

**Summary Record  
Hydrographic Services Review Panel  
March 7, 2008  
Miami, Florida**

Introduction

On the call of the Designated Federal Officer (DFO), Captain Steven R. Barnum, National Oceanic and Atmospheric Administration (NOAA), and after public notice in the Federal Register (Volume 73, No. 23, Page 6484 dated February 4, 2008), the Hydrographic Services Review Panel (HSRP) meeting was convened on March 7, 2008, at The Doubletree Grand Hotel Biscayne Bay, 1717 North Bayshore Drive, Miami, Florida. All voting members attended except Captain Andrew McGovern. The following report summarizes the deliberations of that meeting. Documents available to and or prepared by the HSRP are available for public inspection via the web at <http://nauticalcharts.noaa.gov/ocs/hsrp/archive/library.htm> and copies can be requested by writing to the Director, Office of Coast Survey (OCS), 1315 East West Highway, SSMC3, N/CS, Silver Spring, MD 20910. A list of the HSRP members and other attendees is provided in Appendix 1.

HSRP Acting Chair, Mr. Tom Skinner, called the meeting to order at 8:00 AM, then turned to Captain Myrtidis to introduce the opening speaker, Mr. Bill Johnson.

Keynote Speaker:

*Bill Johnson, Port Director of Miami*, described the Port of Miami's major focus areas as a publicly owned business interest and cruise ship capitol of the world. He discussed some of the port's history, its value to the economy (\$16B, 110K jobs), its growth areas and problems as it tries to reestablish itself as a profitable, efficient, clean, modern and customer friendly port. He mentioned the increase in costs due to Homeland Security, noted new partnerships to support the cruise industry and efforts to improve cargo share coming in to the port by reducing costs and deepening the harbor to capture more cargo trade.

Panel Administration:

Captain James Weakley, Captain Ramon Torres Morales, Matt Wellslager, Mr. Gary Jeffress, Mr. Ed Welch, and Captain Tom Jacobsen were sworn in. Tom Skinner and Ed Welch were named Chair and Deputy Chair respectively.

Overview of FY08/09 Budget:

*Dr. John H. Dunnigan, National Ocean Service Assistant Administrator,* discussed the 2008 appropriation and what is now before Congress for 2009, and provided an update of where NOAA is on addressing the recommendations in the 2007 HSRP Special Report. Overall NOAA's enacted budget is on an upward trend, generally above President's request, and primarily due to the satellite program. National Ocean Service (which houses NOAA Navigation Service under HSRP purview) is not seeing big increases, making the work challenging. NOAA Survey Vessel RAINIER needs an overhaul, RUDE is being decommissioned, HASSLER is a year and a half away from coming online. There is an increase in FY2009 for "Ping to Chart" to improve hydrographic data flow from ship to dissemination as a navigation product; also funds for Autonomous Underwater Vehicles transition to operations to update technology in use for surveys. There is also funding to improve and expand the delivery of Physical Oceanographic Real Time System (PORTS) information, although not full funding for PORTS. Office of Response and Restoration funds were cut, impacting NOAA's ability to respond to incidents like Cosco Busan. NOAA is continuing to move forward on Integrated Oceanographic Observation Systems.

Admiral West noted that the Department of Commerce/Administration might consider what needs to happen with the satellite program to make it healthy so that other ongoing programs are not affected; and that investment overall going down in government ocean program spending. Ed Welch noted that appropriations have actually been flat, and also requested a better understanding of NOAA's outyear capital expenses and plans for the NOAA Navigation Services programs. He recognized that NOAA could not achieve all the things laid out in the HSRP report, but selecting a couple of investment areas as goals to target would be psychologically beneficial. Elaine Dickinson asked for more detail on how NOAA redirects resources to respond to an incident like Cosco Busan spill before reimbursements from Oil Spill Liability Trust Fund come in.

It was requested that NOAA brief HSRP again on its Planning Budgeting and Execution cycle for Commerce and Transportation outyear plans (for programs under HSRP purview/interest) at the July 2008 meeting, and Fleet Recapitalization in Executive Session. NOAA could also brief on how it funds response events, what it gets/does not get from Oil Spill Liability Trust Fund, and potential for a regular appropriation from the fund. HSRP could also recommend target areas for investment that could be achieved in relatively short order with some level of investment (low hanging fruit).

NOAA's Action Plan Response to Address the HSRP Special Report, "Five Most Wanted Hydrographic Services Improvements:"

*Captain Steve Barnum, DFO,* brought the HSRP up to date on what NOAA is doing to follow through on HSRP recommendations. The Report is getting very good play and very strong support; important for NOAA's outyear planning. On Recommendation 1 to "Aggressively map the nation's shorelines and

navigationally significant waters," NOAA's resources do not any way equal the rate of growth in the Marine Transportation System. In FY2008 NOAA will survey 2500 square nautical miles due to lower appropriation for contract surveys, decommissioning of RUDE; in FY2009 3000 SNM planned. For shoreline mapping, 12% of priority port areas mapped in 2008; 14.3% in 2009; total is 20%. Open shoreline goal is 10%; NOAA will do 3%, as well as demonstration projects like surveying on ellipsoid. On fleet recapitalization: HASSLER, BAY HYDRO replacement underway, 2 new launches coming to RAINIER, AUV work on operating procedures to prepare for integrating this technology.

Captain Sherri Hickman asked about RUDE; operating funds will transfer over to HASSLER, and early RUDE decommission date was due to fuel budget shortfall in FY2008. Gary Jeffress asked about hydrographic surveying standards and what agency's standards were being used; also noted that NOAA could show a sustained increase on shoreline as a goal to achieve.

On Recommendation 2, to "Integrate coastal mapping efforts and ensure federally maintained channels, approaches, and anchorages are surveyed to the highest standards. NOAA will partner with State of California to map state waters, and US Army Corps of Engineers (USACE) for shoreline/nearshore LIDAR mapping; be active in JSOST Integrated Ocean and Coastal Mapping (IOCM) working group for 'map once, use many times' philosophy; USACE also using NOAA standard for vertical control. NOAA is exploring opportunities to work with FEMA on national baseline floodplain map, and to define NOAA's role in Homeland Security mapping for safe ports. Per the recommendation to support VDatum nationally, NOAA is working on it, and collecting GPS and geodetic and ellipsoidal ties at water levels in Alaska, Hawaii, Puerto Rico, to understand the spatial relationship between water levels and the land so it helps with sea level rise understanding. NOAA will also hold a workshop on national standards for referencing vertical heights and USACE contributions to VDatum development. FY2008 goal for VDatum is 30% U.S. coverage; 35% in FY2009.

