

UNITED STATES OF AMERICA

National Report

To the South West Pacific Hydrographic Commission (SWPHC)

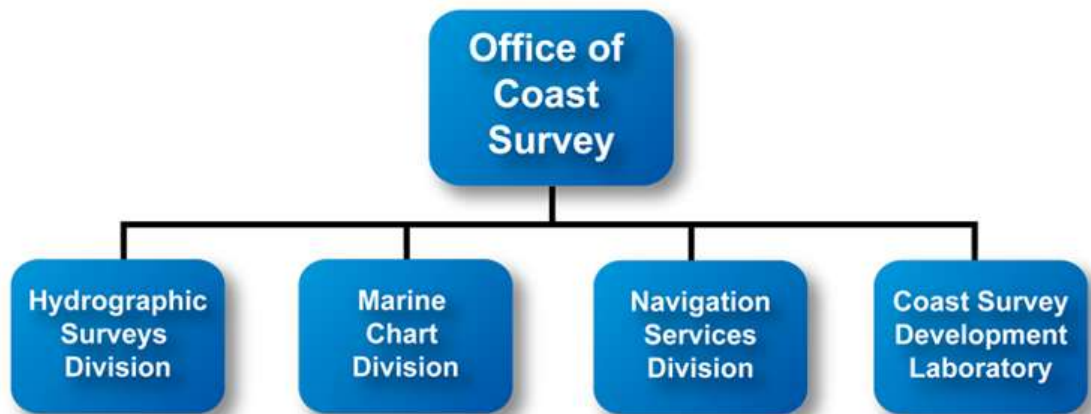
**NOAA's Office of Coast Survey, National Geospatial-Intelligence Agency, and Naval
Oceanographic Office**

This report represents an overview of the United States' hydrographic activities. Direct any specific questions to U. S. Hydrographic Office representatives or the relevant hydrographic component.

1. US Hydrographic Activities

- 1.1 The Office of Coast Survey (OCS) is a line office within the National Ocean Service, part of the National Oceanic and Atmospheric Administration (NOAA). The administrator of NOAA reports to the Secretary of Commerce, a member of the Presidential Cabinet. OCS provides navigation products and services that ensure safe and efficient maritime commerce on America's oceans and coastal waters, and in the Great Lakes. In fulfillment of this mission, OCS is responsible for conducting hydrographic surveys and producing the nation's nautical charts for the U.S. Exclusive Economic Zone, an area of 3.4 million square nautical miles.

OCS is made up of the four following divisions: Hydrographic Surveys Division, Marine Chart Division, Navigational Services Division, and the Coast Survey Development Lab.



- 1.2 The National Geospatial-Intelligence Agency (NGA) provides timely, relevant and accurate geospatial intelligence in support of national security objectives. The term "geospatial intelligence" (GEOINT) means the exploitation and analysis of imagery and geospatial information to describe, assess and visually depict physical features and geographically referenced activities on the Earth. Geospatial intelligence consists of imagery, imagery intelligence and geospatial (e.g., mapping, charting and geodesy) information. NGA also contributes to humanitarian efforts, such as tracking floods, providing support for disaster response and peacekeeping efforts. The Office of Global Navigation Maritime Domain is tasked with the responsibility to collect and analyze maritime safety information and to produce and provide global access to nautical charts, publications, and custom tailored digital hydrographic and bathymetric safety of navigation data.

1.3 The U.S. Naval Oceanographic Office (NAVOCEANO) acquires and analyzes global ocean and littoral data to provide specialized, operationally significant products and services for war fighters and civilian, national and international customers. Utilizing airborne, surface and subsurface platforms deployed worldwide, remote-sensing satellites and seaborne buoys, NAVOCEANO data are converted into products that are tailored to customer's needs. These products and services support virtually every type of Fleet operation by providing mission essential information.

