

Disseminate NOAA's Hydrographic Services Data and Products to Achieve Greatest Public Benefit: need to make the header easier to read – change text color

New text and major edits in highlighted blue text. ~~Strikethrough text~~ is being deleted from the chapter.

HSRP Report: Pages 25-28

Finding 5: "The more timely and widespread NOAA's navigation data delivery is, the more benefit it can provide to safe maritime navigation, more efficient port operation and security, as well as non-navigation uses, such as the impact of sea level rise on our coasts."

The HSRP firmly believes the federal government needs to invest ~~its increasingly scarce resources~~ in programs that will achieve the greatest return on public investment. NOAA's Navigation Services not only support safe, efficient, and environmentally sound navigation, but the same dollar invested in hydrographic surveys, Electronic Navigational Charts (ENC), water levels, or positioning accuracies, yields multiple benefits to a wide variety of stakeholders.

Comment [rla1]: The group took this phrase out.

The scope and impact of NOAA's hydrographic information on U.S. Marine Transportation System (MTS) users is significant. NOAA's nautical charts, shoreline surveys, PORTS® real-time data, sea-floor images, and other products are absolutely essential to the safe movement of vessels transiting U.S. waters. What the public may not realize, however, are the broader applications of NOAA's hydrographic services. In addition to navigation, these same data and services provide the basis for inundation modeling, marine habitat mapping, coastal resource management, engineering projects, long-term sea level trends, climate change, and more. They also play a critical role in coastal and maritime communities; and they influence the lives of varied and unexpected stakeholders — from farmers in the Midwest to schoolchildren in a major city. Whether the issue is the timely transportation of goods to markets, a classroom discussion about hurricanes or oil spills, the impacts of port expansion on the environment, or an emergency manager's decision to order a mandatory hurricane evacuation, NOAA hydrographic products and services are often at the core.

The HSRP applauds the development of hydrographic products and services available to mariners within NOAA's suite of navigation services. The digital raster charts and ENCs that NOAA makes available on the Internet at no charge to the consumer have eclipsed traditional paper charts. Printed predicted tide tables have been supplemented with electronic versions of the tables. Real-time water level is available every six minutes in most areas through multiple channels, including telephone and internet. Other user friendly products — including the NOAA Pocket Chart, the chart downloads booklet, small-craft charts, and the Coast Pilot® series of navigational books — are helping mariners navigate safely and efficiently at sea, in harbors, and in the Great Lakes. However, despite NOAA's impressive record of achievement, especially considering its constrained resources, the HSRP sees a strategic need for NOAA to accelerate the development and dissemination of certain hydrographic products and services.

The HSRP is particularly concerned over the pace at which NOAA is building its ENC coverage to match the area covered by the 1000-paper-chart suite. Recognizing that this is both a funding and capacity issue – the Administration’s budget requests have sought the same \$2-million increase for ENCs every year since 2004 — the HSRP understands the delay. However, it notes that an incomplete suite of ENCs directly impacts safety of navigation and Homeland Security; without adequate funding, NOAA is falling short in its responsibility to provide ENCs coincident with the U.S. Coast Guard’s introduction of electronic charting system carriage regulations. The HSRP hopes that this situation is remedied with the FY2011~~08~~ appropriation. Additionally, the HSRP urges NOAA to accelerate the rationalization of its separate raster chart and ENC production lines into an integrated single process. While the HSRP recognizes the short term challenges, including the re-training of some personnel, NOAA needs to follow through on its commitment to complete its ENC portfolio.

In addition to continuing to improve its navigation and geospatial positioning products, the HSRP would also like to see NOAA expand the potential that navigation data has to offer to non-navigational uses. For example, at the same time that ports and shippers are under pressure to remain competitive, coastal zone managers are juggling responsibilities for effective use of coastal resources and planning for climate change. NOAA’s decision-support tools — high-accuracy nautical charts, positioning information, and real-time water-level and current data — help the mariner maximize use of limited channel depths safely, and also help the coastal manager make informed decisions on sustainable development and protection of coastal and ocean resources. NOAA navigation data can also benefit surveyors, managers, planners, engineers, and scientists working in the coastal zone, including individuals involved with marine spatial planning. The HSRP recommends that NOAA increase its efforts to educate its diverse stakeholders — from mariners and navigators to consumers and coastal zone managers — on the importance of accurate surveys, charts, real-time information, and other hydrographic data. NOAA should expand the reach of its regional navigation manager and state geodetic advisor programs, currently focused primarily on commercial shipping and port issues, to recreational and environmental stakeholders.

The HSRP is aware of several examples of the ways in which the use of hydrographic information goes far beyond mariners, and encourages NOAA to develop a better understanding of the needs of non-navigation users of hydrographic data. Since our first report was issued in 2007, the HSRP has heard testimony from a wide spectrum of non-traditional users, including industrial plant managers, conservationists, scientists, and coastal managers, who have described the role of hydrographic data in both traditional and emerging applications.

