W00465

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Service

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: W00465

LOCALITY

State(s):   California

General Locality: Channel Islands, California

Sub-locality: Coche Point to San Pedro Point

2006

CHIEF OF PARTY
Pat Iampietro

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**W00465**

INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

State(s): **California**

General Locality: **Channel Islands, California**

Sub-Locality: **Coche Point to San Pedro Point**

Scale: **40000**

Dates of Survey: **04/11/2006 to 04/16/2006**

Instructions Dated: **09/27/2019**

Project Number: **ESD-PHB-18**

Field Unit: **Seafloor Mapping Lab, California State University Monterey Bay**

Chief of Party: **Pat Iampietro**

Soundings by: **Reson SeaBat 8101** (**MBES**)

Imagery by: **N/A**

Verification by: **Pacific Hydrographic Branch**

Soundings Acquired in: **meters at Mean Lower Low Water**

Remarks:

DESCRIPTIVE REPORT MEMO

<div align="right">October 16, 2019</div>

MEMORANDUM FOR: Pacific Hydrographic Branch

FROM: Report prepared by PHB on behalf of field unit
Pat Iampietro
Chief Hydrographer, Seafloor Mapping Lab at California State
University Monterey Bay

SUBJECT: Submission of Survey W00465

The purpose of the work was to provide high-resolution (1-5m grid) multibeam bathymetry and sonar-derived habitat products for areas designated by the PI's within the California Channel Islands Marine Protected Area Network. Surveys were conducted at Santa Rosa (Carrington Pt) and Santa Cruz Islands (Gull and Scorpion Pt). Marine reserves provide a promising alternative to conventional, single-species fishery management that bares a history of biological and economic failure. While reserves ensure ecosystem benefits, such as biodiversity and habitat conservation, ecological theories of how reserves enhance fishery production are supported by relatively little empirical data.

Consequently, there is strong resistance to reserves within the fishing community. The research addressed here proposed an adaptive learning process based on scientific inquiry that will lead to more informed policy decisions regarding reserves as fishery management tools. Specifically, we propose to (1) examine whether spill-over of the CA spiny lobster (Panulirus interruptus) influences yield (catch-per-unit-effort); (2) initiate a monitoring program that exploits reserves to generate lobster population data for advancing stock assessment; (3) map the habitat, biological, and fishery economic properties of an ecosystem containing reserves to create the template for ecosystem-based management; and (4) use the information gained from steps 1-3 to develop dynamical decision-theoretic models that will guide adaptive fishery management and promote learning in management.

There were no products created for this survey.

All soundings were reduced to Mean Lower Low Water using VDatum. The horizontal datum for this project is North American Datum of 1983 (NAD 83). The projection used for this project is Universal Transverse Mercator (UTM) Zone 11.

Upon delivery to the Pacific Hydrographic Branch, ASCII files were reduced to MLLW via VDatum.

Bathymetric and backscatter (sidescan) data were collected aboard the R/V VenTresca using a Reson 8101 multibeam echosounder. Prior to data collection a series of survey lines were created using Hypack Max v02.12a GOLD from Coastal Oceanographics. An Applanix POS/MV was used to position the vessel during data collection and accounted for vessel motion such as heave, pitch, and roll (position accuracy ± 2m, pitch, roll and heading accuracy ±0.02°, heave accuracy ± 5% or 5cm). CNAV data were used to account for tide cycle fluctuations and sound velocity profiles were collected with an Applied Microsystems SVPlus sound velocimeter.

Bathymetric data were post-processed using CARIS HIPS hydrographic data cleaning system software. Soundings were corrected for vessel motion using Applanix POS/MV data, variations in water column sound velocity using AML SV+ data, and adjusted for variations in water height (tides) using vertical position data from a NavCom 2050 GPS receiver (CNAV). Final x,y,z soundings, surface models, and derived products are relative to the NAVD88 vertical datum. Cleaning to remove erroneous soundings was completed in CARIS HIPS. Soundings (x,y,z) were exported from a Bathymetry Associated with Statistical Error (BASE) Surface as an ASCII file with 2m spacing and imported into Fledermaus AverageGridder to interpolate 2m digital elevation model (DEM) grid(s). The 2m Fledermaus grid was exported as an ArcInfo ASCII raster file (.asc), which was imported into ArcGIS Spatial Analyst to generate a 2m bathymetry ArcInfo grid. The Spatial Analyst Surface Analysis tools were used to produce hillshade and slope grids from the 2m bathymetry grid.