Admiral West asked about impetus for IOCM; Barnum noted that it was an Administration Ocean Action Plan directive, under JSOST. He also asked about Homeland Security and DHS/Navy involvement in IOCM and surveying requirements.

On Recommendation 3, "Modernize heights and implement realtime water level and current observing systems in all major commercial ports," as critical components of IOOS, NOAA's 100% for 175 seaports with access to a PORTS is \$25M, goal in FY08 is 48 seaports and 50 total in FY09. National current observing program has 138 locations annually; goal is to modernize 70 in FY2008, and 70 in FY2009. For the National Water Level Observation Network, 100 percent requirement is \$32M; currently \$20M and 205 stations, goal in FY09 is 210 stations. NOAA will also add meteorological packages to 25 existing NWLON stations over 5 years, harden stations to withstand extreme weather,

establish 6 PORTS in Pascagoula, Gulfport, New Orleans, Lake Charles, Sabine and Cherry Point, add air gap sensors to New York/New Jersey, and release the New York/New Jersey ports economic study.

Captain Sherri Hickman asked for a clarification on PORTS funding.

On height modernization, FY08 goal is 11 states as a regional effort; add 16 states in FY09. One major effort in 2008 and on is a nationwide gravity study to help define the geoid, which helps define height. 100% requirement to collect gravity data for 20 percent of the country each year for five years is \$39M; NOAA received \$500,000K in FY08. NOAA has demonstrated it can be done; requires big investment. Working with partners to collect new gravity data, have a lot of existing gravity data. Also in FY08 NOAA will conduct ten CORS/OPUS overviews and initiate a socio-economic study of CORS and gravity survey plan.

Larry Whiting asked whether NOAA had access to gravity data that is commercially available; Dave Zilkoski responded yes, most gravity data that is available has been given to NGS, but gravity data already processed often has inconsistencies.

For Recommendation 4, "Strengthen NOAA's navigation services and emergency response and recovery capabilities," NOAA's capacity is less than requirement, but NOAA provides essential support functions. In 2008, NOAA contributed to DHS's National Response Framework to prepare for and improve incident response. NOAA is participating in a May 2008 workshop on to address events like another Katrina. NOAA will operate six Navigation Response Teams, not 8 as requested, and 10 as 100%. Goal is to have eight NRTs up and running next year depending on FY09 funding. Also will continue procurement of a damage assessment aircraft from post-Katrina emergency supplemental funding. Contracts for Gulf of Mexico marine debris mapping will continue, also very important for storm surge and habitat. NOAA will also coordinate reconnaissance surveys and define its role in homeland security mapping as discussed earlier.

Recommendation 5 -- "Disseminate NOAA's Hydrographic Services data and products to achieve the greatest public benefit" -- NOAA will build 40 electronic navigational charts (in addition to the 601 existing, total requirement 1000); release web based on-line geodetic-user tools; develop and test high frequency surface current radar products for the navigational community; integrate ports data into the Coast Guard's Automated Identification System; integrate wave data into PORTS with USACE as part of IOOS; hold 12 height modernization user forums around the country, and three regionally to educate on height modernization; and utilize the Joint Hydrographic Center to expand hydrographic survey technology beyond traditional charting applications. FY2009 request includes funding to achieve full suite of ENC's and be ready for mandatory carriage.

Admiral West asked about the total actual required number of ENC's since they are not one-to-one with a paper chart. The total number needed is roughly 1000. He also asked about NRT response to Cosco Busan (although on call, the NRT was not activated) and how PORTS fared. Mike Szabados answered that the San Francisco PORTS local partner had a funding shortfall that impacted some current meters, which would have helped the response had they been working. Jack Dunnigan noted that this instance makes clear to NOAA that there should be a federal responsibility to maintain the system for such instances of national significance, and that NOAA was trying to move full funding forward through the budget process. Tom Skinner noted that inoperable current meters is unacceptable, Admiral West argued that the Panel and NOAA should make a better case for action, and NOAA should invest in these programs, Ed Welch recommended a paper on how the outcome might have been different had the investments been made, and Captain Tom Jacobsen supported full funding for PORTS.

#### October 15, 2007 Meeting Summary:

Chairman Skinner presented the meeting minutes; moved and approved by the Panel.

#### U.S. Committee on the Marine Transportation System (CMTS) Overview and Update on the Navigation Technology Integration and Coordination Team:

*Helen Brohl, Director, CMTS Executive Secretariat*, provided an overview of the CMTS and how its actions relate to the HSRP 5 Most Wanted Report. She began with mention of the 1996 INTERTANKO report written by Bill Gray [INTERTANKO member and former HSRP member] that highlighted industry concerns with the future of the U.S. Marine Transportation System and the federal government's lack of coordination and readiness in addressing maritime transportation needs. This report spurred a requirement for the 1999 Dept of Transportation Report to Congress assessing the US MTS, and the creation of the Interagency Committee on MTS (ICMTS) and the Marine Transportation System National Advisory Council. The ICMTS became the cabinet-level Committee on Marine Transportation System as an Administration Ocean Action Plan action following the 2004 Ocean Commission report. The CMTS pulls 18 departments and agencies together to coordinate on MTS management and the intermodal connections, and it includes ex-officio members from Office of Management and Budget and CEQ.

The CMTS has met 4 times since 2005, but the CMTS Coordinating Board, made up of the administrative and directors of the department agencies, has met more often to create the policies recommended forward to the CMTS. Integrated Action Teams are task teams under the Coordinating Board looking at various integrating tasks. One IAT is developing a National Strategy, approved for forwarding to the CMTS on February 26, 2008. Another IAT is conducting an

MTS assessment with Volpe, on contract to Army Corps of Engineers; phase one of part one has been completed. An inventory of federal maritime data sources has also been completed. A portal to the data was to be completed in April 2008. The Navigation Technology IAT is being led by NOAA's Captain David MacFarland. There are also other activities ongoing to connect the 70 or so federal advisory committees that have direct (20) or indirect (50) impact on the MTS; eg. the US Coast Guard Navigation Safety Advisory Committee, to which former HSRP chair Scott Rainey presented the 5 Most Wanted report, and MacFarland briefed the Navigation Technology IAT.