2. Surveys

- 2.1 The statutory mandate of the National Oceanic and Atmospheric Administration (NOAA) authorizes NOAA to provide nautical charts and related hydrographic information for the safe navigation of maritime commerce as well as to provide basic data for engineering, scientific, and other commercial and industrial activities. This mandate covers all US territorial waters and the US Exclusive Economic Zone (EEZ), a combined area of 3.4 million square nautical miles (SNM) which extends 200 nautical miles offshore from the nation's coastline. The production of high-quality navigation charts to support the safety of marine transportation depends on the availability of up-to-date, reliable hydrographic survey data.
- 2.2 Although the primary use for NOAA surveys is for chart compilation, they are also available to the general public via NOAA's National Geophysical Data Center (NGDC). NGDC is the data archive and distribution center for the Office of Coast Survey (OCS) digital hydrographic data. NGDC also maintains the National Ocean Service Hydrographic Data Base (NOSHDB) providing survey coverage of the coastal waters and Exclusive Economic Zone (EEZ) of the United States and its territories.
- 2.3 NOAA has designated 511,000 SQM of territorial waters as navigationally significant. From 1994 to 2009, 33,279 SQM of this navigationally significant area has been surveyed with full bottom coverage. In the 2010 calendar year, 2900 square nautical miles have been surveyed bringing the total of navigationally significant area surveyed with full bottom coverage to 26, 179 SQM.
- 2.4 NOAA's National Ocean Service operates three full time survey vessels devoted to supporting OCS charting responsibilities. These vessels are the FAIRWEATHER, THOMAS JEFFERSON, and the RAINIER. In addition to these platforms OCS's Navigation Services Division (NSD) maintains a fleet of 6 smaller, more portable vessels devoted to strategic survey requests and requirements, such as emergency response and ENC verification. NSD also

operates the BAY HYDROGRAPHER II, a vessel devoted to research and development and limited hydrographic surveying in support of the OCS mission.

3. Charts

- 3.1 NOAA produces and maintains a suite of nautical charts that cover the coastal waters of the U.S. and its territories. NOAA's charts are available in a variety of formats, including:
- Traditional paper charts
 - Print-on-Demand charts: up-to-date paper charts with current Notice to Mariners corrections
 - Raster Navigational Charts® (NOAA RNCs): bitmap electronic images of paper charts
 - Electronic Navigational Charts® (NOAA ENC)s: vector charts that conform to international standards
- 3.2 Details about NOAA's nautical chart program can be found at <http://www.nauticalcharts.noaa.gov/staff/chartspubs.html>. At this site, users can find more information about NOAA's various chart products, download chart catalogs, access links to critical updates, and submit consumer inquiries and chart discrepancies through the NOAA inquiry system.
- 3.3 NOAA maintains a suite of 1019 paper charts. These charts are maintained as color separate raster images. The raster files are updated with new source and critical updates, and then sent to the Federal Aviation Administration (FAA) for the lithographic process.
- 3.4 NOAA maintains S-57 compliant ENC)s equal to 706 chart equivalents. These ENC)s are maintained to critical corrections through the issuance of new editions and incremental updates available through NOAA's Chart Downloader at <http://www.charts.noaa.gov/InteractiveCatalog/nenc.shtml>.
- 3.5 NOAA's Print-on-Demand (POD) nautical charts provide up-to-date navigation information to mariners. These paper charts are updated on a weekly basis and include all of the latest critical chart corrections. Although NOAA produces POD charts, NOAA does not sell POD charts directly to the public. Instead, POD charts are made available through NOAA's commercial partner OceanGrafix, who has 46 retail agents located throughout the U.S. and overseas, including Canada, Japan, and Panama. Twenty of these agents have the capability to print charts on-site. Just over half of all NOAA paper charts distributed to mariners are POD charts.

- 3.6 NGA Charts – No new editions have been produced within the previous 12 months within the SWPHC region that are for public sale and available through a charting agent.