At the Pacific Hydrographic Branch, the ArcInfo ASCII raster files were imported into a .csar raster file and gridded at a 2-meter resolution. This surface was then used for evaluation. In instances where fliers or erroneous data were discovered, the surface extract tool was used to remove the data from the surface.

Uncertainty was not provided with the data. Uncertainty was calculated by the reviewer using CATZOC B standards: $1.0 + (0.02 * \text{Depth})$.

One new DtoN was found during office review and submitted to MCD and is currently charted. The DtoN has been provided in the final feature file associated with this survey.

Seafloor Mapping Lab at California State University Monterey Bay acquired the data outlined in this report. Data are available at http://seafloor.csumb.edu/SFMLwebDATA_s.htm#CI

Holidays do exists in this dataset and are shown in the image below.

In general, the data shows very good internal consistency. It appears that the surface is free of fliers, though without the underlying HDCS data it is difficult to determine.

Flier finder and visual inspection of the surfaces were performed to search for fliers.

Many features were unaddressed. Due to the coarse resolution and low density of soundings in the shallow areas of this survey, and the lack of HDCS data, the reviewer was unable to disprove charted features. It is highly recommended to resurvey areas shallower than 20 meters and to perform feature disprovals.

A junction comparison between W00465 and survey W00433 was performed by the reviewer. Survey W00433 was collected by the E/V Nautilus in 2017. The junction between these two surveys are very good with 93% of the nodes agreeing within TVU tolerance levels (see images below).

Additionally, preliminary data from the NOAA Ship FAIRWEATHER was provided from data collected in 2019. The junction comparison shows very good correlation with current data. The eastern half of this survey has a degraded comparison.
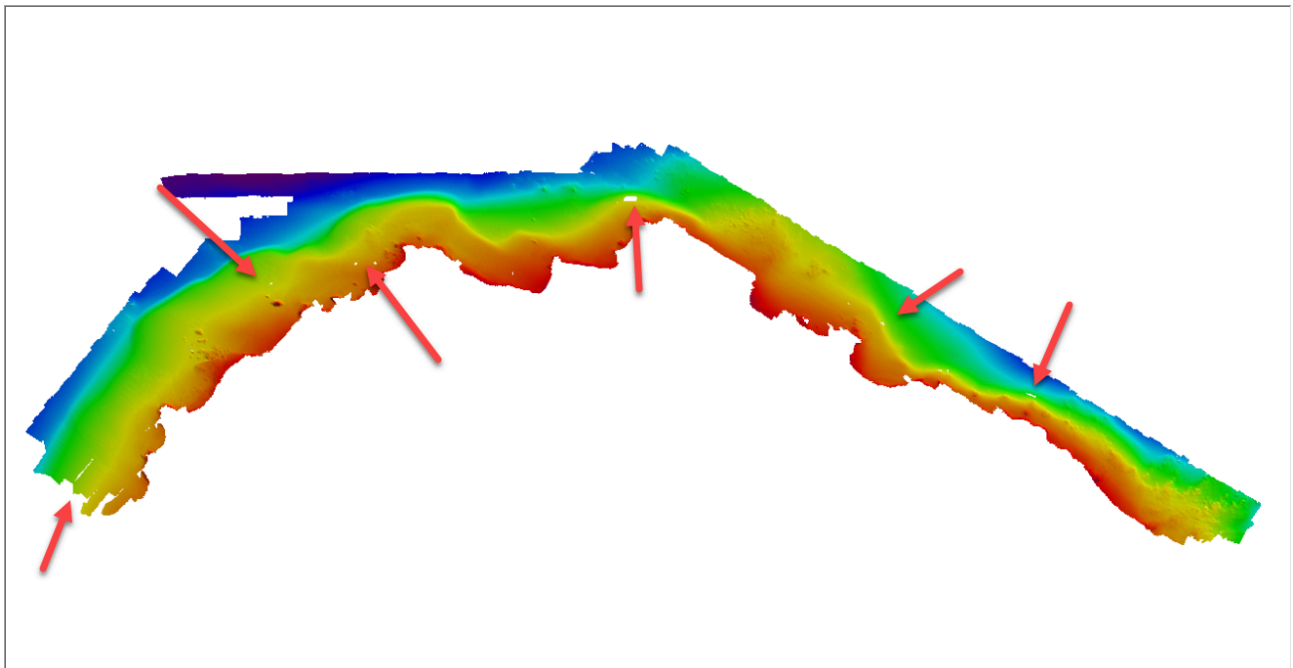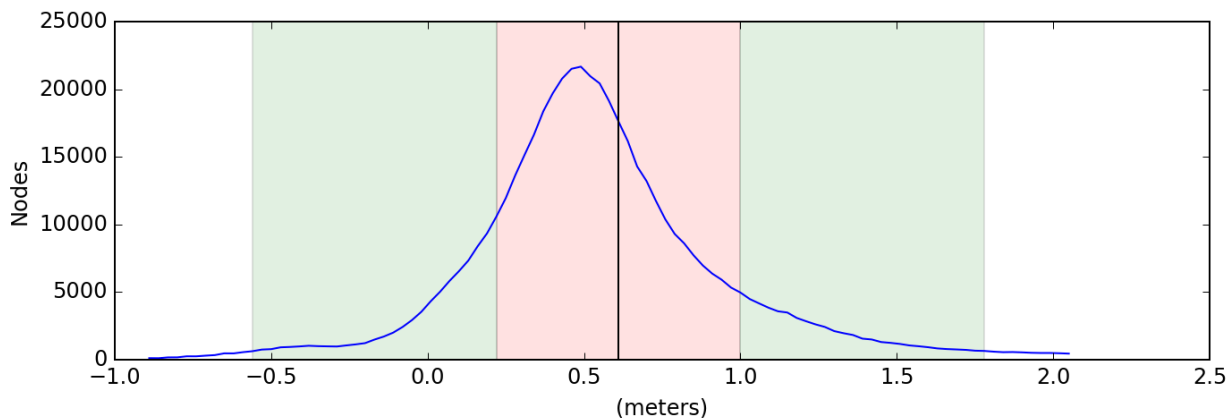