Brohl noted that the CMTS is not legislatively mandated, and could change with the next Administration. There will be an MTS Day on Capitol Hill to role out the National Strategy and educate on the importance of the MTS and the federal programs involved. The Administration also directed an inventory/analysis of those programs and their budgets, but lacking staff at the CMTS, the Maritime Administration has announced it will do the analysis on its own. The CMTS has created an IAT to look at Arctic policy and potential for marine transportation through a northwest passage. Congressional staff will be invited out on a field trip to Hampton Roads this summer in order to see how shipping works, to understand the value of the navigation systems on board, and the importance of maritime transportation trade to the country. The HSRP 5 Most Wanted Report came before the CMTS via Admiral Lautenbacher, and it was referred to the National Strategy IAT, which integrated aspects of the HSRP report into the national strategy. It also went to the Navigation Technology IAT, which understands the impact and interest of what the HSRP was saying.

The CMTS Executive Secretariat also reaches out to other MTS FACAs with briefs on what others are doing. The National Strategy calls for deliverance of timely, relevant and accurate navigation information to improve safety, which connects to HSRP recommendation to aggressively map the nation's shorelines and "Modernize heights and implement realtime water levels" for realtime information, and "disseminating NOAA's data and products for greater benefit." The Navigation Technology IAT was also directed to coordinate realtime observations within its scope, including AIS. Integrated coastal mapping is covered in the National Strategy call to enhance and improve existing frameworks that plan for, operate and maintain and mitigate risks as well as "Strengthen NOAA's emergency response." "NOAA should take a larger role improving partnerships;" NOAA has a very active supportive role in the CMTS, hopefully to continue in the new administration.

Helen Brohl also provided a description of the activities under the CMTS Navigation Technology IAT, which pulls together the three main agencies with navigation technology: Army Corps, U.S. Coast Guard and NOAA. MacFarland took an inventory of partnership ideas; the top groupings include the tide-aware electronic chart, combining more products into AIS such as PORTS data, products to improve the accuracy of NOAA charts, and an Army Corps led-effort

to collect and distribute navigation data for inland waterways. The Coast Guard has the lead on operational coordination issues, with some beta trials coming up, and there is a focus on emerging issues; contact David MacFarland with questions. Outreach to stakeholders is also a priority of the new Coordinating Board chair, MARAD Administrator Sean Connaughton.

Elaine Dickinson asked about approval schedule for the National Strategy, and whether it will happen in this Administration. Ms. Brohl replied that the strategy was just approved by the Coordinating Board, there is agreement at DOT on the manner in which it will go forward for some new departmental reviews, and it will go out to the other departments for sign-off. Hopefully it will not take long to go the full committee meeting planned for April and the CMTS will send it to the president.

#### Living on the Edge:

*Windell A. Curole, South Lafourche Levee District, Louisiana*, described the South Louisiana region, its vulnerability to hurricanes and climate change, and its longterm need for good elevations for emergency planning and land use. He used a number of illustrative slides to describe the population, location and economy, and how the Mississippi River brings midwest production to the world through New Orleans. 30% of U.S. fisheries are in South LA, which has the nation's only offshore oil port, with 1.2 million barrels a day off-loaded, and close to 18% of the nation's energy needs coming through pipelines. 41% of the U.S. is drained through South LA. The hurricanes created a lot of risk... When Katrina went through, tremendous flooding knocked Port Fourchon down; the small road to the port used by all traffic was under water. But when the port was operational again, the price of oil dropped by two dollars. An elevated toll road is now under construction to ensure that road traffic can get to Port Fourchon because of deep offshore oil. Accurate elevations are key to emergency planning; in the 1990s it became apparent that the levees were not right.

Mr. Curole continued with a comment that engineers used to pull heights from different benchmarks at different levels. With GPS and leveling, elevations can be done quickly and accurately to protect from flood. Subsidence is a big issue also. Emergency planning has to consider many factors. Planners depend on NOAA weather predictions, then consider how many evacuations have already occurred, the cost of those to families and likelihood of people deciding whether or not to go. Decisions to close the flood gates stop traffic to the port, with impacts there. Sea level rise and climate change are where the research money is. But over the past 100 years, LA has had areas that have lost four feet in elevation -- three to subsidence, and one to warmer climate and sea level rise. So in LA, subsidence is more important for research than climate. What was solid marsh is now 60% open water. Another portion of Louisiana, Chalmette, is actually growing because the river is depositing that soil now in shallow water.

These significant changes impact the levees and construction; being able to get accurate elevations is very beneficial to planners and builders in the region.

Captain Jacobsen asked why the area was subsiding; Mr. Curole described how the river flood patterns created the region, building up silt that is now being pulled down by gravity and the levees that stop replenishment. The Mississippi is not static, has changed over time, and the deltas have moved around.

Dave Zilkoski noted that the presentation showed the importance of heights. He also commented on Louisiana State University and Roy Dokka's GPS positioning work for the levee district, which benefitted from NOAA work on height modernization, which NOAA needs to publicize better. Mr. Curole agreed that people need to better understand the benefits of heights, ending with "Elevation is a salvation from inundation."

#### Public Comment Period I:

*Joseph Scolari, U.S. Army Corps of Engineers*, discussed the the Corps technical community of practice and the desire to partner with NOAA and work together from the ground up on technical issues and make interaction between the agencies more successful. He also noted a paper made available to the Panel on how the Corps uses NOAA information and how Corps revisions to its engineering manuals are very similar to the NOAA guidelines in performing surveys, so the interaction between the agencies should be fairly streamlined once the political end is addressed.

