MACHC 12-06-11 US

UNITED STATES OF AMERICA

National Report

To the Meso-American and Caribbean Sea Hydrographic Commission (MACHC)

NOAA's Office of Coast Survey,
National Geospatial-Intelligence Agency,
and Naval Meteorology and Oceanography Command
12/6/2011

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. Hydrographic Office/Service

1.1 This National Report for the United States of America summarizes U.S. hydrographic services and is tailored to include a focus on relevant activities and support of the Meso-American and Caribbean Sea Hydrographic (MACHC) region.

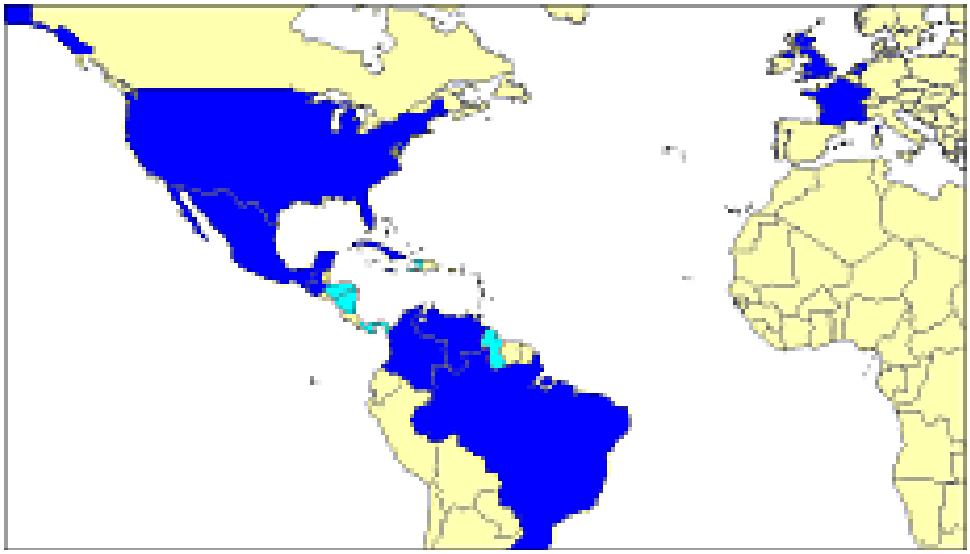


Figure 1: MACHC Region

1.2 The Office of Coast Survey (OCS) is a line office within the National Ocean Service, part of the National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce. The Under Secretary for Oceans and Commerce and 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.

1.3 The National Geospatial-Intelligence Agency (NGA) of the U.S. Department of Defense 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 and disaster support, and to peacekeeping. The NGA Maritime Safety Office 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.

1.4 The Naval Meteorology and Oceanography Command (NAVMETOCCOM) provides Meteorology and Oceanography (METOC), Bathymetry and Hydrography (Bathy/Hydro), Precise Time and Astrometry (PTA), products and services that enable effective decision-making for operational safety, warfighting success by Naval and Joint forces, and Security Cooperation initiatives. The Naval Oceanographic Office (NAVOCEANO) is the primary command for collecting, analyzing and displaying hydrographic information for safety of navigation of Department of Defense (DoD) surface and subsurface vessels. NAVOCEANO's core competencies include hydrography, bathymetry, geophysics, acoustics, physical oceanography, and geospatial intelligence. NAVOCEANO acquires and analyzes global ocean and littoral data to provide specialized, timely, and operationally relevant products and services for Department of Defense warfighters as well as other civilian, national and international customers. Utilizing space-based, airborne, surface, and subsurface platforms, as well as state-of-the-art computing and modeling techniques, NAVOCEANO synthesizes this data into products and services tailored to the individual warfighter's needs. These products and services support virtually every type of Fleet operation, providing mission-essential environmental information to the warfighter and to U.S. allies. NAVOCEANO is the parent command of the Naval Ice Center and the Fleet Survey Team.

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.

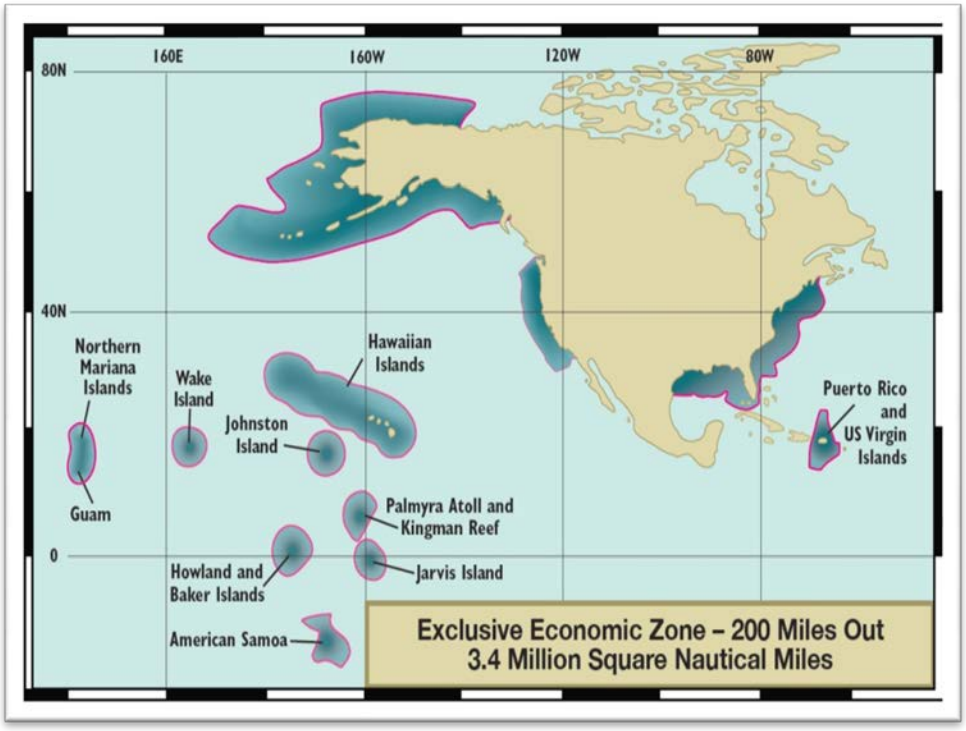


Figure 4: US Exclusive Economic Zone (EEZ)

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 (NDGC). 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 SNM of territorial waters as navigationally significant. From 1994 to 2010, 36,545 SNM of this navigationally significant area has been surveyed with full bottom coverage. In the 2011 calendar year, 1950 square nautical miles have been surveyed bringing the total of navigationally significant area surveyed with full bottom coverage to 38,495 SNM.