Holidays found in surface.

Approximate Location:
34-03-29.213N, 119-34-04.346W
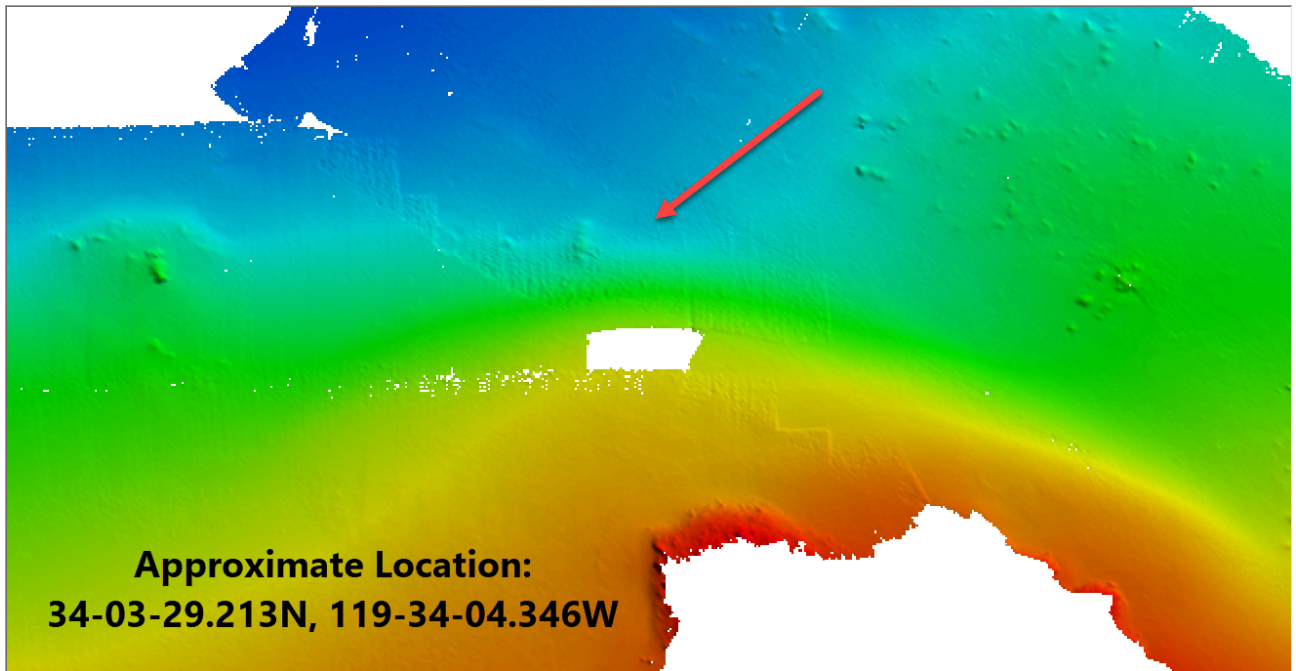
Vertical offsets in the data.