#### Stakeholder Panel:

A Stakeholder Panel to discuss expanded uses of and reliance on NOAA Navigation Services information was held. *Bruce Carlisle, Assistant Director for the Massachusetts Office of Coastal Zone Management*, began by articulating a need for high-resolution bathymetric/topographic data, seafloor/shoreline morphology, substrate types and sediment thickness as critical pieces of information that will dramatically improve MA coastal and ocean management efforts. MA's Seafloor Mapping Cooperative with USGS produces high-resolution bathy maps; MA worked with NOAA and USGS in 1994/2001 on comprehensive shoreline surveys. MA is interested in high-resolution LIDAR and multi-spectral imagery for coastal shorelines, floodplains and habitats; would welcome a shoreline mapping partnership. States playing growing role in many of these mapping efforts and are looking to be partners, have direct experience in the application of this mapping data. HSRP Report Rec. #2 on coordination of mapping efforts to reduce duplication and maximize efficiencies is key; at least 2 situations in MA in recent years where coordination would have helped get data. Rec #5 -- NOAA navigation data increasingly important as the ocean is source for energy, for food, for agricultural and other needs. MA hopes states are



involved early in the planning processes for mapping missions to increase data utility.

Chairman Skinner requested a little more information on how MA uses seafloor mapping data. Carlisle described MA's comprehensive ocean management planning effort in response to increasing competing demands for marine and ocean resources and space. The data is multi-purpose, providing the base map for marine spatial planning efforts and habitat classification areas, siting and review of major projects and minor projects, and regional sediment management (dredging, beneficial reuse, beach nourishment) and shoreline protection for sea level rise and storm protection.

*Chantal Collier, representing the State of Florida and the Department of Environmental Protection and the Coral Reef Conservation Program*, described how FL has long partnered with NOAA on coral reef conservation and noted the March 6, 2008, redesignation of Port Everglades anchorages originally created in 1993 to protect coral reefs. But proximity to shore and reefs led to groundings and anchor drags; over 44,000 square meters of injury at an estimated value or cost of nearly \$500M. Port Everglades Harbor Safety Committee recommended changes to prevent further damages to ships and reef. The proposed rules required NOAA surveys in 2007 for potential anchorage obstructions. Port of Miami anchorage sits directly over a large portion of coral reef habitat, causing extensive damage from anchors and anchor chains. Reefs from the Dry Tortugas to the Keys generated \$6.4B annually in sales and income and supported over 71,000 jobs. It is necessary for NOAA to survey the area for potential alternatives to the current anchorage configuration. To facilitate moving the Port of Miami anchorage off of this coral habitat, and to prevent further destruction, HSRP requested to consider elevating Miami area on survey priority list to 2008/09.

Captain Hickman asked about intent of Port Everglades 72-hour limit; intent is to discourage vessels from staying, as some ships stop temporarily. Ed Welch asked if grounding damages and costs could be indirectly or directly attributable to lack of proper charting. Not directly, but Collier noted that the reefs are not delineated on charts, only in chart notes. NOAA's FL Navigation Managers helping to coordinate on this. Welch clarified that need is for additional surveys to look at anchorage area changes, but also to show actual reefs on charts. Collier agreed, noting that data lacking to know what areas are suitable for anchoring. Dr. Jeffress asked if FL has legislation to protect/compensate for coral reef damage/negligence; yes, FL statutes cover, more in work. Captain Jacobsen asked if Vessel Traffic Service directs the ships to anchor; the harbor safety manager directs ships to the designated anchorages that happen to sit above reefs. Dave Zilkoski commented that NGS's Shallow Water Positioning System in partnership with University of Miami could be a useful non-navigation project if NOAA showed people how to use it.

*Becky Hope, Operations Director of the Port of Miami*, noted that the Port of Miami south shipping channel is authorized to 42 feet, was just authorized to 52 feet in outer channel, 50 in inner. The port plans to dredge within 5 years, depending on appropriation/permitting/mitigation. As closest U.S. deepwater port to the Panama Canal, Miami hopes the 50 foot project is in line with Canal deepening and traffic. The Port is looking for updated shoreline features/berthing area as current charts reflect early 90s and it has extended 1495 linear feet of berthing area not now shown. The present entrance channel is in the middle of a Coral Reef, and will be widened with the projected 52 foot project. The sea buoy in its present position makes the ships align with it, but they need to align a mile out. Revised charts need to show a sea buoy farther out so ships align with the channel to avoid any potential reef impacts or groundings. Hopefully, the Army Corps and NOAA will coordinate on surveys. With reference to PORTS, although it sounds like a great program, it has many features that are not useful to Miami. The Port would like something like it, but just for the real-time current monitoring.

Mike Szabados noted that each PORTS is specifically designed based on user requirements. For Miami, NOAA would sit down with the port authority, the shipping companies, the pilots and any other appropriate partners and design that PORTS around the requirements. NOAA also provides tidal current predictions and will be updating Miami's for publication in 2009. Ed Welch asked if the Port of Miami was on board with moving the anchorage [due to the reef]; yes, the port supports. Admiral West asked about the \$20M on homeland security, and how much goes to mandated work and how much the port decides. Joseph Scolari, Army Corps, noted that many security plan requirements come from the Florida Department of Law Enforcement. Ed Welch noted the 2002 Federal Maritime Security Law with mandates for all sections of maritime industry, with federal port security grants covering a fraction of the costs.

Admiral West wondered if port security costs were an issue the HSRP should review for impacts on safe navigation and efficiency. Captain Barnum clarified that NOAA produces charts with Army Corps and Coast Guard data, but the sea buoy location would be Coast Guard. Ports are also supposed to send their as-built permits to NOAA for charting. The NOAA Navigation Manager is there to work with the Port and correct things wrong with the nautical chart. Captain Hickman asked if the port was rebated the \$20M for port security; Becky Hope noted that the port has applied for grants, but those are for specific projects that change over time, nor do the grants cover O&M. Mike Henderson, FL NOAA Navigation Manager, commented that he goes to approximately 14 different Harbor Safety Committee Meetings, and security/funding is being discussed at every one. Mike Szabados added that security costs have been identified by PORTS partners as expenses that impede PORTS partnerships.