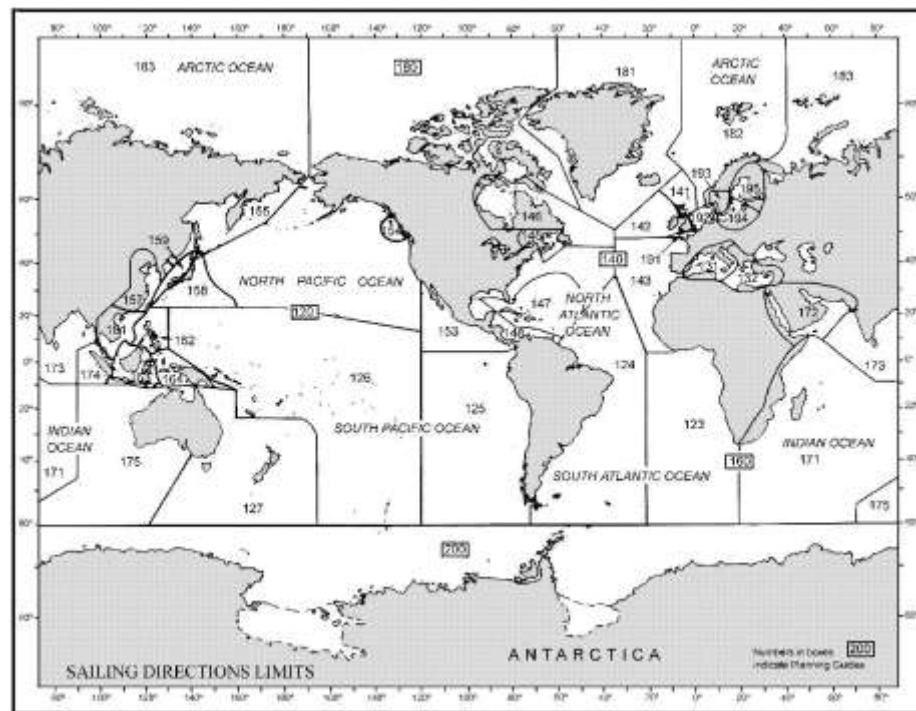
4. Nautical Publications

- 4.1 The United States Coast Pilot® consists of a series of nautical books that cover a variety of information important to navigators of coastal and intra-coastal waters and the Great Lakes. Issued in nine regionally focused volumes, they contain supplemental information that is difficult to portray on the nautical chart. See table below for currently available and forthcoming editions.

Publication	Region	Publication Date
CP 1	West Quoddy Head , ME to Provincetown, MA	40 th Ed., 2010
CP 2	Cape Cod, MA to Sandy Hook, NJ	39 th Ed., 2010
CP 3	Sandy Hook, NJ to Cape Henry, VA	43 nd Ed, 2010
CP 4	Cape Henry, VA to Key West, FL	42 st Ed, 2010
CP 5	Gulf of Mexico, Puerto Rico, and Virgin Islands	38 th Ed., 2010
CP 6	Great Lakes	40 th Ed., 2010
CP 7	Pacific Coast, Hawaii, and Pacific Islands	42 st Ed., 2010
CP 8	Dixon Entrance, AK to Cape Spencer, AK	32 st Ed., 2010
CP 9	Cape Spencer, AK to Beaufort Sea, AK	28 th Ed., 2010

- 4.2 Digital versions of the United States Coast Pilot® are available from <http://www.nauticalcharts.noaa.gov/nsd/cpdownload.htm>. These digital files are available as complete books or by chapter in PDF and RTF formats. Select volumes of the United States Coast Pilot® are available as an XML file with other volumes to follow throughout 2010.
- 4.3 OCS is modernizing the Coast Pilot through enhancements including on-line automatic updating, expanding content sources, improving content quality, data sharing and Internet display. In order to realize these results, OCS is designing a new production system with enhancements over the existing product by linking to associated NOAA services, and allowing for private industry interactions to develop value-added products. The Coast Pilot project needs increased data management capability in order to share its information with other sources and offer a customizable product. This degree of customizations requires more control than a traditional Desktop Publisher (DTP) or database system can provide. However the Extensible Markup Language (XML) and associated tools can provide this capability.
- 4.4 NGA Publications – Sailing Directions are published by the US/NGA in 42 Planning Guide and Enroute volumes as part of a global portfolio of publications.