W00465_MB_2m_MLLW_1of1-W00433_MB_8m_XXXX
Mean: 0.61 | Mode: 0.49 | One Standard Deviation: 0.56 | Bin size: 0.03
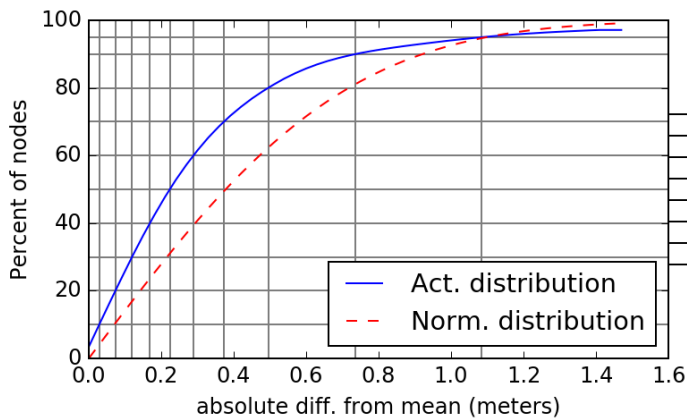
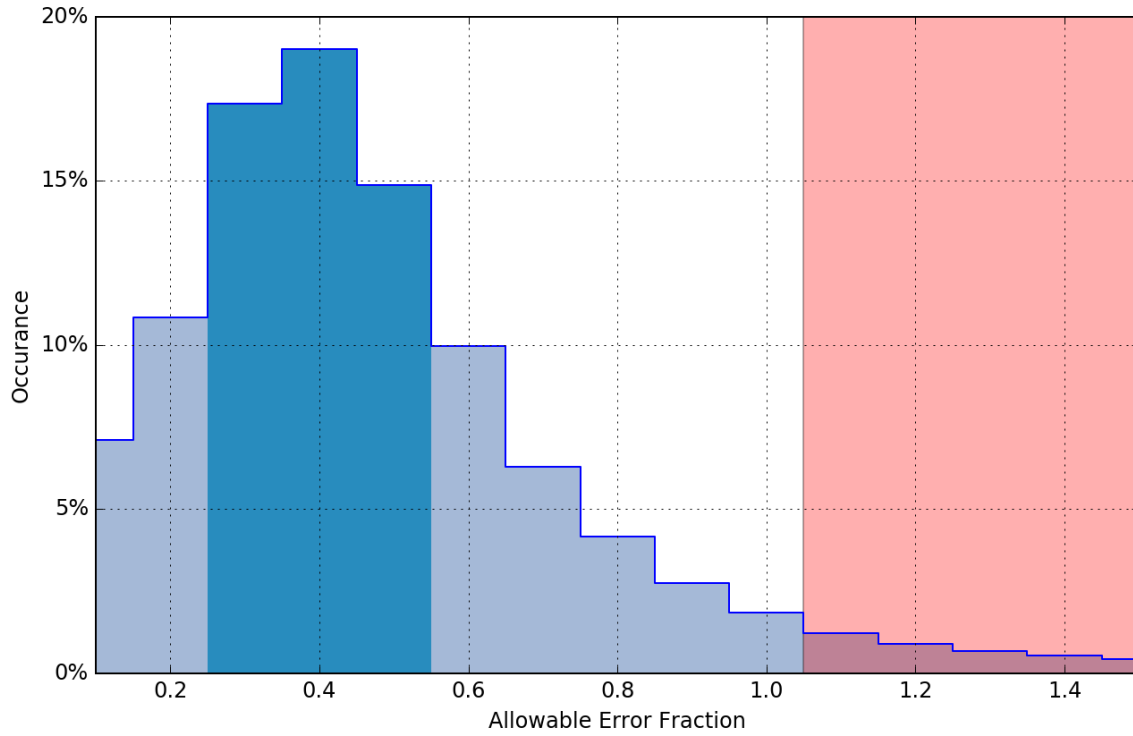| Percent of nodes	Deviation (m)
50%	+/- 0.22
60%	+/- 0.29
70%	+/- 0.37
80%	+/- 0.50
90%	+/- 0.74
95%	+/- 1.08

Junction comparison between W00465 and W00433.

