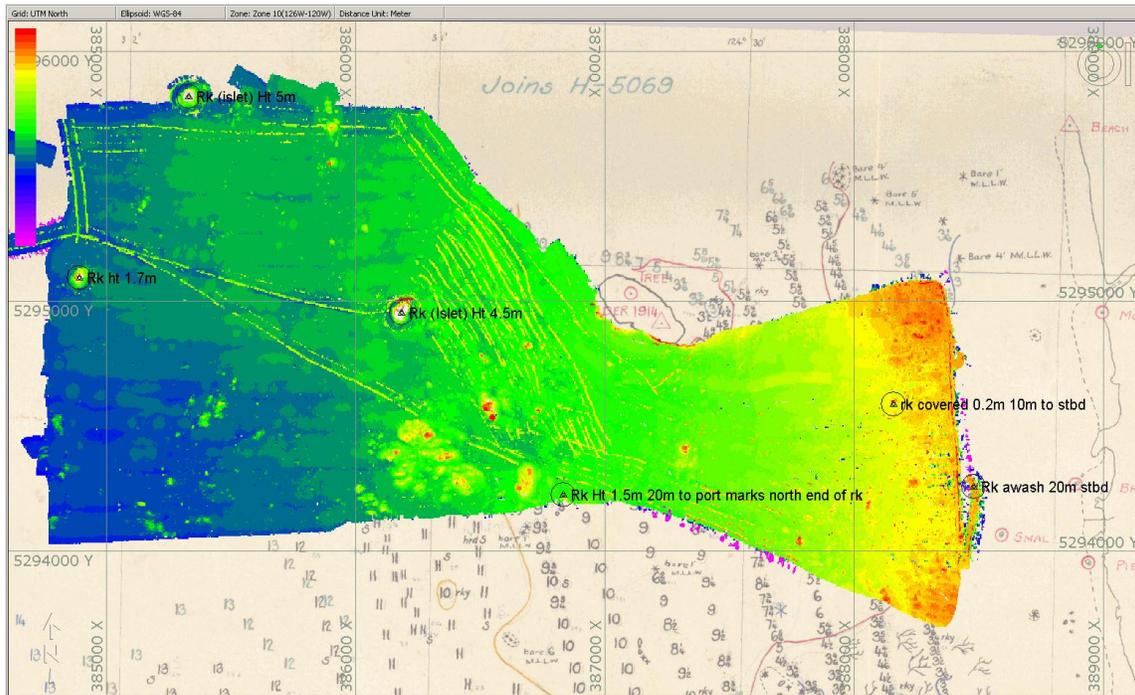


Descriptive Report

Mosquito Creek Approach Investigation

OCNMS R/V TATOOSH

A. AREA SURVEYED



This survey investigation was in response to a dock which is reported to be Tsunami Debris from Japan that washed ashore on the Washington Coast between Mosquito Creek and Hoh Head. The purpose of this investigation was to survey an area to identify safe passage for a potential salvage vessel to approach from sea to a point near enough to hook a tow line to the derelict dock.

The vessel utilized in this investigation was the Olympic Coast National Marine Sanctuary research vessel TATOOSH. The area surveyed was approximately 1.9 nm long and 1 nm wide.

B. DATA ACQUISITION AND PROCESSING

1. Equipment

The R/V TATOOSH is a 38' Munson hull. The LOA is 12.8m, beam 3.7m, draft 1m. The survey hardware is comprised of a RESON 8101 SWMB sonar that is hull mounted to the R/V TATOOSH, a TRIMBLE DSM 212 DGPS receiver, TSS DMSO5 inertial motion unit, and S.G. Brown Gyro Compass. HYPACK/HYSWEEP software is utilized as the acquisition software and CARIS used for processing. Sound velocity data is collected with a seabird SBE19 CTD.

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2. Quality Control

Twenty-one cross lines were run for a total of 4.9 nm or 15% of the main scheme lines. The agreement between cross lines and main scheme lines was excellent and no systematic errors were observed.

