B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch (Table 10):

<table>
<thead>
<tr>
<th>Surface Name</th>
<th>Surface Type</th>
<th>Resolution</th>
<th>Depth Range</th>
<th>Surface Parameter</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>H13048_MB_1m_MLLW_final.csar</td>
<td>CARIS Raster Surface (CUBE)</td>
<td>1 meters</td>
<td>14.6 meters - 30.7 meters</td>
<td>NOAA_1m</td>
<td>Complete MBES</td>
</tr>
<tr>
<td>H13048_MB_1m_MLLW.csar</td>
<td>CARIS Raster Surface (CUBE)</td>
<td>1 meters</td>
<td>14.6 meters - 30.7 meters</td>
<td>NOAA_1m</td>
<td>Complete MBES</td>
</tr>
<tr>
<td>H13048_SSSAB_1m_455kHz_1of1.tiff</td>
<td>SSS Mosaic</td>
<td>1 meters</td>
<td>14.6 meters - 30.7 meters</td>
<td>N/A</td>
<td>100% SSS</td>
</tr>
<tr>
<td>H13048_MBAB_1m_S222_300kHz_1of2.tif</td>
<td>MB Backscatter Mosaic</td>
<td>1 meters</td>
<td>14.6 meters - 30.7 meters</td>
<td>N/A</td>
<td>MBES Backscatter</td>
</tr>
<tr>
<td>H13048_MBAB_1m_S222_70kHz_2of2.tif</td>
<td>MB Backscatter Mosaic</td>
<td>1 meters</td>
<td>14.6 meters - 30.7 meters</td>
<td>N/A</td>
<td>MBES Backscatter</td>
</tr>
</tbody>
</table>

Table 10: Submitted Surfaces

Complete coverage requirements were met by either 100% SSS and concurrent MBES or complete coverage MBES per Section 5.2.2.3 of the HSSD 2018. Density requirements were met for H13048 and all MBES data was gridded at a 1m resolution; see Project Correspondence for single grid resolution waiver. SSS data was mosaiced at a 1m resolution.

C. Vertical and Horizontal Control

No Horizontal Vertical Control Report (HVCR) accompanies this survey.

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

ERS Methods Used:

ERS via VDATUM
Ellipsoid to Chart Datum Separation File:

OPR-K371-TJ-17_WGS84-MLLW_Geoid12B.csar

All soundings were reduced to MLLW using VDATUM techniques as outlined in the DAPR.

C.2 Horizontal Control

The horizontal datum for this project is World Geodetic System (WGS) 1984. The projection used for this project is Projected UTM 15N.*

The Fugro Marinestar commercial real-time satellite based corrector service was used to meet ERS specifications for GNSS positioning.

*The horizontal datum and projection was revised to NAD83 UTM 15N during the survey verification to meet the product specifications for HSD and NCEI.

D. Results and Recommendations
D.1 Chart Comparison

Chart comparisons for all ENCs listed below were conducted as described in the DAPR.D.1.1

Electronic Navigational Charts

The following are the largest scale ENCs, which cover the survey area (Table 11):

<table>
<thead>
<tr>
<th>ENC</th>
<th>Scale</th>
<th>Edition</th>
<th>Update Application Date</th>
<th>Issue Date</th>
<th>Preliminary?</th>
</tr>
</thead>
<tbody>
<tr>
<td>US3GC02M</td>
<td>1:250000</td>
<td>33</td>
<td>07/11/2018</td>
<td>10/03/2018</td>
<td>NO</td>
</tr>
</tbody>
</table>

*Table 11: Largest Scale ENCs*

US3GC02M

US3GC02M is the largest scale chart covering the H13048 survey area. Two significant discrepancies between charted sounding values and observed depths were observed: (1) an obstruction in the north-eastern portion of the sheet charted at 14.6 m with an observed least depth of 15.1 m (Figure 16); and (2) a charted