Comparison Distribution

Per Grid: W00465_MB_2m_MLLW_1of1-W00433_MB_8m_XXXX_fracAllowErr.csar

93% nodes pass (478615), min=0.0, mode=0.4 mean=0.5 max=10.1

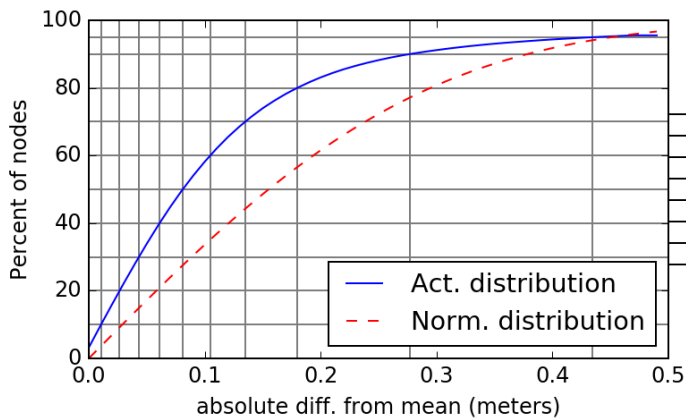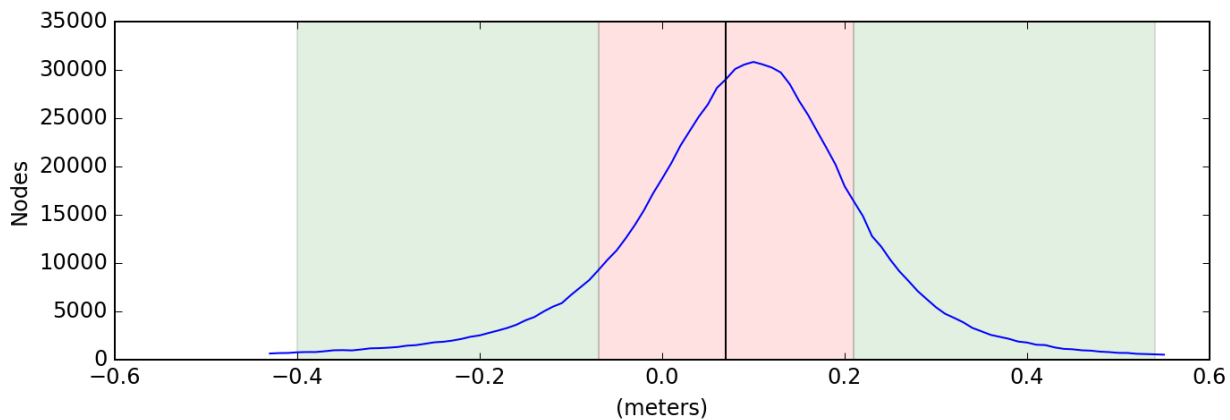Percentiles: 2.5%=0.0, Q1=0.3, median=0.4, Q3=0.6, 97.5%=1.6