*Chuck Husick, a journalist representing the Recreational Boater community*, noted that recreational boating is perhaps NOAA's largest customer, from

kayaks/canoes to 200 and 300 foot yachts. Recreational boating uses paper charts reproduced on plastic, but increasingly uses electronic charts. Out of the roughly 600,000 members of the Boat U.S. Organization (one-third or less of total U.S. boaters) about 200,000 are large enough to carry full-size electronic boat chart. systems using first-year RNCs downloaded from the Web. They also download ENC's. The average mariner today also uses a lot of weather information, downloading from satellites and the NOAA VHF weather radio system, NAVTECH. They also get PORTS online and integrate radar information and AIS on their chart screens. The question is whether the mariner knows how to use it, a continuing education problem. They also know almost precisely where they are, with GNS, differential GPS, Loran-C, but although they know exactly where they are with regard to the theoretical earth, in most cases in areas outside the major commercial ports we really don't know where the land is because NOAA hasn't surveyed it in some cases for 100 years.

Equipment will also combine Loran with GPS, for even more accuracy and magnet/true heading to improve auto pilot performance. Recreational boaters appreciate NOAA, especially in view of foreign countries that copyright and charge for charts. Rec boaters would like to see more ENC's/RNC's, and surveys of areas outside major shipping/port areas. Husick relayed the Sarasota bridge example of debris left behind in demolition that damaged vessels until a survey located it for a marker buoy. There is also an opportunity for NOAA to use rec boaters for data gathering in areas NOAA will never survey, now that users have GPS and depth sounders such as the Hummingberg, which is a high frequency sonar for video-like pictures of the bottom down to 100+ feet selling for less than \$1000. Husick also mentioned the Coast Guard's Automatic Identification System-A that small boats are not required to carry. AIS-B is a diminutive system that doesn't interfere with AIS-A but provides useful information to navigate and communicate with larger vessels. But AIS-B is being held up by the FCC; what can NOAA do to help?

Elaine Dickinson echoed the proposal to use recreational boaters for data, especially in low priority areas, because technology has improved. Captain Barnum noted the existing cooperative programs with Coast Guard Auxiliary and U.S. Power Squadron for charting. Admiral West asked if AIS-B was a frequency bandwidth issue; no, the FCC held it up because of obsolete objections to the use of the AIS frequencies. Admiral West asked about having many small boats in the AIS system; Captain Jacobsen said AIS-B can be turned off to reduce clutter, and sailboats should have it. West followed up with a concern about clutter and whether HSRP should be looking at this as a safe navigation/Homeland Security issue. Helen Brohl was asked about AIS-B FCC delay; she answered that the CMTS could perhaps study it for a potential support letter. Ed Welch added that the problem is a technology advancement/federal approval problem and Coast Guard's requirements as to who has to carry AIS and where, and as the price drops, potential resistance from the commercial sector will go away.

*Jeff Andrews, Vice President of Coastal Planning and Engineering*, discussed sand search investigations and beach profile erosion studies using hydrographic data. They research prior bathymetric datasets, including NOAA and the FL Department of Natural Resources Ross database, which has bathymetric data, cores and seismic data. The data is mapped for transverse ridges, sand flats, waves, banks, etc..., characterized and estimated for volume. Andrews illustrated a situation where the data showed good sand ridges that Dade County wanted to access but Martin County opposed. Andrews also described FL's desire for airborne gravity measurements, at a cost of \$1.8M, to get to centimeter geoid positioning. Erosion studies need a common geoid level. The geoid is also important because the state wants a buffer left above the sediment. Sand search investigations also use a seismic scanometer and a magnetometer to find objects on the seafloor that are cultural resources so that fiber cores are not taken near cultural resources. Andrews' company recently collected 600 miles of track line off the coast -- a dataset of potential interest to NOAA -- and is using RTK to do even the seismic work.

Dave Zilkoski commented that FL's airborne gravity survey requirement is what NOAA is trying to do for the rest of the nation. He noted that the coast is the primary concern for gravity because of the lack of information 50 miles from the shoreline inward and 50 miles from the shoreline outward.

*Andrew Melick, Port of Miami Harbor Pilot*, talked about how large ships need a longer approach and maneuvering space. Currently the Miami harbor chart does not specifically make a recommendation to mariners of deep transport vessels to stay a greater distance away from the sea buoy. The sea buoy implies that a ship can approach from any direction and be safe at that buoy. But a large ship has to approach the Miami sea buoy from a certain direction/side, which is not indicated on the charts. In Miami, there is no designated harbor master, so the pilots have to serve in that role. The pilots tell ships before arrival to not approach more than one or two miles to the sea buoy, but sometimes that communication does not happen, leading to risky incidents where ships get too close and the pilot has to make an immediate decision on whether he can make it or not or an alternative decision to avoid running aground. This [sea buoy] information would be very helpful for mariners and ship captains to know that they need to stay away.

Captain Barnum commented that the sea buoy issue was a good one for the Coast Pilot, on how ships should approach the buoy and how to contact the pilots. Melick responded in the affirmative but would also like to see it on the harbor chart. Ed Welch asked if the issue was fundamentally a chart problem or whether the sea buoy needed to be relocated. Captain Hickman also asked about where the pilots would meet the ships if the buoy moved; smaller ships could still be boarded inside the buoy, larger ships outside. Relocating the buoy has other practical concerns also. Captain Hickman also noted that the ships

should be reading the chart depths even before the sea buoy. Dr. Jeffress asked if the port of Miami has long-shore currents problems, pointing to need for a PORTS system; yes, the Gulfstream runs very close to shore. Don Ventura of Fugro Pelagos wondered whether the buoy designation could change, if it can't be moved, as it is not a safe water buoy for large ships. Chuck Husick asked why highly accurate GPS waypoints aren't used.

Print on Demand discussion:

Elaine Dickinson raised a follow-up issue to the Most Wanted Report about paper charts and print-on-demand (POD) charts. She received a call from Dave Dupree, president of Oceanografix, NOAA's print-on-demand contract partner based in Minnesota, who was disappointed that the report did not mention POD. Dickinson agreed that POD charts are innovative, where a state-of-the-art system prints and ships a chart updated with all the latest corrections when a customer orders. Dupree's frustration is that he feels that nobody really knows about Oceanografix charts, and is trying to find ways to reach the public with this product. She wrote a story about POD [in BoatUS magazine] and Dupree included an ad. Dickinson also mentioned POD charts in a routine e-mail to BoatUS members, and the number one site for link click-throughs was to OceanGrafix. Dickinson's point was that POD is another way technology gets the product and chart updates out to people, because there will always be a need for paper charts.

