

4.1.1 Tides and Water Levels

Tide zones based on the NOAA tide station in Portland, ME (8418150) were used with predicted tides (Table 7, Figure 11) during the data acquisition effort. Tide zones based on the NOAA tide stations in Boston, MA (8443970) and Fort Point, NH (8423898) were used with verified water levels during the post processing effort (Table 8, Figure 12).

Table 7. The Zoning Parameters Created by SAIC Used for Data Collection

Zone Name	Tide Station Name	Tide Station ID	Time Corrector (minutes)	Range Ratio
gom_1.zne	Portland, ME	8418150	+ 8	0.986
gom_2.zne	Portland, ME	8418150	+ 8	0.976
gom_3.zne	Portland, ME	8418150	+ 2	0.960
gom_4.zne	Portland, ME	8418150	+ 00	0.950
gom_5.zne	Portland, ME	8418150	- 03	0.940
gom_6.zne	Portland, ME	8418150	- 06	0.960

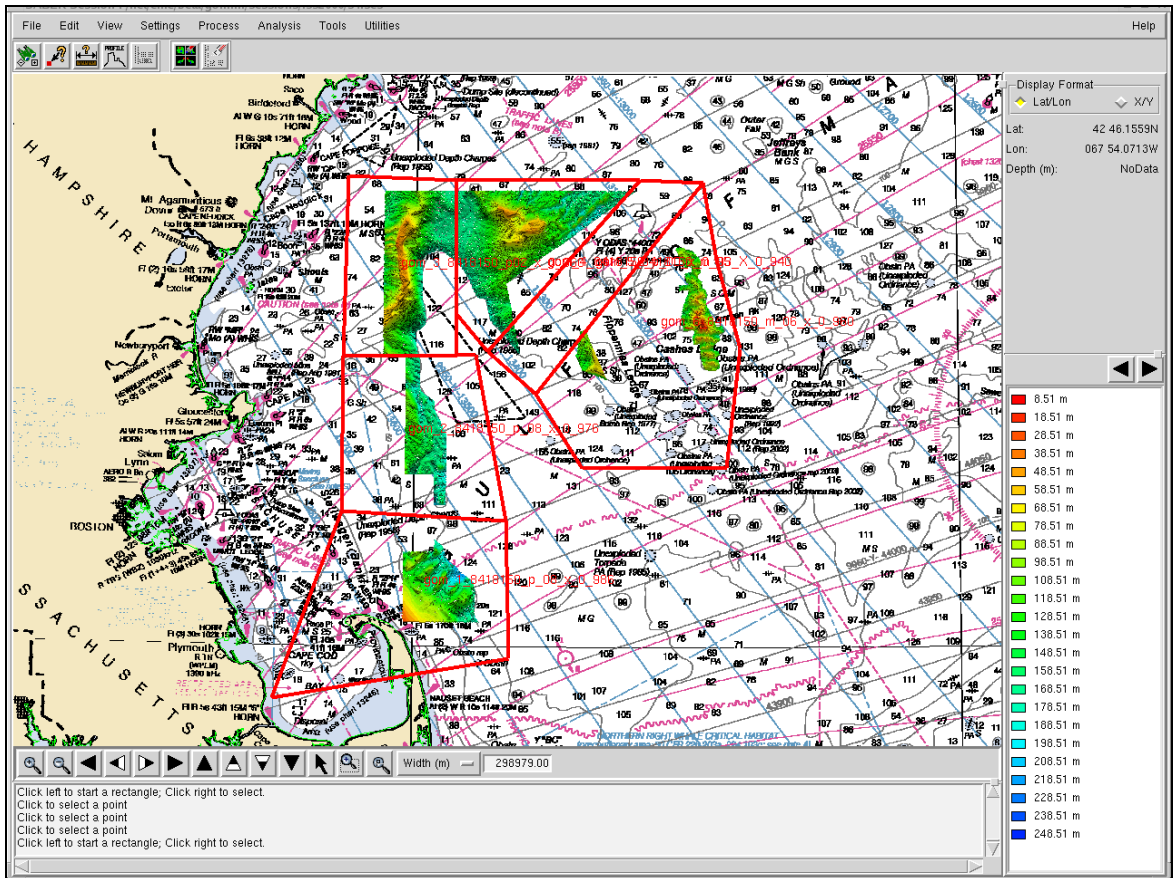


Figure 11. The Zoning Parameters Created by SAIC Used for Data Collection

This change in zoning and tide stations occurred as a result of the survey efforts being conducted by the NOAA ship *Thomas Jefferson*. The use of common zones and tide stations will allow a better match between data collected by SAIC and data collected by the *Thomas Jefferson*. For survey areas where zoning was not provided by NOAA, new zones were created using the NOAA tide stations in Boston, MA (8443970) and Fort Point, NH (8423898) (Table 8, Figure 12). NOAA provide zones are indicated in Table 8 by the prefix “NA”, while SAIC generated zones are indicated by the prefix “WS”. Preliminary and verified tide data for the stations were downloaded from the NOAA CO-OPS web page (http://co-ops.nos.noaa.gov/data_res.html). All tide data were annotated with Coordinated Universal Time (UTC). Complete zoning parameters used for data collection and post processing can be found in Appendix E.