Junction comparison between W00465 and W00433.
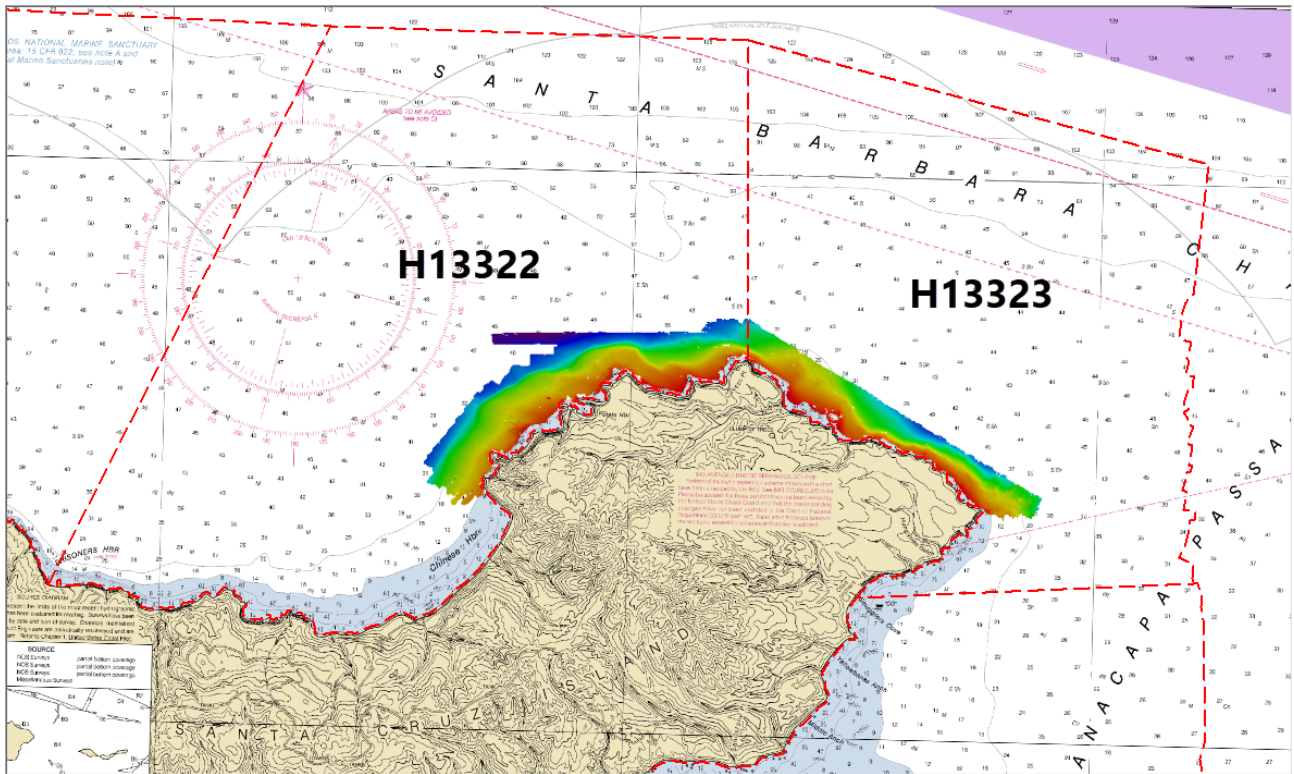
Survey outlines from 2019 FAIRWEATHER data overlaid by survey W00465.

W00465-H13322 Junction
Mean: 0.07 | Mode: 0.10 | One Standard Deviation: 0.23 | Bin size: 0.01