Chairman Skinner suggested raising POD as a potential issue in Administrative session for how the panel wants to proceed.

Legislative Affairs update:

*Bruce Vogt, NOAA National Ocean Service*, provided an update on the Hydrographic Services Improvement Act (HSIA), the Integrated Ocean and Coastal Observation legislation, and also Integrated Ocean and Coastal Mapping legislation; has not been much action on these bills since the last HSRP update. On HSIA, NOAA drafted an authorization bill and transmitted to Congress last year. The Senate introduced a verbatim version, but not much progress since it was introduced. On the House side, Jack Dunnigan testified on HSIA in October 2007; in February 2008, the House Natural Resources Subcommittee held a mark-up and sent the bill to full committee with minor changes. The hope is that this noncontroversial bill will move through both chambers in the 110th Congress. The difference between the House and the Senate bill is that the House bill does authorize 75 million dollars for a new hydrographic vessel. One change deriving from the administration version is more authority for NOAA to receive mission assignments or funding from other agencies, in particular the Coast Guard and FEMA, following natural disasters or for homeland security issues.

Admiral West asked about changes to the Hydrographic Services Review Panel in the Senate version. Vogt replied that the administration version included language that covers compensation for the panel to cover costs incurred while members are performing panel duties; it would not change the panel itself. The House version has some language to broaden the composition of the panel. Mr. Welch asked for the current version of the law, and Mr. McBride asked whether the change meant that panel members would not be compensated as special government employees at a daily rate, plus travel expenses.

The Panel requested a brief on exactly what the administration submitted and what appears to be both in the Senate and House version.

On Integrated Ocean Observing System (IOOS) legislation, Vogt reported that the House bill is seeing more movement than the Senate side, with a House subcommittee markup on February 13th with full committee markup planned for March 13th. The House may package the IOOS bill with HSIA and Integrated Ocean and Coastal Mapping (IOCM). Negotiation on the differences between House and Senate bills will be required, but House staff feels pretty confident they can negotiate and move the bill through. The Senate version is on hold due to the focus on Pay-as-you-go with legislation authorizing new funding. IOCM legislation passed the House in July 2007, and Senate has taken up this version to negotiate, particularly on the issue of which federal agency should lead the effort. House has NOAA developing an IOCM program within NOAA and chairing an IOCM interagency committee; Senate Energy and Natural Resources Committee believes this in conflict with the 2005 Energy Act which mandates Dept of Interior on potentially similar roles.

Elaine Dickinson asked about NOAA Organic Act status: no progress on Organic Act. Ed Welch noted HSRP's past interest in IOOS and user feedback to the regional associations, and how the associations should take steps to incorporate consultation with actual private sector users. He cited a section in the Senate version on IOOS about regional associations and suggested that HSRP draft a phrase on consultation to be included for a statutory reference. Vogt said NOAA has looked at the IOOS language very carefully and it does not preclude an advisory panel or inclusion of all sectors.

#### National Height Modernization Update:

*Panel Members Matt Wellslager and Gary Jeffress* summarized how the National Geodetic Survey's Height Modernization program helps localities determine accurate and up-to-date height values and how the program contributes valuable information to a variety of diverse NOAA programs. Height Modernization uses the Global Positioning System (GPS) and other new technologies to increase the accuracy of elevation measurements, often in areas where conventional techniques are not feasible. Among other benefits, Height Modernization is helping NOAA improve local forecasts and warnings for extreme weather events,

develop inundation and storm surge models for more accurate flood prediction, and improve heights on levees and dams for flood damage mitigation and reservoir management. Accurate and available heights are essential for mariners, who need reliable information on under-keel and overhead clearance for safe navigation, and are essential for NOAA's responsibilities for safe air navigation.

Mr. Szabados commented that in areas of subsidence and glacial rebound, NOAA is updating relative sea-level values every 5 years, rather than every 20 years. Mr. Dasler indicated there are problems obtaining repeatable surveys in areas such as those above Vancouver, where there are relatively few tide gages. Mr. Zilkoski proposed meeting with Mr. Dasler about his concerns in areas such as these and providing solutions before the next public meeting. Mr. Zilkoski commented that one of the general issues for the larger group to address is the use of GPS for tide zoning and what we should do now until VDatum can be used to provide accurate heights.

#### Public Comment Period II:

*Chuck Husick* noted he has been receiving updates of approach plates for various airports where the touchdown zone elevation at ends and center of runways are given to the nearest foot; he asked if this was GPS-based data. Dr. Jeffress responded that NOAA National Geodetic Survey (NGS) was responsible for airport surveys with FAA funding, and that this was a good model to follow. Mike Aslaksen of NGS said NOAA does survey using GPS techniques down to the centimeter level, and the FAA has its own standards for how it publishes.

*Brian Walker, Nova Southeastern Oceanographic Center and the National Oceanographic Institute*, noted that Florida, NOAA and other have invested in Florida coral reefs that serve to prevent coastal erosion, provide sand supply and marine habitats, and support biodiversity. But ship anchorages and coral reefs still remain a problem [echoing comments made earlier by Chantal Collier.] The Coast Guard reconfiguration of Port Everglades anchorage due to ship groundings and harm to reefs is a big step forward. The Port of Miami anchorage contains about one square mile of critical coral reef habitat in 25 percent of the area of anchorage, and NOAA charts direct ships to anchor in this critical habitat. He noted that the National Coral Reef Institute is working with Florida Dept of Environmental Protection to evaluate and develop an alternative anchorage configuration for presentation to the new Miami Harbor Safety Committee. To develop better information on the reconfiguration, Dr. Walker requested a hydrographic survey of deeper waters around the Port of Miami.

Chairman Skinner clarified that the HSRP in the past has not set survey priority areas, but will discuss with NOAA possibilities in this area.

## Integrated Ocean Observing System (IOOS) Update:

Chairman Skinner introduced the IOOS topic with some background on HSRP concern about IOOS and support for IOOS predicated upon having a navigation component and mariner involvement in IOOS development. Skinner also mentioned seeing maritime navigational components in IOOS grant proposals, and the buoys configured for Boston Harbor to support both Liquefied Natural Gas safe navigation and Right Whale detections. Andy Armstrong elaborated on the buoys to say that the Joint Hydrographic Center at University of New Hampshire is developing a system in connection with Cornell to transmit the information from the acoustic signals on the buoys to ships via AIS. Skinner also mentioned PORTS integration with IOOS and sea floor mapping issues before turning the floor over to Zdenka Willis, NOAA IOOS Program Director, who stated that the IOOS program is working to also support the maritime community in a number of ways.