Sailing Directions (Planning Guide) are intended to assist mariners in planning ocean passages and include relevant physical, political, industrial, navigational and regulatory information about the countries adjacent to a particular ocean basin. Sailing Directions (Enroute) are intended to supplement the largest scale charts of the area and include detailed coastal and port approach information. They are subdivided into geographic regions, called sectors, which contain information about the coastal weather, currents, ice, dangers, features and ports. NGA Sailing Directions are updated via a digital update, Publication Data Update (PDU), patch process. All of these publications and their digital patch updates are available to the public and are posted at the NGA Maritime Safety website at www.nga.mil/maritime. A graphic of NGA Sailing Directions global coverage is shown below:



Available for download via NGA website www.nga.mil/maritime

Publication	Edition Date
Sailing Directions 175 – North, West, and South Coasts of Australia (Enroute)	10 th Edition, 2010
Sailing Directions 127 – East Coast of Australia and New Zealand (Enroute)	10 th Edition, 2010
Sailing Directions 164 – New Guinea (Enroute)	9 th Edition, 2010
Sailing Directions 126 – Pacific Islands (Enroute)	10 th Edition, 2010
Sailing Directions 120 – Pacific Ocean and Southeast Asia (Planning Guide)	7 th Edition, 2010

5. MSI

- 5.1 The promulgation of Maritime Safety Information (MSI) within this region as part of the IHO World-Wide Navigational Warning Service (WWNWS) is outside the responsibility of the United States.

6. S-55 Update

- 6.1 U.S. update to S-55 will be forthcoming to the IHB.

7. Capacity Building

- 7.1 Training Opportunities available in the United States

See Appendix 1 for a list of specific opportunities.

- 7.2 The United States is an active participant in the IHO Capacity Building Sub-Committee (CBSC) and the US/NGA directly supports the IHO Maritime Safety Information (MSI) training course. The seventh iteration of this MSI training course was conducted from 16-20 August 2010 in Sydney, Australia for the benefit of the countries in the SWPHC region. This training is intended to provide assistance to local, national and regional hydrographic authorities who are seeking to improve their hydrographic capabilities and viably contribute to regional safety of navigation concerns. Instruction in this course was provided by representatives from the hydrographic offices and maritime safety authorities of the United States, the United Kingdom, Australia and New Zealand. The SWPHC countries that sent representatives to attend this training included New Caledonia, Solomon Islands, Cook Islands, Fiji, Tonga, Vanuatu, Papua New Guinea, Samoa and French Polynesia.

8. Oceanographic Activities

- 8.1 NOAA's Center for Operational Oceanographic Products and Services collects, analyzes and distributes historical and real-time observations and predictions of water levels, coastal currents and other meteorological and oceanographic data. This is part of an integrated National Ocean Service program supporting safe maritime zone management, engineering and surveying communities. The Center manages the National Water Level Observation Program and the national network of Physical Oceanographic Real-Time Systems in major U.S. harbors. It conducts its programs through university, industry, Federal and State partnerships as appropriate.

- 8.2 The United States participates on the IOC-IHO Guiding Committee for GEBCO and hosts the IHO Data Centre for Digital Bathymetry at NOAA's National Geophysical Data Center. The United States actively participates in the International Bathymetric Chart of the Arctic Ocean, the International Bathymetric Chart of the Caribbean Sea & Gulf of Mexico, and the International Bathymetric Chart of the Southern Ocean.
9. Other Activities
- 9.1 The U.S. is an active participant within the International Hydrographic Organization (IHO). U.S. IHO support includes participating in the CSPCWG, DQWG HSSC, MSDIWG, SNPWG, TSMAD. U.S. IHO Chair responsibilities are Chair of the DIPWG, HDWG, TWLWG, and the WWNWS.
- 9.2 Capt. Andrew Armstrong, NOAA (ret.), the NOAA Co-Director of the Joint Hydrographic Center is a member of the FIG/IHO/ICA International Board on Standards of Competence for Hydrographic Surveyors and Nautical Cartographers. As a member of the Board, Capt. Armstrong is available to advise institutions on establishing hydrographic training curricula and preparing submissions to the International Board for Category A or Category B recognition. (andy.armstrong@noaa.gov)