A CARIS QC reports were generated on the data from 0° - 75° from nadir on two base surfaces of ranges 0-18m and 18-40m. During processing data on beams greater than 60° were rejected. 95% of data collected from beams from nadir to 45° met order 1 standards and 95% of data from 45° to 60° met order 2 standards.

On the first day of acquisition considerable noise in the data was encountered due to the learning process of the survey team to find appropriate sonar settings for the conditions encountered in the survey area. In the shallower portions of the survey where the adjacent survey lines were narrowly spaced bubbles from the jet propulsion created some noise in the data.

An attempt to get 100% bottom coverage was made but due to the loss of the weather window survey operations were halted. The hydrographer feels that although 100% bottom coverage was not completed this survey was adequately completed for its intended purpose and all significant features in the survey area were found. The hydrographic feels this survey is sufficient to supersede the prior surveys and be used for updating the charted soundings in the area.

3. Corrections to Echo Soundings

A Patch Test was conducted on January 16, 2013 in the vicinity of La Push, WA. Corrections were computed in CARIS and entered into the CARIS HVF file for application to the sounding data.

Dynamic draft was applied to the sounding data. The dynamic draft measurements were observed on June 27, 2011 by using a level set up on Hollywood Beach in Port Angeles, WA and observing a staff on the R/V TATOOSH while approaching the level at varying speeds.

Sound velocity (SV) casts were conducted approximately every two hours. SV casts were processed with Seabird proprietary software. SV cast data were manually extended 20% using the last value in the cast. Due to a thin fresh water layer on the surface from the proximity of Mosquito Creek and Hoh River and a high pressure system with little-to-no wind for mixing, some sound velocity artifacts were seen in the data in the form of smiley face profiles in the CARIS swath editor. Due in part to fresh water on the surface and averaging in values as the CTD is equalizing at the surface the top 1-m bin value is believed to be skewed and not representative of the SV at the transducer face. The surface 1-m bin sound velocity value was edited using the best slope method of the top 3-5 meters of each SV profile which corrected the sound velocity artifacts seen in the data.

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4. Features

Six features were positioned. Three larger rocks/Islets were positioned by running a survey line around the feature and recording a geographic position using the HYPACK target feature in the center of the circle. Two smaller rocks and the end of a reef were also positioned by recording the position of the survey vessel and recording an offset and azimuth to the feature. NGS software program "Forward" was used to compute the geographic positions from the recorded information. See attached Feature Report for positions.

5. Data Processing

Data processing of soundings was conducted in CARIS. Two CARIS cube surfaces were created over the survey area. One surface for depths up to 18m with a resolution of 1m and ranges from the inshore limit of the survey in approximately 4.5m depth to the 18m curve that extends from the NW end of Anderson Island SW to the southern border of the survey. The second CARIS cube surface was created for depths greater than 18m at a 2m resolution and encompassed the offshore half of the survey

C. AIDS TO NAVIGATION

There are no aids to navigation in the survey area.

D. DANGER TO NAVIGATION REPORTS

No dangers to navigation were found.

E. RECOMMENDATIONS

The hydrographer feels this survey is adequate to supersede the charted soundings in the survey area.

Due to increasing recreational use of the Washington Coast and the rugged nature of the coast a series of larger scale charts is recommended. NOS chart 18485, 1:40,000 covers the entrance to the Strait of Juan de Fuca south to Cape Alava and is an appropriate scale for the traffic and use of the area. South of chart 18485 vessels navigate on chart 18480, scale 1:176253 and chart 18500, scale 1:180789. These small scale charts are not conducive to safe navigation in this area. Two 1:40,000 scale charts extending from Cape Alava to Cape Grenville are recommended for safe navigation. South of Cape Grenville the shore generally has a slow bottom and non-descript shoreline and a smaller scale chart would be suitable.