Willis touched on funding, referencing Jack Dunnigan's brief on FY09 and recapping FY08. IOOS had two lines in the FY08 President's Request totaling \$14M, was appropriated \$26.3M, plus an earmark for \$940K for the Alliance of Coast Technology (a cross-cut among eight different universities). The highest recorded budget for IOOS was \$54M in FY05. Historically the percent of dollars to NOAA and the regional associations to build regional coastal ocean observing systems has been roughly 50-50. The merit-based proposal process for awarding funds in FY08 was similar to FY07; the review panel was very diverse, with 14 academic institutions, 13 federal agencies, 6 state agencies, 6 professional organizations or consortiums, and two private industry participants. She also touched on a 2008 effort with CO-OPS and the Army Corps to offer realtime quality-control waves products tailored for ports and the maritime navigational community. This will also involve the National Data Buoy Center wave buoys and data assembly center. The IOOS program is funding a Long Beach demonstration with CO-OPS.

In response to an HSRP request to know whether the regions were responsive to user needs and requirements, Willis offered a National Federation of Regional Associations letter [which highlights how the Regional Associations (RAs) are including mariners in their decision-making process and in the development of data and information products]. She also reported on HSRP-requested program reviews of the 11 RAs, with the first assessment of the Great Lakes Ocean Observing System on February 26th. In April IOOS will assess the Gulf of Mexico Coastal Ocean Observing System; the Southeast Coastal Ocean Research RA; the Caribbean RA; and the Mid-Atlantic and New England RAs. Alaska will be done in DC, and the Pacific Islands via video teleconference. In June IOOS will do the Regional Coastal Ocean Observing Systems of the West Coast -- NANOOS, CeNCOOS and SCCOOS. There are concerns about funding the existing observing capacity and operational maintenance. IOOS program is also developing an IOOS regional business model; the first part of the study



completed in December evaluated the various funding mechanisms available for the Regional Coastal Ocean Observing Systems that would still be a competitive process, and how to go from year to year to a 5 year process.

Mike Szabados asked about the standards that have been elevated through the U.S. Data Management and Communication Standards process, and the IOOS program will follow up later. Jon Dasler asked about High Frequency (HF) Radar and whether it is being effectively marketed as a tool for real-time observations during oil spills; Zdenka Willis answered that yes, HF Radar helps to understand trajectories with realtime currents, and is being discussed that way. Mike Szabados noted that NOAA is working with Rutgers and Stevens on HF Radar to make a practical, quality-controlled product that the operational person can use. Admiral West asked whether the oil companies weren't already required by Minerals Management Service to provide data from the rigs; Willis responded that MMS requires rigs to provide Acoustic Doppler Current Profiling data, but the agreements go above and beyond.

The second part looks at a regional business model from a strategy, organization structures, IOOS requirements, implementation plan, funding and communications perspective, both federal and regional. It reinforces that the IOOS program needs to be looking at what different sector requirements are, as HSRP has noted, and how to integrate regional association models with NOAA models and standards supporting ports and navigation. HF radar and oil spill response models is another focus area; the HF radar network is growing, and efforts to get the data out to the models are in work, as is getting funding for sustainment of this capability which supports an oil spill response, ocean health issues, beach closure, three dimensional circulation models. The IOOS program is also completing a Senate report draft on IOOS, NOAA and other agencies, the regions and international component. The report will show that IOOS isn't everything for everybody, but supports areas important to the nation, coastal inundation, the maritime transportation sector, integrated ecosystems, harmful algal blooms modeling, that the data and integration are key to products and services.

Chairman Skinner and Ed Welch determined that the IOOS bill adequately covered the issue of user groups. Skinner also recognized Admiral West for his insistence on including the maritime community in IOOS, as evidenced by the range of proposals that came in to Skinner's ocean observing panel for review. West noted that lack of adequate funding is causing some backlash because not everything got funded through the competitive process, but the HSRP needs to keep up pressure on the regional associations to build not just for researchers but also for the commercial/transportation industry. Ed Welch observed that the regional associations need to consult with more than one type of user, that a fishing industry user does not represent commercial shipping. Willis acknowledged the point and said the regional association assessments looked at the breadth of users, but the HSRP should continue to ensure that the IOOS

community is responsive to maritime community needs. Skinner requested that the HSRP stay on top of the IOOS issue.

The Interagency Working Group on Ocean Observing chaired by Jack Dunnigan will post a Federal Register notice for comment on an IOOS strategy. In October 2007 the IOOS program started the U.S. Data Management and Communication Standards process, where standards are proposed, submitted, and recommended. The next data management and communications steering team meeting is in May. The Data Integration Framework effort is being extended to the regional associations and moving forward. There is also a new website: [www.IOOS.NOAA.gov](http://www.IOOS.NOAA.gov). The National Waves Plan will be available for HSRP review. The IOOS program coordinated an agreement between NOAA and Shell signed on February 13 where Shell is putting oceanographic sensors on its Gulf of Mexico platforms and working with NOAA to make sure that NOAA can use the data. There are six projects involved, including a High Frequency Radar. NOAA has just heard that BP would like to do similar. Jack Dunnigan later reported on changes to Ocean.US, the IOOS interagency body that put together the IOOS development plans. Ocean.US is undergoing some structural changes and getting smaller, and its role may not continue in future.

Helen Brohl noted that the federal partners in the assessments are important, but they do not necessarily represent all stakeholder needs. Jon Dasler noted that the NOAA bathymetric datasets will be part of IOOS; Willis commented on the Integrated Ocean and Coastal Mapping effort underway with CA, and potentially WA and OR, but IOOS and IOCM are not merging as entities.