2.4 Each year, the areas within NOAA's scope of navigation safety responsibilities are reevaluated. NOAA determines which areas are in greatest need of hydrographic surveys and publishes these in the *NOAA Hydrographic Survey Priorities (NHSP)* document, which can be found at http://www.nauticalcharts.noaa.gov/hsd/NHSP.htm. Priorities are assigned based on several factors, including survey vintage, vessel traffic, depth, and customer requests.

Within the MACHC region, NOAA surveys U.S. waters within the Gulf of Mexico, and Caribbean Islands. Please see Table 1 for selected regional figures relevant to the MACHC from NHSP (2011)

	Navig. Significant	Critical Areas	Emerging Critical	Priority 1	Priority 2	Priority 3	Priority 4 Areas	Priority 5 Areas	Completed (post 1993 survey)
Gulf of Mexico	73,502	7,709	2,107	11,133	8,065	14,357	8,616	14,368	7,147
Caribbean Islands	1,543	34	0	38	184	341	579	0	367
Total	75,045	7,743	2,107	11,171	8,249	14,698	9,195	14,368	7,514

Table 1: Square Nautical Mile Breakout of NHSP Priority Categories: Focus on the MACHC Region

2.5 NOAA's Office of Marine and Aviation Operations (OMAO) operates three full time survey vessels devoted to supporting OCS charting responsibilities. These vessels are FAIRWEATHER, THOMAS JEFFERSON, and RAINER. In addition to these platforms OCS's Navigational Services Division (NSD) maintains a fleet of six trailerable boats devoted to strategic and urgent survey requests and requirements, such as emergency response and ENC verification. NSD also operates a 54-foot catamaran survey vessel, BAY HYDRO II, devoted to research and development and limited hydrographic surveying in support of the OCS mission. The vessels of the NOAA fleet can be reviewed in detail at: http://www.moc.noaa.gov/flthmpgs.htm.

3. New Charts and Updates

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 ENCs): 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 printing process.

3.4 NOAA maintains S-57 compliant ENCs equal to 885 chart equivalents. These ENCs are maintained to critical corrections through the issuance of new editions and incremental updates available through NOAA's Chart Downloader, which can be accessed through the following URL: http://www.nauticalcharts.noaa.gov/mcd/enc/index.htm.

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 ENC Harmonization

Through the efforts of the MACHC Electronic Chart Committee, chaired by OCS, harmonization of ENC cells are being addressed. This Committee includes all MACHC Member Countries currently producing ENCs in the region. ENC cells are continuously being evaluated for any gaps and overlaps are addressed as appropriate. This information is provided in a separate report to the MACHC.

4. New Publications and Updates

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 intracoastal 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.

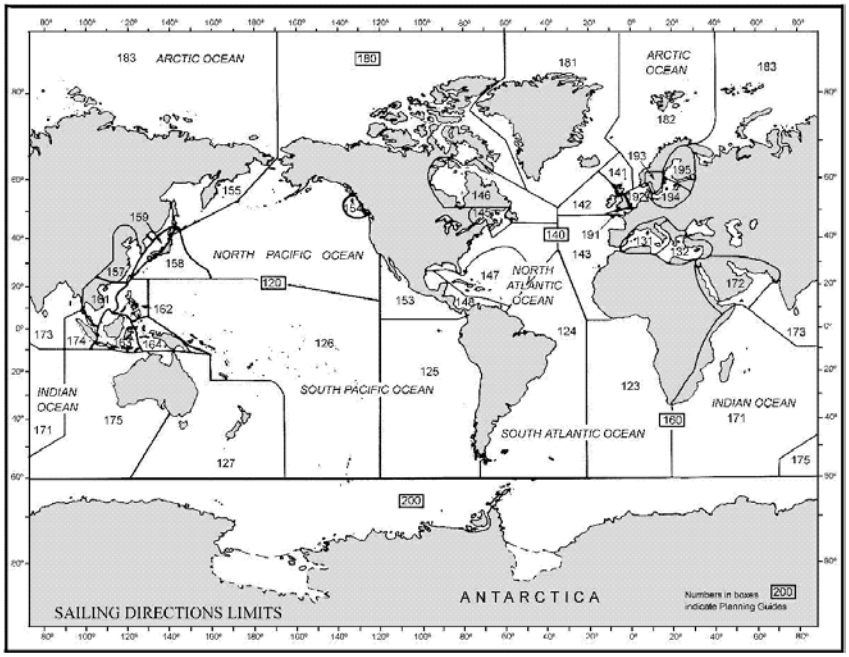
Publication	Region	Publication Date
CP 1	West Quoddy Head , ME to Provincetown, MA	41th Ed., 2011
CP 2	Cape Cod, MA to Sandy Hook, NJ	40th Ed., 2011
CP 3	Sandy Hook, NJ to Cape Henry, VA	44nd Ed, 2011
CP 4	Cape Henry, VA to Key West, FL	43st Ed., 2011
CP 5	Gulf of Mexico, Puerto Rico, and Virgin Islands	39th Ed., 2011
CP 6	Great Lakes	41th Ed., 2011
CP 7	Pacific Coast, Hawaii, and Pacific Islands	43st Ed., 2011
CP 8	Dixon Entrance, AK to Cape Spencer, AK	33st Ed., 2011
CP 9	Cape Spencer, AK to Beaufort Sea, AK	29th Ed., 2011

4.2 Digital versions of the United States Coast Pilot® are available from http://www.nauticalcharts.noaa.gov/nsd/cpdownload.htm. The digital files are available as complete books or by chapter in PDF. All volumes of the United States Coast Pilot® are also available for online viewing in HTML and in the XML format. Both these formats are experimental and cannot be used for navigation.

4.3 OCS has modernized the Coast Pilot production system, streamlining the process and providing enhanced products beyond the traditional annual hard copy printed editions. These digital files have made possible partnerships with private industry for print on demand publishing, binding, and distribution as an alternative to large scale single press runs. E-publishing and other web applications have also been promoted by expanding the ability of customization with our ongoing efforts at Extensible Markup Language (XML) tagging of the Coast Pilot content. All nine volumes are scheduled to be available by May 2012.