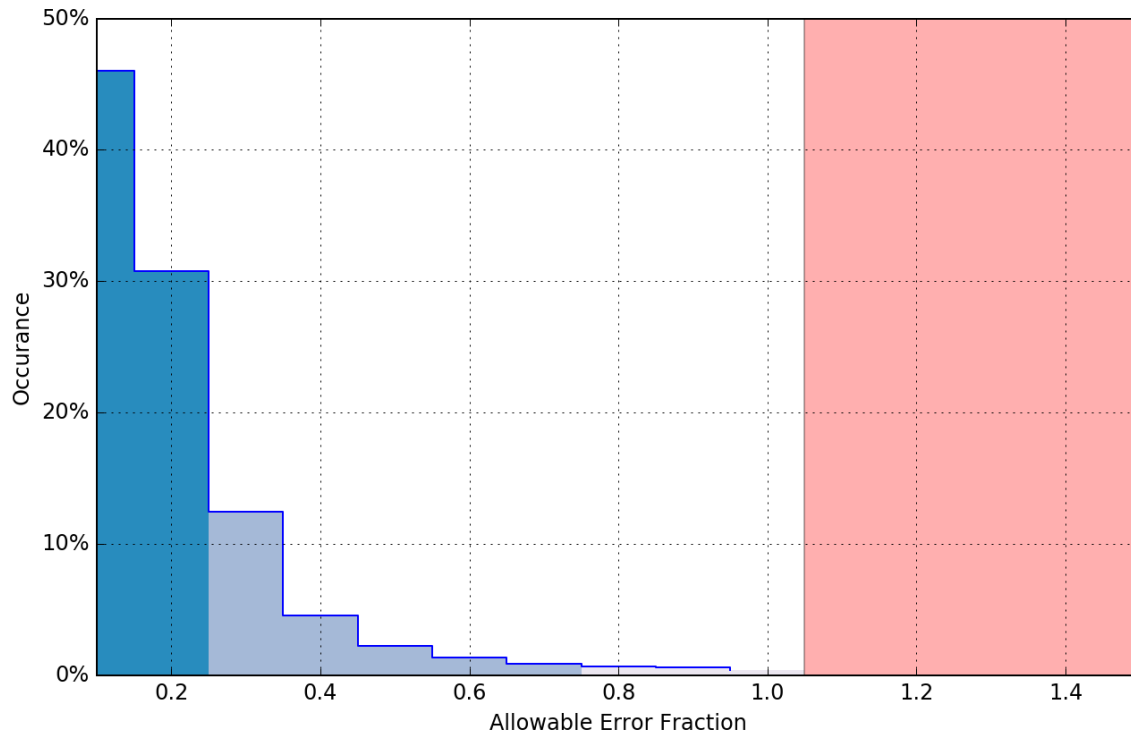| Percent of nodes	Deviation (m)
50%	+/- 0.08
60%	+/- 0.10
70%	+/- 0.13
80%	+/- 0.18
90%	+/- 0.28
95%	+/- 0.43

Junction comparison between W00465 and H13322.

Comparison Distribution

Per Grid: W00465_MB_2m_MLLW-H13322_MB_VR_MLLW_SR_fracAllowErr.csar
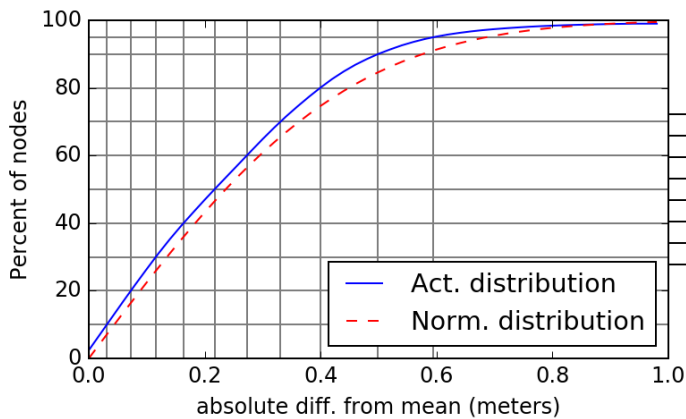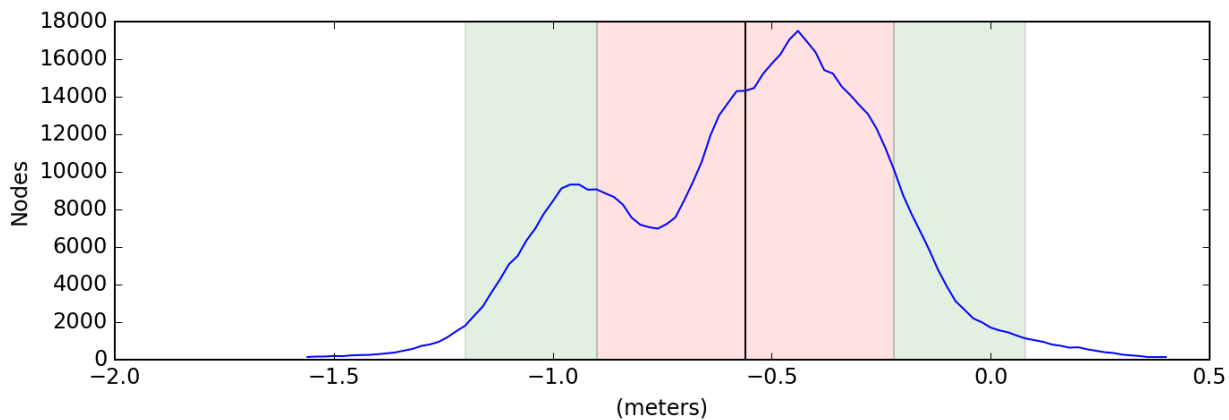
99% nodes pass (895872), min=0.0, mode=0.1 mean=0.2 max=11.1

Percentiles: 2.5%=0.0, Q1=0.1, median=0.1, Q3=0.2, 97.5%=0.7

Junction comparison between W00465 and H13322.