#### Long Beach overview:

*Panel Member Captain Jacobsen* reported on the port of Long Beach partnership with NOAA, Scripps, and Walpole. He noted that the bigger ships that keep coming in are a challenge for ports and pilots. In Long Beach, the largest container ships are 8200 TEUs, 1100 feet long, 140 feet wide, 43 feet deep, because of some restrictions for the channel and bridge clearance. "Big ships going down tight channels." The biggest tankers are 300,000 ton tankers, 1200 feet long, 200 feet wide, restricted to 64 feet deepest draft where underkeel clearance is critical. Long Beach will eliminate some shoal spots and BP will start loading down to 69 feet. Pilots get on about five miles outside the breakwater and ships are restricted as they approach Long Beach. Southerly swell is a problem for the big tankers, causing pitching and underkeel clearance so that they actually touch bottom. With Scripps and NOAA, they will develop modeling programs for bad swell and a go/no-go alarm before ships get caught in the channel where they can't bail out. The port is also upgrading its PORTS system with Walpole and NOAA to signal when predicted tide is different than real tide, which affects transits under the bridge. The information is transmitted in different ways to the carry-aboard laptop computers and high precision navigation systems.

Jon Dasler commented that the 69-foot draft ships approaching LA is the classic example of where we need to be going in the future. He noted that in the future we will have GPS receivers the size of cell phones and can navigate within 5 centimeters, and HSRP needs to be looking that way. In the case of the ships going into L.A./Long Beach, if the channel is surveyed to very high precision relative to ellipsoid charts and converted, and the ships have the GPS receivers, they will have the realtime observation for how much the ship is moving around, whether it's getting shallow water draft effects and speeds need to adjust.

#### Public Comment Period III:

*Bahar Barami, Volpe Transportation Center*, commented on the study the Volpe Transportation Center is conducting on cost benefit for electronic navigational charts and realtime tide and current systems. A rigorous process, it is difficult because good data to quantify benefits is lacking. Costs are a lot easier to quantify. Barami requested the HSRP's assistance with interviews as front-line users and experts on the issues and impacts. The study will determine to what extent we can measure the way we pair off having some of these technologies than if we relied on alternatives. It follows OMB requirements for evaluating the whole range of alternatives. The baseline is having paper charts, draft charts and a whole range of non-NOAA products. The HSRP will be asked questions at an informal level with expert groups. There is a conceptual framework for the benefit cost analysis and the study will be completed by end of summer.

Ed Welch requested an explanation of the Volpe Transportation Center; Barami explained that the Center is a research lab under DOT's Research and Innovative Technology Administration. Volpe personnel have academic backgrounds, write proposals and conduct research. Currently Volpe is doing a study for CMTS to assess the challenges at all levels of the MTS. Volpe does fee for service research, is very much customer-focused but also independent.

#### Meeting close-out:

Chairman Skinner led an administrative dialogue on the next day's visit to a cruise ship, dinner details, and a final thank you to Barbara Hess upon her retirement for her service to the HSRP. With this the Public Meeting was adjourned.

To view any slide presentations, please visit:

<http://nauticalcharts.noaa.gov/ocs/hsrp/archive/library.htm>.

The public meeting was adjourned at 4:00 p.m. To view or download the verbatim meeting transcript, please visit:

[http://nauticalcharts.noaa.gov/ocs/hsrp/archive/minutes/hsrp\\_mar708\\_vol1\\_tran.txt](http://nauticalcharts.noaa.gov/ocs/hsrp/archive/minutes/hsrp_mar708_vol1_tran.txt)

or

**Appendix I  
Attendees**

**Voting HSRP Members**

Jon Dasler	Director of Hydrographic Services, David Evans and Associates, Inc.
Elaine L. Dickinson	Boat Owners Association of the United States (BoatU.S.)
Captain Sherri Hickman	Houston Pilots Association
Gary Jeffress	Professor of Geographic Information Science, Texas A&M University – Corpus Christi
Captain Tom Jacobsen	President, Jacobson Pilot Service, Inc. & Bay Survey Enterprises, Inc.
Adam McBride	Port Director, Lake Charles and Terminal District
Captain Minas Myrtidis	Norwegian Cruise Line
John Oswald	President, John Oswald and Associates, LLC
Tom Skinner, HSRP Chair	Senior Project Manager, Durand & Anastas Environmental Strategies, Inc.
Ed Welch, HSRP Vice Chair	Independent Consultant for Maritime and Ocean Policy
Matt Wellslager	South Carolina Geodetic Survey
Rear Admiral Richard West, USN (Ret.)	President and CEO, Consortium for Oceanographic Research and Education (CORE)
Larry Whiting	TerraSound, LLC (Retired)
By phone for swearing in: Captain Ramon Torres Morales	Port of Las Americas Authority
By phone for swearing in: Captain James Weakley	Lake Carriers Association

**Non-voting Members**

Captain Andrew Armstrong, NOAA (Ret.)	Co-Director, NOAA/UNH Joint Hydrographic Center
Dave Zilkoski	Director, National Geodetic Survey

Michael Szabados	Director, Center for Operational Oceanographic Products and Services
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**Designated Federal Officer**

Captain Steven R. Barnum, NOAA	Director, Office of Coast Survey
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**HSRP Decision Maker**

John H. Dunnigan	Assistant Administrator, National Ocean Service
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**Presenter/Speaker**

Bill Johnson	Port Director of Miami
Ms. Helen Brohl	Director, Executive Secretariat, Committee on the Marine Transportation System (CMTS), Department of Transportation
Windell A. Curole	South Lafourche Levee District, Louisiana
Bruce Carlisle	Assistant Director for the Massachusetts Office of Coastal Zone Management
Chantal Collier	State of Florida and the Department of Environmental Protection and the Coral Reef Conservation Program
Becky Hope	Operations Director of the Port of Miami
Chuck Husick	Journalist representing the Recreational Boater community
Jeff Andrews	Vice President of Coastal Planning and Engineering
Andrew Melick	Port of Miami Harbor Pilot
Bruce Vogt	NOAA National Ocean Service
Ms. Zdenka Willis	Director, NOAA Integrated Ocean Observing System Program Office

**Staff**

Barbara Hess	Office of Coast Survey
Virginia Dentler	Center for Operational Oceanographic Products and Services
Danielle Stuby	National Geodetic Survey

**Others/Public**

Joseph Scolari	U.S. Army Corps of Engineers
Brian Walker	Nova Southeastern Oceanographic Center and the National Oceanographic Institute
Bahar Barami	Volpe Transportation Center