One unusual application of navigation information was explained in a presentation on the use of real-time water level, wave height, and wind speed data for industrial manufacturing. At our April 2009, meeting in Baltimore, Maryland, Mr. Stuart FitzGibbon described the importance of hydrographic data and forecasting to the Domino Sugar Refinery, one of the largest plants of its kind in North America. Hydrographic data provided by NOAA and other agencies to the Domino Sugar Refinery has more traditional applications, such as ship movements and tidal surge predictions for dockside facilities, but it is also used to predict unsafe winds for operating the large cranes that unload the refinery’s bulk carriers, for industrial water withdrawals, and for

Comment [V2]: NOAA needs to verify this fact and change/edit as necc. to be accurate.

Comment [V3]: NOAA to do: OCS Verify – IMO has a requirement, bus does the USCG?

Comment [rla4]: NOAA needs to do -- 10/09: Update the fiscal year after have more info – FY 08 is already over.
11/18: update with FY11 data as appropriate – need to see what figures have been for ENCs in last few budget years, and rewrite paragraph as needed to make sense.

Comment [V5]: NOAA to do: 10/09: OCS look in to progress and see what more needs to be done 11/09: (i.e. update section as needed)

Comment [V6]: NOAA to do: OCS in process of training personnel verify language

Comment [rla7]: New text suggested by Allison Allen – CO-OPS

Comment [rla8]: The next four paragraphs are from Tom Skinner – replacing the NOAA National Marine Sanctuary paragraph and giving several examples of non-traditional uses of data. Rebecca made some edits for better chapter flow and to fit the information into the existing chapter structure.

water discharge, to ensure the ambient water temperature in is within acceptable levels. Mr. FitzGibbon suggested that the development of more predictive trends, with a longer lead time and in a more useable format, would assist manufacturers like Domino by providing advance warning of situations in which it is necessary to shut down a facility due to wind, waves, and water heights.

With accurate, up-to-date hydrographic information, multiple-user conflicts may also be assessed for practical solutions. At the HSRP's meeting in Miami, Florida, on March 7, 2008, Chantal Collier, representing the Coral Reef Conservation Program within the Florida Department of Environmental Protection, and Dr. Brian Walker, of the National Oceanographic Institute, each separately noted that the Port of Miami's chart designated ship anchorage was located in an area where vessel anchors and their chains destroyed significant areas of coral reefs, which are critical for habitat, biodiversity, and for controlling coastal erosion. By using NOAA survey teams to identify new anchorages in deeper water, away from coral reefs, port officials and conservations could work to maintain safe vessel operations for the Port and protect one of Florida's key marine resources.

Comment [V9]: NOAA to do: 11/18 OCS check status of chart update in Miami; ...Miami public recommendation for recharting of anchorage area to protect coral reef. 12/14/09: Rebecca – this is in the works. Rebecca will get updated info from OCS.

The HSRP has also heard from several coastal managers on the importance of working with NOAA to use the highest-quality hydrographic information for seafloor and habitat mapping, resource management, marine spatial planning, and inundation modeling. With a renewed focus on offshore renewable energy, sand mining for beach nourishment, and other non-traditional ocean uses, states are increasing their role in partnering with NOAA and other federal agencies to acquire detailed information on ocean and coastal resources. Bruce Carlisle, of the Massachusetts Office of Coastal Zone Management, and Sheila Semans, of the California State Coastal Conservancy, testified before the HSRP on the importance of ocean and coastal mapping for their respective states, the issues involved in interagency seafloor mapping projects, and the progress that is being made, both procedurally, in terms of uniform protocols and datums, and spatially, with an increase in nearshore high-resolution mapping coverage.

The HSRP finds that scientists can also benefit from the ancillary data that NOAA collects with its hydrographic surveys. In October 2009, reiterating comments she made at the 2006 HSRP meeting in Anchorage, Alaska, a fish biologist with the Alaska Department of Fish and Game, Division of Commercial Fisheries expressed a desire for more NOAA data. "Within the last two or three years we've been using NOAA's multibeam bathymetry where available for survey planning and for determining available habitat," said Margaret Spahn. "[This] works toward stock assessments and fisheries management." She and other biologists use the NOAA data to help them assess numerous Alaska fisheries, including lingcod, rockfish, spot shrimp, sidestripe shrimp, weathervane scallops, cod, black cod, and tanner crab. Fisheries experts are also interested in using the backscatter data collected with multibeam surveys to characterize soft sediments (an essential fish habitat) as well as rocky reef areas. Clearly, opportunities exist for NOAA and fisheries scientists to combine resources and jointly map for both navigation and fish population monitoring.

Comment [rla10]: This paragraph was reviewed and updated by Margaret Spahn (thanks Elaine!)