4.4 NGA

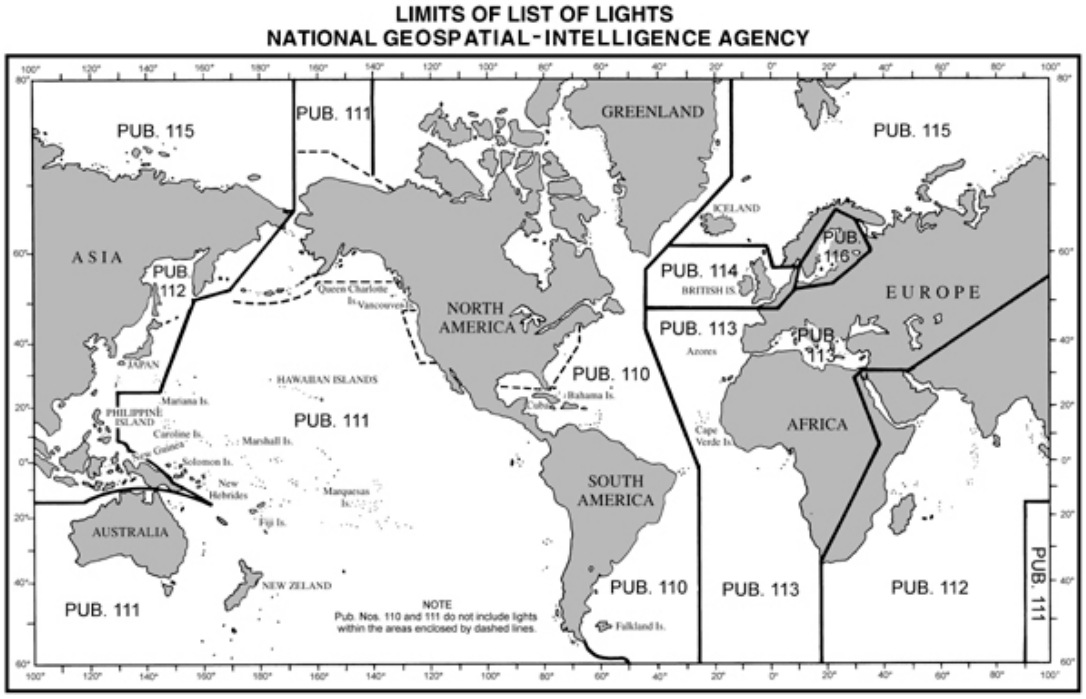
Sailing Directions are published by the US/NGA in 42 Planning Guide and Enroute volumes as part of a global portfolio of publications. Sailing Directions (Planning Guide) are intended to assist mariners in planning ocean passages and include relevant physical, political, industrial, navigational, and 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 digital updates. All of these publications and their digital updates are available to the public and are posted at the NGA Maritime Safety website at http://msi.nga.mil/NGAPortal/MSI.portal. A graphic of NGA Sailing Directions global coverage is shown below:



Four (4) volumes of Sailing Directions cover the MACHC region. They are listed below:

Publication	**Edition Date**
Sailing Directions 147 - Caribbean Vol. 1	2011 Edition
Sailing Directions 148 - Caribbean Vol. 2	2011 Edition
Sailing Directions 153 – West Coasts of Mexico and South America	2011 Edition
Sailing Directions 124 – East Coast of South America	2010 Edition

4.5 The NGA **List of Lights, Radio Aids and Fog Signals** is published in seven volumes, as Publication numbers 110 through 116. Each volume contains lights and other aids to navigation that are maintained by or under the authority of foreign governments. Each volume corresponds to a defined geographic region, and contains more complete information about the navigational aids than can be conveniently shown on nautical charts. New editions are published annually for every volume. The uncorrected publications can be viewed or downloaded in their entirety as PDF files. Corrections to the List of Lights are published in the US Notice to Mariners. All of these publications and their digital updates are available to the public and are posted at the NGA Maritime Safety website at http://msi.nga.mil/NGAPortal/MSI.portal. A graphic of NGA List of Lights global coverage is shown below:



Two (2) volumes of List of Lights cover the MACHC region. They are listed below:

Publication	**Edition Date**
List of Lights Pub. 110 (Greenland, E. Coast N & S America and W. Indies, excluding USA)	2011 Edition
List of Lights Pub. 111 (W. Coast N & S America (excluding USA), Australia, Tasmania, NZ, and Islands in the N/S Pacific Ocean	2011 Edition

4.6 NGA Charts-New Editions within the previous 12 months

The NGA Charts listed below are available for public sale and distributed, on the behalf of NGA, by the National Ocean Service and official NOS chart agents.

Chart	**Chart Title**	**Scale**	**Edition Date**
21338	Puerto Vallarta, Mexico	1:10,000	5th Edition 12 February 2011
21483	Puerto San Jose and Puerto Quetzal, Guatemala	1:15,000	2nd Edition 21 May 2011
21524	Approaches to Acajutla and La Libertad, El Salvador	1:75,000	4th Edition 04 June 2011
26206	Aquin, Haiti	1:20,000	11th Edition

			21 May 2011
26312	Plans of AUTEC Sites 1, 2, 3 and 4, Bahamas	1:10,000	3rd Edition 20 November 2010
28104	Puerto Cabezas and Approaches, Nicaragua	1:10,000	3rd Edition 08 January 2011
28144	Port of La Ceiba, Honduras	1:10,000	5th Edition 20 November 2010
28165	Puerto Santo Tomas de Castilla and Puerto Barrios, Guatemala	1:15,000	22nd Edition 16 April 2011

5 Maritime Safety Information (MSI)

5.1 NGA is the NAVAREA IV and XII Coordinator within the IMO/IHO World-Wide Navigational Warning Service (WWNWS) and also acts as Chairman for the WWNWS-Sub-Committee (SC).

The following boundaries are:
Limits of NAVAREA IV: From the east coast boundary of Suriname to 07-00N out to 035-00W, from there to 067-00N and the coastline of Greenland, following 067-00N to the coastline of Canada (Baffin Islands area).

Limits of NAVAREA XII: from the coast line at 03-24S to 120-00W, then to 00-00, then to 180-00, then to 50-00N, and then following the International Date Line to 67-00N.

The Schedule of broadcasts for Navigational Warnings/Meteorological Information is listed in Appendix 1.

5.2 NAVTEX Coverage:

Eleven NAVTEX stations are operational in NAVAREA IV and XII.
Please note that the United States also has an operational NAVTEX facility on Guam (NAVAREA XI).

Since the U.S. Coast Guard originally only installed NAVTEX at sites where Morse telegraphy transmissions were made previously, propagation analyses show some coverage gaps, particularly in Alaska. NAVTEX coverage is reasonably continuous in the area around Kodiak Alaska. NAVTEX broadcasts from Adak Alaska were permanently terminated in December 1996 due to closure of the Naval facility there.

5.3 Operational Issues:

NAVAREA IV and XII have fully redundant and site separated NAVAREA operational systems to include satellite transceivers, telecommunications, internet

and desktop PC's. System operations are exercised on a daily basis at this location to ensure full continuity of NAVAREA operations.

5.4 Capacity Building:

NGA continues to provide training and practical guidance for those who are concerned with drafting radio navigational warnings or with the issuance of Maritime Safety Information (MSI) for the high seas through the IHO World-Wide Navigational Warning Service. The training effort intends to translate into safer navigation for the region and establish an active regional coordination team of experts who will continue to collaborate with the respective NAVAREA in the area of influence. These courses are organized on the behalf of the IHO's Capacity Building Sub-Committee along with leadership oversight and instructor support from NAVAREA's IV and XII.