Institution and Point of Contact	Training Opportunity	Training Details
Florida Institute of Technology Graduate Admissions 1-800-944-4348 Fax: 1-321-723-9468	Master of Science in Ocean Engineering with emphasis on Hydrographic Engineering	http://www.fit.edu/programs/grad/ms_ocean_engineering
University of New Hampshire	Postgraduate Certificate in Ocean Bathymetry	GEBCO has been funded by the Nippon Foundation, based in Tokyo, Japan, to train a new generation of scientists and hydrographers in ocean bathymetry. The twelve-month course, leading to a Postgraduate Certificate in Ocean Bathymetry (PCOB), is held at the <u>University of New Hampshire</u> , USA. http://www.gebco.net/training/
University of New Hampshire Center for Coastal & Ocean Mapping Joint Hydrographic Center Abby Pagan-Allis 603-862-3433 Fax: 603-862-0839	Graduate Program in Ocean Mapping [Category A Certified Program]	http://www.ccom.unh.edu/index.php?p=24&page=education.php#certificate
University of Southern Mississippi Department of Marine Science at the John C. Stennis Space Center Hydrographic Science Research Center Maxim F. van Norden 228-688-7123 Fax: 228-688-1121	Graduate Program in Hydrographic Science [Master of Science Degree accompanied with a Category A Certificate]	http://www.usm.edu/marine/hydrographic/index.php
U.S. Navy Commanding Officer, Fleet Survey Team ATTN: Karen Allain, IMSO Stennis Space Center, MS 39522 Telephone: (228) 688-5844 Fax: (228) 688-5020	International Hydrographic Management and Engineering Program (IHMEP) [Category B Certified Program]	See Appendix 2
U.S. Navy Commanding Officer, Fleet Survey Team ATTN: Karen Allain, IMSO Stennis Space Center, MS 39522 Telephone: (228) 688-5844 Fax: (228) 688-5020	Mobile Training Team (NMTT) Tailored Maritime Geospatial Training	https://www.oceanography.navy.mil/legacy/web/nipr_2006/nmtt.html See Appendix 3

International Hydrographic Management and Engineering Program

Category "B" Certification

NAVOCEANO International Hydrographic Management and Engineering Program (IHMEP) provides practical, professional training in hydrographic survey management and engineering. This six-month course has received the International Federation of Surveyors/International Hydrographic Organization Advisory Board on Standards of Competence for Hydrographic Surveyors Category "B" certification.

Program Organization

The program provides students with a working knowledge of hydrography through practical training in mathematics, computer science, the physical sciences, geodesy, the Global Positioning System, hydrography, oceanography, meteorology, nautical cartography, photogrammetry, remote sensing, resource management, and Law of the Sea. It is based on 30 hours of classroom training and practical field projects per week.

The course is designed for a maximum of 16 students and is open to both military and civilian personnel. Students attend classes in civilian clothing. Military uniforms are only required for orientation and graduation exercises.

Admissions Standards

Prospective students must have successfully completed college level differential calculus, trigonometry, and first year physics. In addition, students should have some knowledge and experience in maritime navigation and electronics.

Students from non-English speaking countries must have an English comprehension level of at least 70% on the Test of English as a Foreign Language.

Faculty and Staff

IHMEP faculty and staff are made up of highly qualified personnel with education and practical experience in the subjects they teach. In addition to NAVOCEANO employees, professors from local colleges and universities and representatives from other Government agencies provide the expertise needed to teach the courses.

Location

Classroom instruction is held at the NAVOCEANO training facility located at the Naval Construction Battalion Center (NCBC), Gulfport, Mississippi. Gulfport is located on the Mississippi Gulf Coast approximately 70 miles (113 km) east of New Orleans, Louisiana, and 65 miles (105 km) west of Mobile, Alabama. Fieldwork is conducted along the Mississippi Gulf Coast and in the Mississippi Sound. NAVOCEANO's main facilities are located at Stennis Space Center, Mississippi, about 35 miles (56 km) west of Gulfport.