Our national marine treasures, including coral reefs, also require NOAA mapping attention and expertise. For example, the Northwestern Hawaiian Islands Marine National Monument, created

Comment [rla11]: 11/18/09: We deleted this paragraph and replaced it with an example from the Miami HSRP meeting –anchoring area marked on charts impacting coral reefs. See new language from Tom in the paragraphs above.

in June 2006, is inadequately surveyed. The largest marine sanctuary in the world, the monument — a 1200 mile long chain of islands, atolls, and coral reefs, is home to more than 7000 marine species, about a quarter of which are found nowhere else on Earth. This includes the rare and endangered monk seal, green sea turtle, and millions of breeding seabirds. NOAA should completely survey this and other marine sanctuaries to provide chart updates and scientific research data. The HSRP supports the expansion of the program to include this important work.

NOAA's marine transportation services are critical to mariners for safe navigation, and just as useful to the coastal manager facing the challenges of day-to-day coastal decision-making. The HSRP supports NOAA's interest in the relationship between marine transportation and the health of coastal ecosystems, communities, and economies. Coastal areas have intrinsic economic, cultural, and aesthetic value; and NOAA's Navigation Services offer baseline data to monitor the health, status, and changes in these areas, so that they can be conserved, adapted, or restored appropriately. NOAA nautical charts and hydrographic and geodetic surveys play key roles in many non-navigational uses; and recently, additional applications related to tides, water level, and datum information have emerged as well. These new applications — including emergency response, wetlands restoration, land-use project management, and climate change and sea-level trend analyses — help to protect lives, save property, restore the environment, and maintain the economic vitality of the nation.

Comment [r1a12]: New text suggested by Allison Allen – CO-OPS.

Recommendation 5

The HSRP recommends that NOAA expand efforts to deliver its navigation products and services more quickly, and increase outreach to make navigation and non-navigation users more aware of the NOAA mapping and data resources available to them.

Sidebars

a) **Why NOAA Needs to Reach Out to Recreational Boaters (and three small photos of recreational vessels):** Elaine rewrote and updated the sidebar

Three Photos:

remove single boat (middle) and one on the right, and replace with ones showing boats in motion and picture with lots of boats on the water (Elaine provided pictures)

NOAA's outreach efforts tend to target stakeholders tied to commercial activities in the U.S. Marine Transportation System. But in 2008 alone, some 70 million recreational boaters traveled the same waters in motoryachts, fishing boats, ski boats, sailboats, and everything in between. Also in 2008, the number of boats in use remained at about 18 million, and the number of state-registered boats was 12.6 million boats.

NOAA's navigation data is quite accessible to the recreational boater. Undoubtedly these user-friendly products — including the NOAA Electronic Navigational Chart, the Pocket Chart, small-craft charts, and the Coast Pilot® series — have helped many recreational mariners navigate safely. A 2009 survey of users of the CO-OPS data such as tides and currents found that 36% of data users are recreational boaters.

But in many instances recreational boaters may be operating with a false sense of security. As the consumer market for marine electronics, GPS navigation systems, and chart plotters continually expands, boaters presume that the data they can zoom in and out on is as accurate as the GPS systems in their cars. This is not necessarily the case. The fact is that electronic charts are often only as good as the paper charts upon which they were built. Depending on a boater's location, the NOAA backlog of charting and surveying work can render these products slightly to grossly inaccurate. The information could be years, even decades, out of date. While the commercial shipping navigators have a professional awareness of NOAA charting shortfalls, the average recreational boater probably does not. The tragic results are borne out in the statistics. The U.S. Coast Guard reports that for 2008, recreational boating deaths, the largest marine category, increased to 709, from 685 in 2007.

For boat insurers, two of the most common types of claims are "striking a submerged object" and groundings, two scenarios in which accurate NOAA surveys and charts can play a major role. An estimated 104,000 claims a year are filed, with losses of about \$470 million. With broader use of updated charts, these losses could be reduced. NOAA needs to enhance its outreach efforts to recreational boaters and educate them on the benefits and limitations of electronic charts. In conjunction with boating associations such as BoatU.S., the U.S. Coast Guard Auxiliary, and the U.S. Power Squadrons, NOAA outreach would go a long way toward improving recreational boaters' understanding of the uncertain marine environment in which they are operating.

b) ~~Fort McHenry Wetlands Restoration: A Non-navigational Use of NOAA Navigation Data (and a photo of the wetland)~~ – DELETE sidebar – this was replaced with in chapter materials written by Tom Skinner giving examples of non-navigation use of nav data

Photos:

Two photos – cruise ship & coral reef: DELETE coral reef photo – and replace – possibly with photos of recent Nor'easter boat pics (11/09 storm hitting Chesapeake Bay and Atlantic Coast); REPLACE/UPDATE cruise ship photo – ask Minas for new photo (one from Miami would be ideal)