On 16-18 May 2011, a Maritime Safety Information (MSI) Training Course to benefit countries in the area of influence of the South West Atlantic (SWAHC), South-East Pacific (SEPHC) and the MESO American & Caribbean Sea (MACHC) Hydrographic Commissions was held on behalf of the International Hydrographic Organization (IHO) Capacity Building Committee (CBC) and the IHO's World-Wide Navigational Warning Service – Sub Committee (WWNWS-SC).

This was the 8th learning opportunity facilitated by the WWNWS-SC as a capacity building first phase initiative since the program began in 2007, and it was the first time that 3 Hydrographic Commissions were brought together for a course of this type, resulting in considerable cost benefits compared with convening a separate course in each region. The first phase is the most urgent and easiest to implement and consists of organizing the collection and circulation of nautical information, necessary to provide real-time situation awareness of safety critical information. It also covers the supplementary requirements to maintain and update existing charts and publications to ensure the safe navigation of shipping governed by the International Convention for the Safety of Life at Sea (SOLAS).

Instruction for this course was provided by the USA/NGA and the UKHO. Representatives from the following member states attended this training: Antigua & Barbuda, Argentina, Brazil, British Virgin Islands, Chile, Colombia, Ecuador, Grenada, Peru, Suriname, and Uruguay.

5.5 NAVAREA Website: www.nga.mil/maritime

In-Force NAVAREA IV and XII messages are posted each morning from the previous 24hrs. Active NAVAREA IV and XII messages can be queried by a variety of menu options to include by specific NAVAREA, by NAVAREA number, by a NAVAREA number range and by date and date range.

5.6 NAVAREA Contact Information:

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6. C-55 Update

The United States recognizes the importance IHO C-55, "Status of Hydrographic Surveying and Nautical Cartography Worldwide" and is working to update this database with current survey and chart information. The US will have its five year C-55 information update by the International Hydrographic Conference in April 2012.

In the meantime, please see Appendix 3 for an overview of US Office of Coast Survey priorities in the MACHC Region.

7. Capacity Building

7.1 Training Opportunities available in the United States

Training opportunities are available at various institutions in the United States. (Please See Appendix 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)

7.2 As part of a capacity building pilot project under the auspices of the ECC Working Group 1, the United States worked closely with Belize, Guatemala and Honduras to improve hydrographic survey capabilities in the shared area of the Gulf of Honduras. Financed by the Global Environment Facility, the tri-national Gulf of Honduras (GoH) Project was initiated in 2005 to protect the sensitive marine environment from land and ship-based sources of pollution. The project partners recognized the need to focus on marine transport issues as a way to protect marine ecosystems and support maritime-based economies in the Gulf. "Enhancing Navigational Safety in Shipping Lanes" was one of four components

of the Project. The three countries received basic hydrographic survey equipment through the GoH Project. With funding provided by the IHO Capacity Building Committee the U.S. NOAA and Navy provided hydrographic survey training to each country from 2009 to 2011. The third and final training session was completed in 2011.

Specific contributions of the United States (NOAA Office of Coast Survey and the U.S. Navy) included:

- Provision of time and salaries of two hydrographer trainers for the 2009-2011 annual two-week training courses (NOAA and Navy).
- Advance two-week training at NOAA facilities in the U.S. at no cost to the participants in 2009 and 2010 (NOAA).
- Multi-year coordination, planning and communications support for the project via the ECC Chair and staff.
- Travel support to national representatives to attend MACHC meetings where major planning occurred. (NOAA)

The full report of background, training, outcomes, lessons learned and recommendations is summarized in the "PERFORMANCE ASSESSMENT REPORT of the MACHC Hydrographic Surveying Capacity Building Partnership with the Gulf of Honduras Project 2008-2011**."**

The training and capacity building project was evaluated for its success a) achieving results and producing satisfactory results and b) providing a basis for further projects. In both cases, the project received high ratings of "4" on a 0-5 scale meaning the project was "a success in achieving all major goals achieved, result is satisfying and that the project provided a good basis for further projects."

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

8.3 NOAA’s Center for Operational Oceanographic Products and Services maintains the domestic tide gauge system for the United States.

9. Other Activities

9.1 Hydrographic Office Response to Extreme Events

9.2 Gulf of Mexico Update: Deepwater Horizon

To help mariners safely navigate in the Gulf region following the Deepwater BP incident, the Office of Coast Survey produced daily updates to nautical chart products that display the spill zone forecast based on current spill projections. The charts depicted the 48-hour forecast for oil location, juxtaposed against the standard safety fairways that lead to port approaches.

These electronic and raster charts alerted ship captains to the location of the forecasted spill area, so that captains could take efforts to avoid the spill. The U.S. Coast Guard also used the chart information to develop instructions for vessels transiting U.S. waters.

9.3 Hurricane Irene

Irene was the first hurricane to hit the United States since Hurricane Ike struck Texas in September 2008 and was the first storm to threaten the New York City area since Hurricane Gloria in September 1985.

Irene tracked across the U.S. East Coast as expected. By August 30, 2011 the death toll had risen to 40 people, and millions were without power. More than a dozen states dealt with significant and dangerous flooding, downed trees and property damage. Economic losses, so far, are estimated in the billions.

Office of Coast Survey mobilized assets and personnel, getting ready to respond to navigational needs of the 192 ports in Irene's path along the Eastern Seaboard. Coast Survey stationed navigation response vessels from North Carolina to Rhode Island, ready to search for underwater debris and other submerged hazards in critical port areas and shipping lanes. That advance preparation made a particularly vital difference to shipping in and out of Hampton Roads, Va.

Immediately following Irene, NOAA’s Office of Coast Survey provided emergency hydrographic services for affected port areas. It had already positioned seven Navigation Response Teams ahead of the storm. These mobile emergency response units are using echo sounders to check for submerged obstructions that pose hazards to vessels, collect data to update nautical charts and provide mapping support. The work of these response teams is essential to speeding the reopening of ports and waterways.

The day after Irene made landfall (Aug. 28), NOAA’s National Geodetic Survey began flying photo survey missions aboard a specially-equipped NOAA King Air

turboprop to assess storm damage. The high-definition imagery is providing emergency and coastal managers with critical information they need to develop recovery strategies, facilitate search and rescue efforts, identify hazards to navigation and HAZMAT spills, locate errant vessels, and determine damage assessment through before and after imagery.

NOAA Office of Coast Survey conducted hydrographic surveys around the clock in Hampton Roads, applying its state-of-the-art assets to restoring the port to its full capacity. Three NOAA vessels surveyed 200 linear nautical miles (370.4 kilometers) within 48 hours, looking at sea floor changes and searching for underwater hazards that would pose a danger to ships.