Facilities

Student housing is at the NCBC Bachelor Officers Quarters. A Naval Exchange and a Naval Commissary are located on the installation for shopping convenience. Local shopping centers are readily available and easily accessible. A modern gym and fitness center is also available.

Libraries

A technical support library is available in the classroom facility. There is a public library at the NCBC to support general reading requirements and Internet access. There are several public libraries in near by cities along the Mississippi Gulf Coast. The Matthew Fontaine Maury Library at Stennis Space Center is a full-service, technical library with an extensive reference section, atlases, current magazine subscriptions, and over 160,000 books, periodicals, and reports.

Transportation

NAVOCEANO provides transportation for field projects and for official duties during the week. On weekends, transportation is provided for official trips. Temporary transportation for personal needs can be acquired through local automobile rental agencies. Commercial bus and taxi transportation is readily available in Gulfport.

Recreation

The Sponsor Program and the Informational Program are an integral part of the IHMEP. These two programs offer students many opportunities to get an understanding of United States culture, institutions, and ideals through special functions, field trips, and personal interaction with the sponsors. Along the Mississippi Gulf Coast there are many recreational facilities, including fishing, boat rentals, restaurants, theaters, and public beaches and parks.

Application Procedure

Applications to attend the program should be sent to the Office of Defense Cooperation (ODC) located in the prospective student's country. In those countries where there is no ODC, the request should be directed to the U.S. Naval Attaché at the U.S. Embassy. The course is listed in the Military Articles and Service Listing (MASL) under the title Hydrographic Management and Engineering Program and MASL number P-169208 or Course Identification Number S-8G-0500.

Contact Information

Commanding Officer, Fleet Survey Team

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NAVOCEANO Mobile Training Team and Tailored Maritime Geospatial Training

NMTT Tenets

The Naval Oceanographic Office (NAVOCEANO) Mobile Training Team provides tailored formal and on-the-job training to USA partners, friends and allies while simultaneously collecting maritime geospatial and environment (MGE) information to describe the coastal and littoral environment.

Information and knowledge from these surveys are used to generate in-country interoperable products for rapid, safe manoeuvrability of U.S. and host nation military vessels during joint combat operations and exercises, and Safety of Navigation (SoN) and Safety of Life At Sea (SOLAS) for commercial and military vessels during port and harbor egress and ingress.

NMTT Core Competencies

Using the host nation's personnel and vessel, NAVOCEANO provides professional personnel and state of the science commercial off-the-shelf equipment to conduct highly accurate MGE surveys.

With 80 hours of formal classroom training and up to 450 hours of practical field MGE, the program provides students with the fundamentals of MGE surveying through practical training in mathematics, computer science, physical sciences, geodesy, Global Positioning System (GPS) for navigation, hydrography, oceanography, meteorology, Geographical Information System (GIS) for nautical cartography, remote sensing and resource management.

Students

The NMTT is designed for three to five students and is open to both military and civilian personnel. At the end of the training period, students will receive a certificate of completion and will have the capacity to assist hydrographers and oceanographers in MGE surveys from a naval and international perspective.

Faculty

NMTT instructors and surveyors are highly qualified personnel with education and experience in the subjects they teach.

Skill Level

Prospective students must have successfully completed trigonometry, calculus and physics. In addition, students should have some knowledge and experience in maritime navigation and electronics.

Students from non-English speaking countries must have an English comprehension level of at least 70%. Classroom instruction in Spanish may be provided for additional costs.

Requests for NMTT

Requests for NMTT should be sent to the Security Assistance Officer at the U.S. Embassy in the host nation. The course is listed in the Military Articles and Service Listing (MASL) under the title Hydrographic Management and Engineering Program and MASL number P-309027 or course identification number MTT-PNO.

Contact Information

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