

Tide Requirements for OPR-G374-TJ-2007
Approaches to Wilmington, NC
LH 12/18/2006

5.0. TIDES

5.1. Purpose: All tide requirements in these instructions are in direct support of hydrographic survey operations.

5.2 through 5.6. Refer to Standing Instructions.

5.7. Vertical Datums:

Refer to Standing Instructions.

5.7.1. The operating National Water Level Observation Network (NWLON) station at Springmaid Pier, SC (866-1070) will serve as datum control for the survey area. Therefore, it is critical that this station remains in operation during all periods of hydrography.

5.7.1.1. Water level data acquisition monitoring

Refer to Standing Instructions.

5.7.1.2. Water level station operation and maintenance

Refer to Standing Instructions.

5.7.1.3. No leveling is required at Springmaid Pier, SC (866-1070) or Sunset Beach, NC (865-9897) by NOAA Ship Thomas Jefferson personnel.

5.8. Water Level Station Requirements: The operating water level station at Sunset Beach, NC (865-9897) will provide water level reducer for this project, reiterating the importance of its operation during all periods of hydrography. See Sections 5.7.1.1. and 5.7.1.2. concerning responsibilities.

5.8.1. There are no subordinate water level stations required for this project.

5.8.1.2. This section is not applicable for this project.

5.8.1.3 Tide Component Error Estimation: The estimated tidal error contribution to the total survey error budget in the vicinity of Wilmington is 0.21 meters at the 95% confidence level, and includes the estimated gauge measurement error, tidal datum computation error, and tidal zoning error. Based on this analysis a station will not be required in the vicinity of Wilmington, NC. It should be noted that the tidal error component can be significantly greater than stated if a substantial meteorological event or condition should occur during time of hydrography.

5.9. Zoning: For hydrography in the area of Wilmington, NC, Sunset Beach, NC (865-9897) is the reference station for predicted tides. Predictions may be retrieved in one month increments over the Internet from the CO-OPS Home Page at <http://tidesandcurrents.noaa.gov/olddata/> and

then clicking on “Predicted Water Level.” Predictions are six-minute time series data relative to MLLW in metric units on Greenwich Mean Time. Apply the following time and height correctors to the predicted tides at Sunset Beach, NC (865-9897) during the acquisition and preliminary processing phases of this project for correcting all sounding data.

<u>Zone Name</u>	<u>Time Corrector(mins)</u>	<u>Range Ratio</u>	<u>Predicted Reference</u>
SA87	0	x0.89	865-9897
SA88	-6	x0.89	865-9897
SA89	-6	x0.93	865-9897
SA90	+6	x0.93	865-9897
SA91	+6	x0.98	865-9897
SA92	0	x0.98	865-9897
SA93	0	x1.02	865-9897
SA94	+6	x1.02	865-9897
SA95	+6	x1.06	865-9897
SA96	0	x1.06	865-9897
SA98	+6	x1.02	865-9897
SA104	-6	x1.02	865-9897
SA105	-6	x0.98	865-9897
SA106	-6	x0.93	865-9897
SA107	-6	x0.89	865-9897

NOTE: The tide corrector values referenced to Sunset Beach, NC (865-9897) are provided in the zoning file “G374TJ2007CORP” for this project and are in the fourth set of correctors designated as TS4. Longitude and latitude coordinates are in decimal degrees. Negative (-) longitude is a MapInfo representation of west longitude.

NOTE: For time corrections, a negative (-) time correction indicates that the time of tide in that zone is earlier than (before) the predicted tides at the reference station, whereas, a positive (+) time correction indicates that the time of tide in that zone is later than (after) the predicted tides at the reference station. For height corrections, the water level heights **relative to MLLW** at the reference station are multiplied by the range ratio to estimate the water level heights relative to MLLW in the applicable zone.

Water level gauges for this project have been installed by CO-OPS prior to the start of the survey. Upon completion of project OPR-G374-TJ-2007, submit a Pydro generated request for smooth tides, with times of hydrography abstract and mid/mif tracklines attached. Forward this request to smooth.tides@noaa.gov .

CO-OPS will review the times of hydrography, final tracklines, and six-minute water level data from all applicable water level gauges. After review, CO-OPS will send a notice indicating that the tidal zoning scheme sent with the project instructions has been approved for final zoning. If there are any discrepancies, CO-OPS will make the appropriate adjustments and forward a revised tidal zoning scheme to the field group and processing branch for final processing.

5.9.1. Zoning Diagram(s) A zoning diagram, created in MapInfo, is to assist with the zoning provided in Section 5.9.

5.9.2. Preliminary six minute water level time series data may be retrieved from the CO-OPS database via TideBot. TideBot delivers timely preliminary/verified tidal and Great Lakes six minute water level observations via email to users on a scheduled, recurring basis. To access TideBot through an email account, send an email to TideBot@noaa.gov with the word “help” as the subject. An email reply will be sent with instructions on how to subscribe to TideBot for time series data retrieval.

5.10. Tidal Records:

Refer to Standing Instructions on what data records, reports and requests to submit to CO-OPS and the address where these documents should be submitted too.