9.4 Support for Haiti

In the wake of the 2010 earthquake in Haiti, the U.S. Navy conducted emergency surveys Port Au Prince, Gonaives, Jacmel, Cap Haitien, and St Marc, Haiti in support of post-earthquake charting updates. In addition, NGA incorporated multiple post-earthquake bathymetric surveys and LIDAR optical imaging sensor data sets and collaborated with other national and international mission partners in the compilation and dissemination of new edition standard nautical hardcopy and digital charts over this area. A total of seven new editions of charts covering Haiti were made available this past year. They are included in the table in Section 3.6 above. The US/NGA, recognized as the international charting authority for Haiti, produced these new charts over a number of different ports within Haiti to ensure navigational safety for both military and commercial vessels that responded to this crisis and directly supported the global maritime humanitarian relief effort. Additionally, potential exists for training in Chart Compilation, Notice to Mariners, and Publication Maintenance. The U.S. subsequently has identified potential capacity building support activities which are listed in Appendix 3.

Seven new edition charts were produced post-earthquake.

Chart Number	Chart Title
26146	Cap Haiten, Haiti
26181	Golfo de la Gonave, Haiti
26182	Gonaives, Haiti
26184	Approach to Port-au-Prince, Haiti
26186	Port-au-Prince, Haiti
26187	Baie de Saint-March, Haiti
26207	Jacmel, Haiti

The Naval Oceanography Program Haiti Donors Working Group has identified potential for the following types of support:

- Training: IHSAP IHO Cat A and IHMEP IHO Cat B, funding provided via IMET, FMS, or other Security Cooperation mechanism

- NAVOCEANO Mobile Training Teams (NMTTs), funding provided by IMET, FMS or Security Cooperation Mechanism
- Excess Defense Articles (EDA): access to equipment via the FMS process using Foreign Military Financing (FMF) or other Security Cooperation funding mechanism
- Cooperative hydrographic surveys based on requirements
- Support to Capacity Building initiatives as submitted by Haiti to the CBC for funding support via MACHC (Subject Matter Expert: SME)

9.5 Marine Spatial Data Infrastructure

The United States has been active in the MSDI arena for many years. A Geospatial Platform is being developed by partner agencies of the U.S. Federal Geographic Data Committee (FGDC) to more effectively provide place-based products and services to the American public. The Geospatial Platform will be a managed portfolio of common geospatial data, services, and applications contributed and administered by authoritative sources and hosted on a shared infrastructure, for use by government agencies and partners to meet their mission needs and the broader needs of the U.S. The Geospatial Platform initiative, with the goal of "ultimately increasing access to geospatial data," is designed to become the operational component of the U.S. National Spatial Data Infrastructure (NSDI). NOAA's raster nautical charts were recently added to this service and can be viewed seamlessly and without the borders/collars. Information can be found at: www.geoplatform.gov.

9.6 The U.S. is an active participant within the International Hydrographic Organization (IHO). U.S. IHO support includes participating in the CSPCWG, DQWG, HSSC, SNPWG, TSMAD, WENDWG, ISBC, HCA, CBSC, GEBCO, EUWG, ABLOS, S-23WG, SRWG, the Correspondence Group on the Definition and Length of the Coastline, and the Finance Committee. Additionally, the U.S. chairs the MSDIWG, DIPWG, HDWG, TWLWG, and the WWNWS.

