Data Documentation	
Data Collection Title	**NCCOS Assessment: Benthic Habitat Maps of Saipan Lagoon, Commonwealth of the Northern Mariana Islands**
Dataset Title	**Imagery datasets for the Saipan Lagoon, CNMI**
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Abstract	A WorldView 2 (WV2) satellite image was acquired for Saipan Lagoon on February 5, 2016 at 10:44:34 am local time. This excellent image was the basis for our habitat maps and predictions. Twenty-four of the twenty-eight environmental predictors were derived from this satellite image. To correct geometric distortions caused by Saipan's mountainous topography, spectral bands were orthorectified using 20 ground control points (GCPs) from 2002 and a digital elevation model (DEM). This correction was done in ENVI 5.2: Orthorectify WorldView with Ground Control. A 2001 IKONOS mosaic was rubber-sheeted (*i.e.*, coregistered) to match the precise georeferencing of the WV2 image using ENVI Classic 5.2: Warp from GCPs: Image to Image. This coregistration was done, so we could assess habitat changes in the lagoon between 2001 and 2016. The final orthorectified WV2 image and IKONOS mosaic were both pansharpened and geo-referenced to the World Geodetic System 1984, Universal Transverse Mercator, Zone 55 North horizontal coordinate system (WGS84 UTM 55N). Positional accuracies of these surfaces were evaluated using an independent set of 25 GCPs collected from August 3 to 8, 2016. GCPs were evenly distributed across the island and positioned on features that were clearly identifiable in the imagery such as docks, parking lots, tennis courts, and other low-profile objects with distinct edges. Raw GPS data was post-processed and differentially corrected. The final RMSE is 5.0 m and 3.8 m for the WV2 image and IKONOS mosaic, respectively. This data package includes the following geospatial datasets (below). For complete descriptions of these datasets and the methods used to generate them, please see: Kendall *et al*. (2017). 1. Digital Elevation Model (DEM) 2. Ground Control Points: a. 2002 b. 2016 3. Satellite Images: a. IKONOS Mosaic (2001-03-09 and 2001-03-20) b. World View 2 Image (2016-02-05)
Purpose	CNMI's Bureau of Environmental and Coastal Quality (BECQ) and NOAA's Pacific Islands Regional Office (PIRO) partnered with NOAA's National Centers for Coastal Ocean Science (NCCOS) to develop updated habitat maps and assess habitat changes in Saipan Lagoon, CNMI. NCCOS developed these spatially resolved maps using environmental predictors, underwater videos/photos and mathematical modeling techniques. The new maps were designed to inform the Saipan Lagoon Use Management Plan (SLUMP), which is being updated in response to changes in lagoon habitats, user activities, and increases in tourism. Understanding the present spatial distribution of benthic habitats is an important part of the Territorial Government's process to evaluate zoning scenarios, minimize user conflicts, ensure public safety, and prevent environmental degradation inside the lagoon. Products from this assessment may also support coastal and ocean management efforts by other territorial and federal agencies working in Saipan. This work was funded by NOAA Coral Reef Conservation Program (CRCP Project #31100).
Methods	See Kendall et al. (2017).
Citations	Kendall, M., B. Costa, S. McKagan, L. Johnston, and D. Okano. 2017. Benthic Habitat Maps of Saipan Lagoon. NOAA Technical Memorandum NOS NCCOS 229. Silver Spring, MD. 79 pp.
Start Date	2001-03-09
End Date	2016-08-08

Northern Boundary	15.308
Southern Boundary	15.062
Western Boundary	145.676
Eastern Boundary	145.839
Projection	World Geodetic System 1984 (WGS84), Universal Transverse Mercator, Zone 55 North (UTM 55N)
Resource Provider	*NCCOS Data Manager <nccos.data@noaa.gov>*
Comment	*This data documentation describes numerous geospatial datasets archived together as a NOAA NCEI data collection, and is intended to provide dataset-level metadata for the purposes of discovery, use, and understanding.*
Use Limitation	*Please note: NOAA makes no warranty, expressed or implied, regarding these data, nor does the fact of distribution constitute such a warranty. NOAA cannot assume liability for any damages caused by any errors or omissions in these data.*

Datasets: Imagery	**Definition**
Digital Elevation Model (DEM)	Elevations (in meters) for Saipan. Format Geotiff; LZW compression; spatial resolution 9x9 meters; units meters; time period 2007; instrument Compact Hydrographic Airborne Rapid Total Survey (CHARTS)LiDAR system; data source USACE (U.S. Army Corps of Engineers). 2007. 2007 USACE Lidar: Pacific Islands (Saipan). Data downloaded 5 March, 2016. Data Website: https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=561/details/561 (Accessed 21 February, 2016).
Ground Control Points (GCPs) 2002	Precise locations of well-defined features (*e.g.*, sidewalks, piers, tennis courts *etc*.) visible in the IKONOS mosaic. Format point shapefile; no compression; spatial resolution n/a; units n/a; time period 2002-01-04 to 2002-01-07; instrument Trimble GPS unit; data source NOAA NCCOS (National Centers for Coastal Ocean Science). 2005. Atlas of the Shallow-Water Benthic Habitats of American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands; CNMI – Data; Saipan; GPS Control Points (ZIP, 11 KB), Image Mosaics (ZIP, 41.2KB). Data downloaded 5 March 2016. Data Website: https://products.coastalscience.noaa.gov/collections/benthic/e99us_pac/data_cnmi.aspx (Site Accessed 21 February 2017).
Ground Control Points (GCPs) 2016	Precise locations of well-defined features (*e.g.*, sidewalks, piers, tennis courts *etc*.) visible in the World View 2 image. Format point shapefile; no compression; spatial resolution n/a; units n/a; time period 2016-08-03 to 2016-08-08; instrument Trimble GeoXH GPS; data source Kendall et al. 2017.
World View 2 (WV2) Image	Pansharpened satellite image of Saipan acquired by the WV2 sensor. Format geotiff; no compression; spatial resolution 0.5x0.5 meters; units digital numbers; time period 2016-02-05; instrument World View 2 satellite. Active as of March 2016; data source Kendall et al. 2017.
IKONOS Mosaic	Pansharpened satellite mosaic of Saipan acquired by the IKONOS sensor. Two IKONOS images (acquired on 2001-03-09 and 2001-03-20) were blended to create this mosaic. Format geotiff; no compression; spatial resolution 0.5x0.5 meters; units digital numbers; time period 2001-03; instrument IKONOS satellite. Decommissioned in 2015-03-31; data source NOAA NCCOS (National Centers for Coastal Ocean Science). 2001. Atlas of the Shallow-Water Benthic Habitats of American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands; CNMI – Data; Saipan; Image Mosaics(ZIP, 41.2KB). Data downloaded 5 March 2016. Data Website: https://products.coastalscience.noaa.gov/collections/benthic/e99us_pac/data_cnmi.aspx (Site Accessed 21 February 2017).