W00465-H13323 Junction
Mean: -0.56 | Mode: -0.44 | One Standard Deviation: 0.35 | Bin size: 0.02

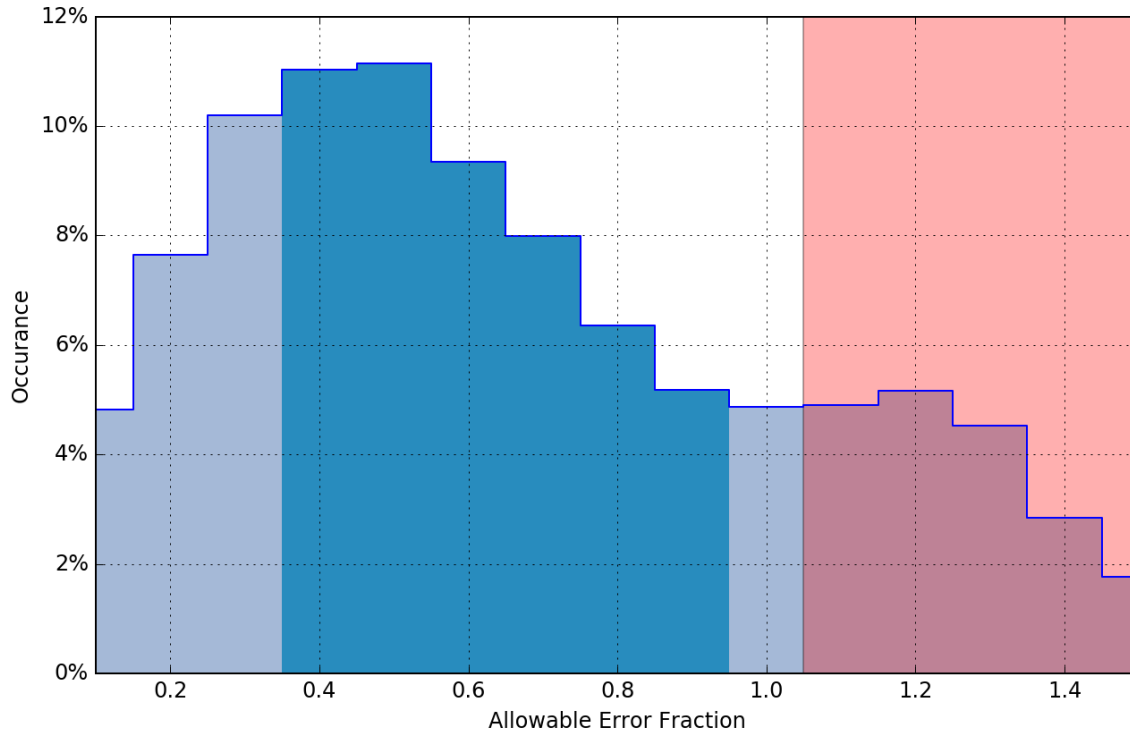| Percent of nodes	Deviation (m)
50%	+/- 0.22
60%	+/- 0.27
70%	+/- 0.33
80%	+/- 0.40
90%	+/- 0.50
95%	+/- 0.59

Junction comparison between W00465 and H13323.

Comparison Distribution

Per Grid: W00465_MB_2m_MLLW-H13323_MB_VR_MLLW_SR_fracAllowErr.csar

76% nodes pass (452299), min=0.0, mode=0.5 mean=0.7 max=23.1

Percentiles: 2.5%=0.1, Q1=0.4, median=0.6, Q3=1.0, 97.5%=1.5

Junction comparison between W00465 and H13323.

This survey does meet charting specifications and is adequate to supersede prior data.

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NCEI for archive
- Descriptive Report
- Collection of Bathymetric Attributed Grids (BAGs)
- Processed survey data and records
- GeoPDF of survey products

The survey evaluation and verification has been conducted according current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved:_____

Commander Olivia Hauser, NOAA
Chief, Pacific Hydrographic Branch