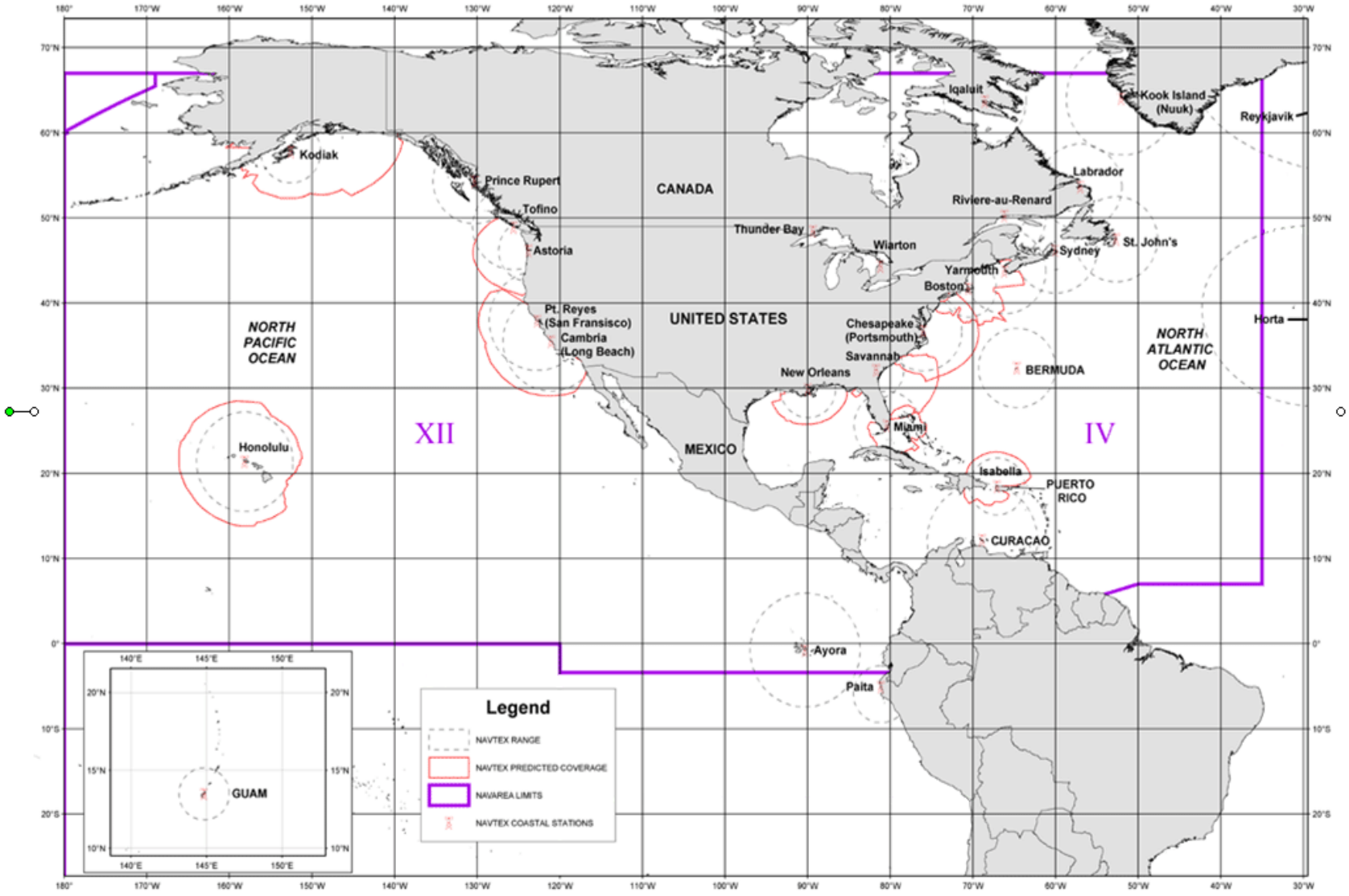
Appendix 1

PROMULGATION OF MARITIME SAFETY INFORMATION BY U.S. INFORMATION PROVIDERS

SCHEDULED BROADCAST TIMES

WHAT	WHO	WHEN (UTC)	HOW	NAVAREA/ METAREA	SATELLITE
High seas warnings and forecasts	NWS	0430, 1030, 1630, 2230	SafetyNET	IV	AOR-W
High seas warnings and forecasts	NWS	0545, 1145, 1745, 2345	SafetyNET	XII	AOR-W/POR
High seas warnings and forecasts	NWS	0515, 1115, 1715, 2315	SafetyNET	XVI	AOR-W
Hurricane advisories West Atlantic	NWS	as required	SafetyNET	IV	AOR-W
Hurricane advisories East Pacific	NWS	as required	SafetyNET	XII	POR/AOR-W
Hurricane advisories Central Pacific	NWS	as required	SafetyNET	XII	POR
Long range navigational warnings	NGA	1000, 2200	SafetyNET	IV	AOR-W
Long range navigational warnings	NGA	1030, 2230	SafetyNET	XII	POR/AOR-W
Long range search and rescue	USCG	upon receipt	SafetyNET	IV/XII	AOR-W/POR
Coastal MSI	USCG	4 to 6 times daily for routine traffic; upon receipt for distress	NAVTEX	Generally, within 200 miles of the coastline	None; see Pub 117 for stations and times
Status of ice in North Atlantic Ocean	USCG	1200	SafetyNET	IV	AOR-E/W

NAVAREA IV & XII NAVTEX COVERAGE



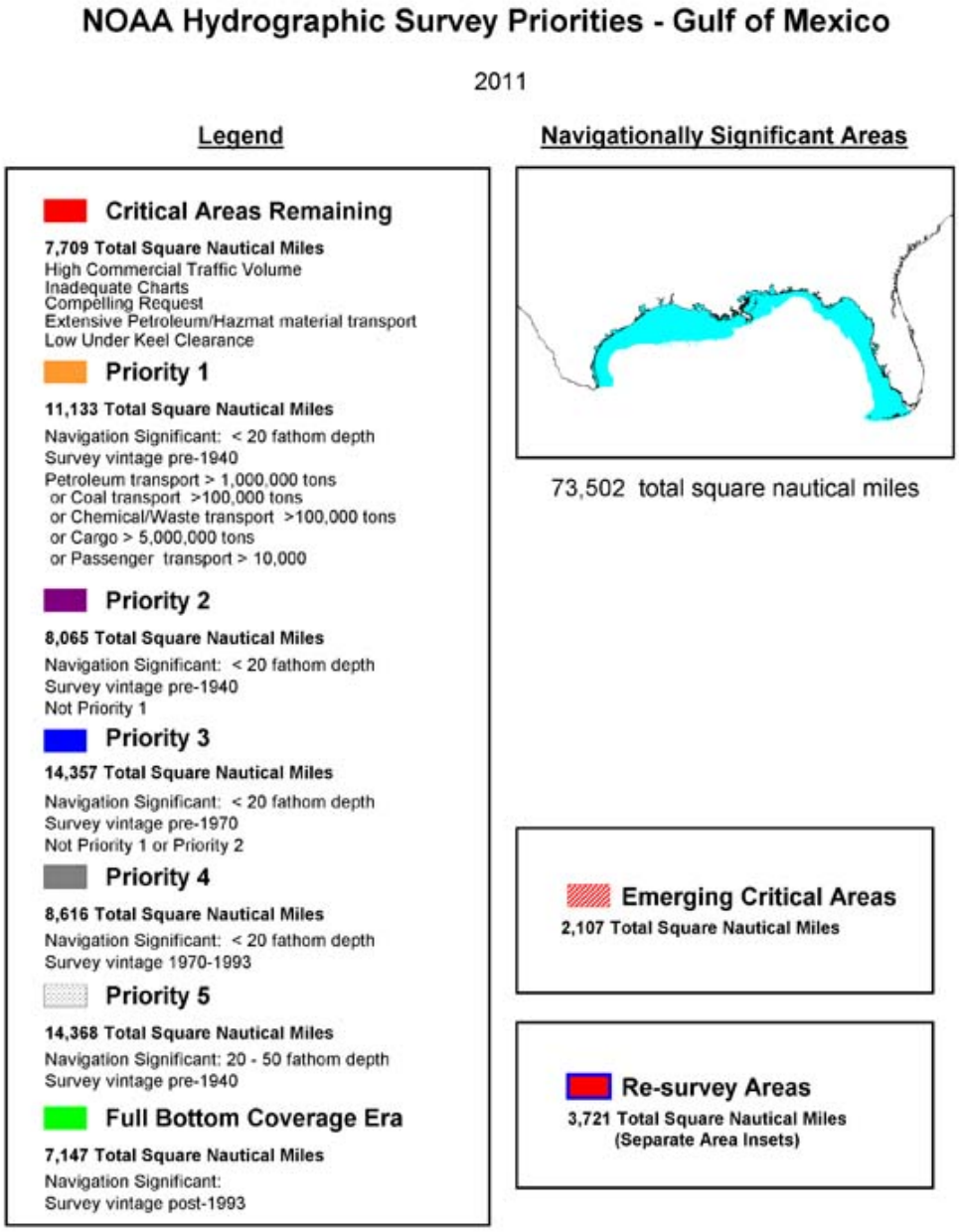
Appendix 2

Institution and Point of Contact	Training Opportunity
Florida Institute of Technology Graduate Admissions 1-800-944-4348 Fax: 1-407-723-9468 http://www.fit.edu/programs/grad/	Master of Science in Ocean Engineering with a specialization in Hydrographic Engineering Master of Science in Earth Remote Sensing, including classes in hydrographic surveying and hydroacoustics
NOAA National Geodetic Survey NGS Workshop Program David R. Doyle 301-713-3178 Fax: 301-713-4327 Dave.Doyle@noaa.gov http://www.ngs.noaa.gov/	NGS conducts workshops throughout the United States, involving the cooperation of professional societies, universities, and international, Federal, state, and local organizations. NGS also develops new workshops upon request, provided it has the necessary resources and the material is within NGS' mission.
NOAA Office of Coast Survey Annual NOAA Hydro-training course Kathryn Ries Tel: (301) 713-2780 ext 139 Kathryn.Ries@noaa.gov	Conducted February of each year in Norfolk, VA Topic include, but not limited to: *Introduction to Hydrography *Nautical Chart Products *Navigation and Orientation *Hydrorgaphy data types and deliverables *Geodesy, Positioning &GPS, Ellipsoid Reference System *Side Scan Sonar *Tides
University of New Hampshire Center for Coastal & Ocean Mapping Joint Hydrographic Center Abby Pagan-Allis 603-862-3433 Fax: 603-862-0839 http://ccom.unh.edu/index.php?page=education.php	Graduate Program in Ocean Mapping [Category A Certified Program]
U.S. Navy Commander Naval Meteorology Oceanography Command Jacqueline Bussell 228-688-5753 Fax: 228-688-5332 Jacqueline.bussell@navy.mil	International Hydrographic Management and Engineering Program (IHMEP) [Category B Certified Program]
U.S. Navy Commander Naval Meteorology Oceanography Command Jacqueline Bussell 228-688-5753 Fax: 228-688-5332 Jacqueline.bussell@navy.mil	International Hydrographic Science Applications Program (IHSAP) [Category A Certified Program]
U.S. Navy Commander Naval Meteorology Oceanography Command	Mobile Training Team (NMTT) Tailored Maritime Geospatial Training