Table 8. The Zoning Parameters Created by NOAA and SAIC Used for Data Processing

Zone Name	Tide Station Name	Tide Station ID	Time Corrector (minutes)	Range Ratio
NA155.zne	Fort Point, NH	8423898	- 24	0.99
NA177.zne	Boston, MA	8443970	- 12	0.87
NA178.zne	Boston, MA	8443970	- 30	0.87
NA183.zne	Boston, MA	8443970	- 30	0.85
NA184.zne	Boston, MA	8443970	- 12	0.85
NA199.zne	Boston, MA	8443970	- 6	0.83
NA200.zne	Boston, MA	8443970	- 12	0.83
NA207.zne	Boston, MA	8443970	- 12	0.81
NA208.zne	Boston, MA	8443970	- 6	0.81
NA209.zne	Boston, MA	8443970	+ 00	0.79
WS210.zne	Boston, MA	8443970	- 12	0.79
WS211.zne	Boston, MA	8443970	+ 6	0.79
WS212.zne	Fort Point, NH	8423898	- 36	0.99
WS213.zne	Boston, MA	8443970	- 36	0.87
WS214.zne	Boston, MA	8443970	- 36	0.85

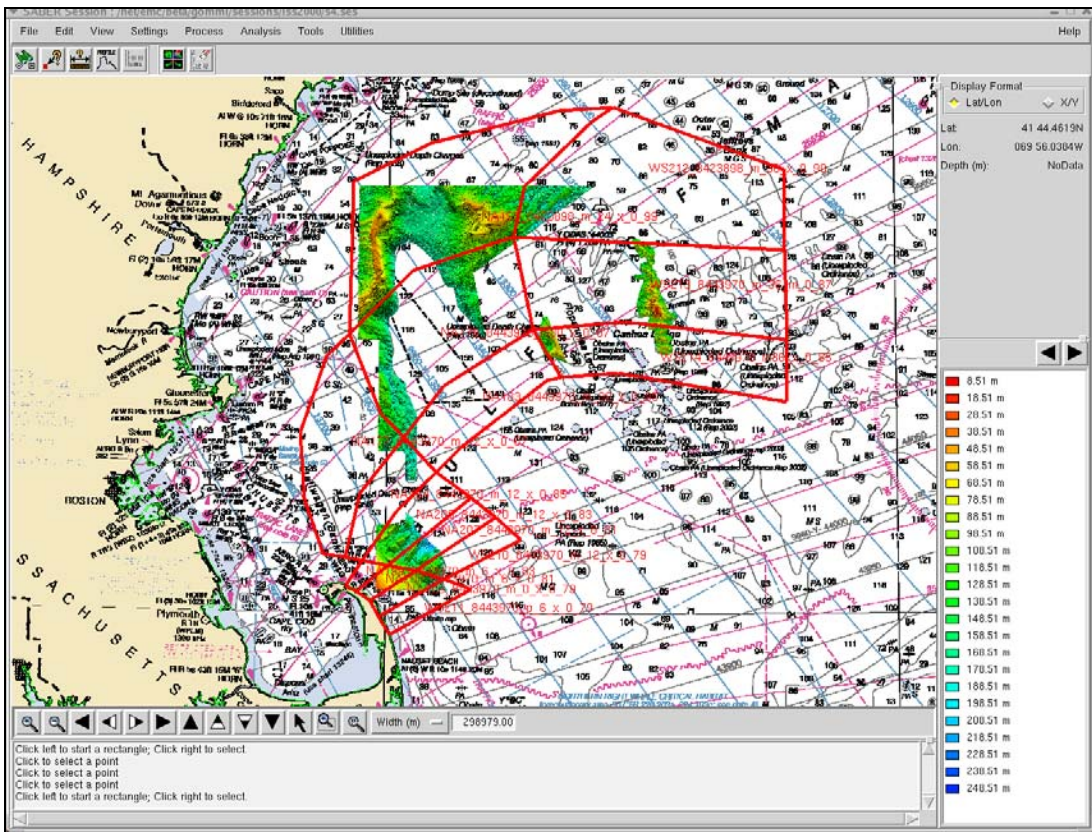


Figure 12. The Zoning Parameters Created by NOAA and SAIC Used for Data Processing

All bathymetry data collected during the survey were corrected for water level variations using water level files. Water level files for each tide zone were created from downloaded verified NOAA tide data using the SABER Create Water Level Files tool. Water level files contain water level heights that are subtracted algebraically from depths to correct the sounding for tide and water level. These water level files were applied to the multibeam data using the Apply Tides tool within the SABER software.

When the verified water level zoned heights file was applied to the GSF files, the program removed the predicted tide corrector and applied the new corrector. Each time a routine was run on the GSF multibeam data file, a history record was written at the end of the GSF file. For quality assurance the Check Tides program was run on all GSF files to confirm that the verified water level corrector had been applied to each online GSF file.