary differential beacon on Mitrofanina Island as a backup to USCG-generated correctors. This beacon was utilized when the USCG beacons could not be received due to atmospheric effects, and is described in detail in the *OPR-P182-RA-05 Horizontal and Vertical Control Report*.¹⁶ Changes in the corrector source were noted in the data acquisition logs.

Location	Frequency	Custodian	Distance	Priority
Cold Bay	289 kHz	USCG	135nm	Primary
Kodiak	313 kHz	USCG	245nm	Primary
Mitrofanina Island	NOAA F4	NOAA (“flyaway”)	0nm	Backup

Table 2: Differential Corrector Sources for H11479.

Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) primary tide station at Sand Point, AK (945-9450) served as control for datum determination and as the primary source for water level reducers for survey H11479.

No tertiary gauges were required by the Letter Instructions for this project. However, RAINIER personnel installed a Sutron 8210 “bubbler” tide gauge at the following subordinate station for supplementary information and training purposes. This station is described in detail in the *OPR-P182-RA-05 Horizontal and Vertical Control Report*.

Station Name	Station Number	Type of Gauge	Date of Installation	Date of Removal
Mitrofanina Island	945- 9016	30-day	July, 2005	August, 2005

Table 3: Tide Stations installed by RAINIER personnel for H11479

All data were reduced to MLLW using **verified observed water levels** from station Sand Point, AK using the tide file 9459450.tid and **preliminary time and height correctors** using the zone corrector file P182RA2005CORP.zdf supplied with the project CD.