Jacqueline Bussell 228-688-5753 Fax: 228-688-5332 Jacqueline.bussell@navy.mil	
National Geospatial Intelligence Agency	Existing Nautical Chart & Publication products to serve as foundation data Training in Chart Compilation, Notice to Mariners, Publication Maintenance MSI Training support through IHO Capacity Building Steering Committee and WWWNWS Steering Committee

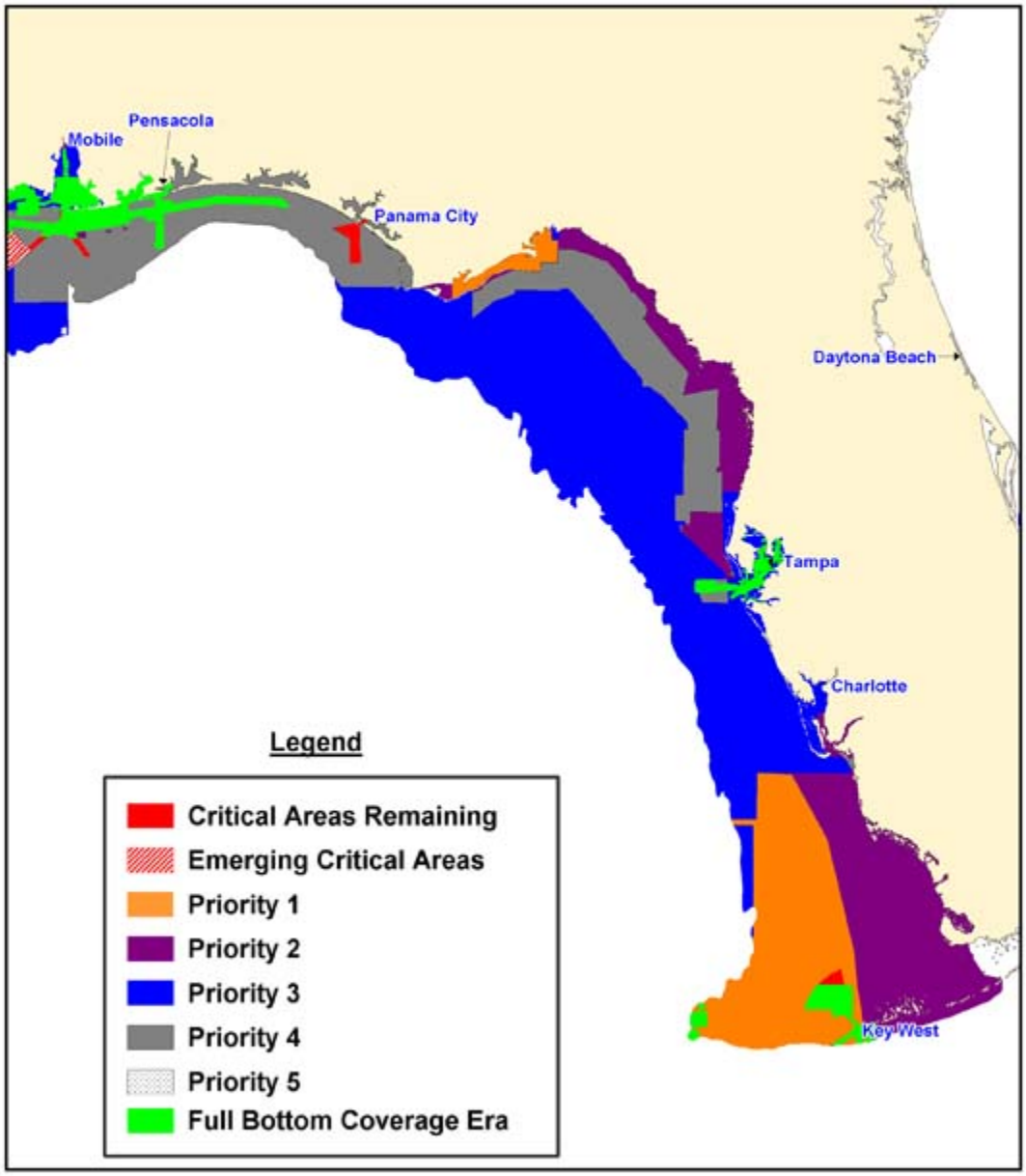
Appendix 3

OCS Survey Priorities in the Gulf of Mexico and Caribbean Islands (2011)



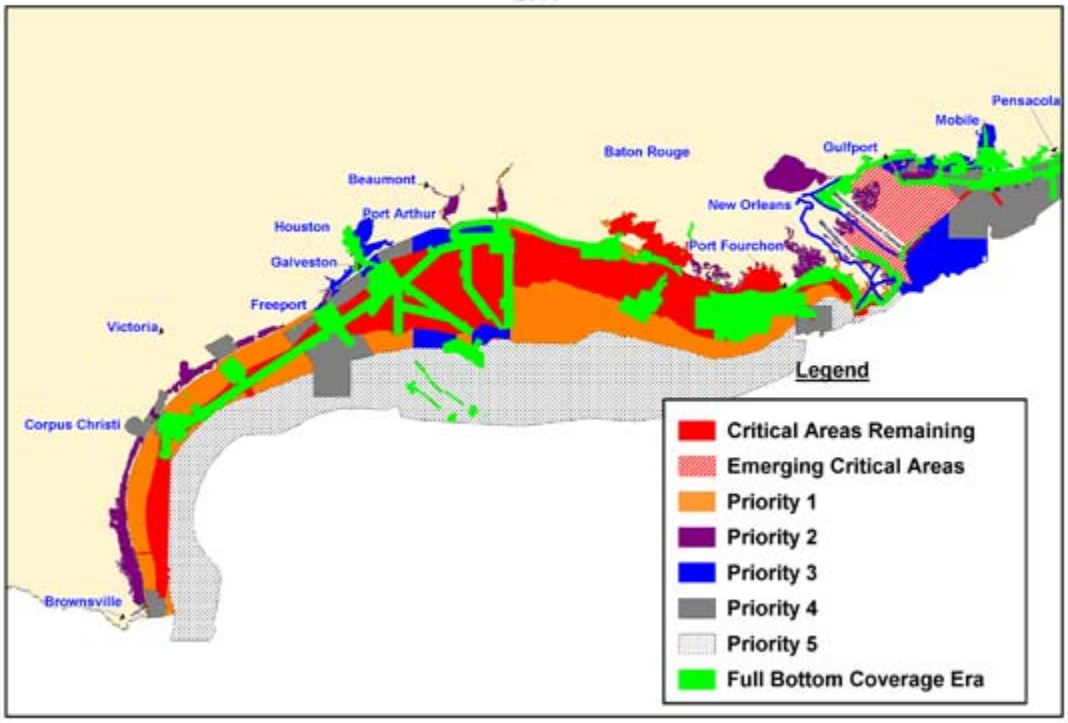
NOAA Hydrographic Survey Priorities - Gulf of Mexico East

2011



NOAA Hydrographic Survey Priorities - Gulf of Mexico West

2011

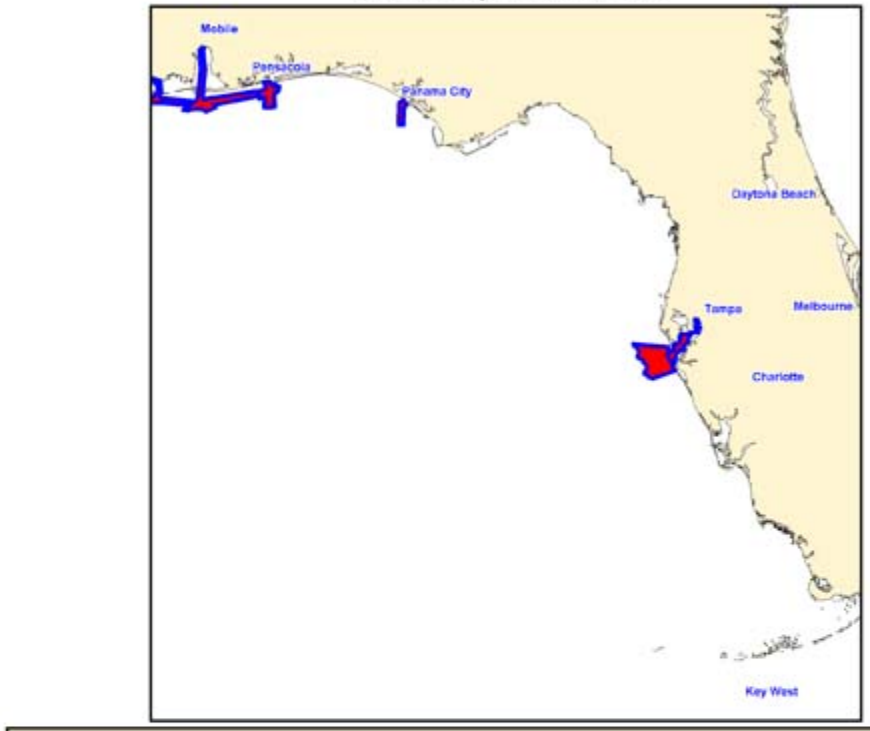


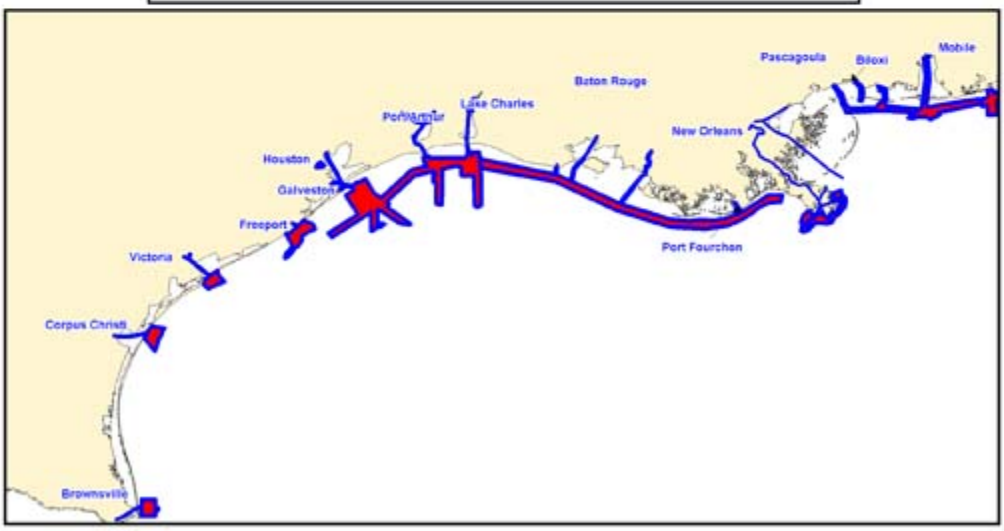
NOAA Hydrographic Survey Priorities - Gulf of Mexico

2011

Re-survey Areas

3,721 Total Square Nautical Miles





Puerto Rico and U.S. Virgin Islands
NOAA Hydrographic Survey Priorities

2011

Legend

Critical Areas Remaining

34 Total Square Nautical Miles

High Commercial Traffic Volume
Inadequate Charts
Compelling Request
Extensive Petroleum/Hazmat material transport
Low Under Keel Clearance

Priority 1

38 Total Square Nautical Miles

Navigation Significant: < 20 fathom depth
Survey vintage pre-1940
Petroleum transport > 1,000,000 tons
or Chemical/Waste transport >100,000 tons
or Cargo > 5,000,000 tons
or Passenger transport > 10,000

Priority 2

184 Total Square Nautical Miles

Navigation Significant: < 20 fathom depth
Survey vintage pre-1940
Not Priority 1

Priority 3

341 Total Square Nautical Miles

Navigation Significant: < 20 fathom depth
Survey vintage pre-1970
Not Priority 1 or Priority 2

Priority 4

579 Total Square Nautical Miles

Navigation Significant: < 20 fathom depth
Survey vintage 1970-1993

Full Bottom Coverage Era

367 Total Square Nautical Miles

Navigation Significant: < 20 fathom depth
Survey vintage post-1993

Navigationally Significant Areas

1,543 total square nautical miles

Re-survey Areas

34 Total Square Nautical Miles
(Separate Area Insets)

Puerto Rico and U.S. Virgin Islands
NOAA Hydrographic Survey Priorities

2011

Re-survey Areas

34 Total Square Nautical Miles