[The public meeting reconvened at 1:06 p.m., September 24, 2009.]

MR. WELCH: Okay. Thank you. And now we can resume with Andy.

Andy, we can resume our voyage. Steve was commenting that they've done something here with the temperature to make things more Arctic like here in the room in honor of your presentation. So we're all in the right frame of mind.

MR. ARMSTRONG: Okay. So this is the multibeam monitor. This is the real-time display. This display right here is something that I'm really impressed with. It's a web-based, browser-based map server that delivers sort of customized map information to anyone in the network. So everybody who has access to the network aboard the ship, dozens of people, can each be connected and each have their own independent screen. The multibeam data is displayed in real-time as it comes aboard. You can do track planning, bring up a variety of other overlays, the NOAA nautical chart, the Russian contour map, the IBCAO digital terrain model, photos of the seafloor, previous multibeam data, everything every ship track in NGDC history. You name it, it comes up and then you can also plan tracks, send information to the bridge navigation system with a little bit of special interface required. This is something that I think we ought to investigate for NOAA ship use. It is quite impressive.

Then a variety of other monitors here. And so it really only takes one person to do this, but there are so many people that want to go to the Arctic and Larry can't ever say "no," so we always end up with a science party of 30 people and we have to figure out how

to put all of them on watch so they are doing something productive while we are there. I think this is a law professor from Vermont Law School. [Next slide.]

Most of the rest are just some pictures. Here's a picture of ice getting a little thicker. This was sort of our typical weather here. Most of the time we could barely see the Louie, maybe 8/10ths of a mile behind us, or 8 cables as the Canadian's insisted on saying. I found out that a cable is a 10th of a mile. [Next slide.]

Here we are getting ready to take a CTD. Apparently this ship takes CTDs in the ice all the time. This was a first for me, the Coast Guard crew member here is -- they have these big, long poles to push the ice out of the way. Throughout this CTD they stay here and kind of keep the ice shoved away, keep it off the line.

MR. WELCH: What is "CTD"?

MR. ARMSTRONG: Oh, I'm sorry. CTD is a sensor that measures the conductivity of the seawater and the temperature of the seawater and the pressure. So what you get is an output -- and the conductivity is converted to salinity, so what you get is an output of salinity and temperature versus depth. This is a critical piece of information for correcting the multibeam echosounder. The speed of sound depends on the salinity and the temperature, so we need an accurate speed of sound profile throughout the water column. Also as we use a multibeam sounder sounding obliquely the changes in sound speed through the water column refract the beams. So in order to know the accurate depth and where that depth is on the seafloor, we have to trace the ray all the way down and back through these changing sound speeds.

So we did this periodically during the course of the cruise to keep this updated. There's actually quite a bit of variability across the Arctic in the salinity, temperature, depth profiles. When you're on the shelf, when you're off, when you're in this part of the basin or that. So we found that we had to do this fairly frequently.

MR. DASLER: How about in terms of salinity profile? Could you find a kind of a freshwater lens?

MR. ARMSTRONG: There is, particularly as the ice starts to melt. We were in the melting season here in late August and September. So near the surface there is a good deal of fresher water. We saw a variety of salinity structures in the first 50 meters or so. [Next slide.]

Here's some more breaking ice. I think this ice is maybe about 6-feet thick. It's enough to make noise and, as long as there are no pressure ridges, again, it won't really slow the ship down. [Next slide.]

You can see that this is the Louie directly behind us as we're breaking the ice. This is in when we're in something like 910 cover. The track doesn't stay open very long. They're fairly close to us here, probably half a mile, and as you can see the ice that we've broken is already closing in. They were -- with all their seismic gear in the water this was an issue of some concern to them.

See these little puffs here. The Healy has this air bubble system that they blow out that helps them break ice. Louie has a hot

water -- or the Healy has a hot water system that doesn't work. The Louie has the air system here. It looks like they're going 30 knots through here making a big bow wake, but it's really just air they're blowing out.

MR. WELLSLAGER: What was your cruising speed going on, please?

MR. ARMSTRONG: Four to four and a half knots. We could go down to two knots or so if necessary, but if we got below that, their seismic streamer began to sink and when it sank it started to get water in it and then it didn't work anymore. So they didn't want us to stop. If there was going to be a pressure ridge or something, we would typically try to get out ahead a little bit so we could back and ram and smash through it without them having to stop behind us. But if we got too far ahead, then the ice closed in too much for them to go. So it was an interesting sort of give and take between the captains of the two ships. They work together pretty well. These two captains got along quite well and cooperated very well. [Next slide.]

Here's a couple of the Coast Guard folks getting ready to take an XBT. An XBT is an Expendable Bathythermograph. It's just a little probe that's got copper wire wrapped up in it. You drop it overboard and it falls at a constant rate. So it computes its depth based on its time of fall, assuming that its falling straight in the water. It measures the temperature. So we didn't get salinity from this, but we got temperature updates and we could use a salinity model to use this to check against our existing sound speed profile. So we could update our sound speed profile based on this XBT. We took these

four times a day. And these also go into oceanographic database, and this Navy team that had the glider was also on board and they were feeding this into the Navy's operational oceanographic model trying to -- they're thinking ahead about operating in the Arctic. So they had folks on our cruise with us to start thinking about how to get oceanographic data into their operational models. [Next slide.]

What's really weird about being on an icebreaker is, when you're on a ship you're sort of used to looking out and seeing the ocean, but when you're on on an icebreaker in the ice, you look out and you see what looks like land. So you're passing through there and the ship's not rocking and it's just all snow all around you. It's a very odd sensation. [Next slide.]

The Louie had a helicopter aboard and we also had with us Pablo Clemente-Colón who is the NOAA Chief Scientist at the National Ice Center, and he's in the process of putting a number of ice buoys and beacons out. So this is a beacon that sits on the ice and measures the atmospheric pressure and temperature at 2 meters above the ice. There are several of these floating around the Arctic ice pack. The Canadians were nice enough to take him out to put them out. There's the ship in the background. [Next slide.]

There's a lot of patches of open water even in areas where there is almost complete ice cover. So we periodically find these big patches of open water. They are sometimes as much as a mile across or 2 miles and then you go through them and then you're right back into the heavy ice. [Next slide.]

Their helo pilot is kind of a cowboy. This is right in front of the Healy. He called on the radio, he says, "I'm going to come up ahead and land on the ice in front of you. Don't mind me, I'll get out of the way." So he flew around, stopped on the ice right in front of the ship, and it seemed like a hundred yards before we got there he took off again. So he was carrying a photographer this day to take pictures of the two ships. [Next slide.]

There is the photographer. He tells me it's pretty cold sitting out there like that. [Next slide.]

There is a seal. We saw a number of seals. I don't have a polar bear picture. The only time a polar bear was close everyone else ran out of the watch station, and since I'd seen them on previous cruises I was stuck keeping the watch. In this one area where the ice was and -- in this area we were in maybe 710 ice. Not the thickest icepack we say, but this was the only area that we saw polar bears in. When we got in the really thick ice, we didn't see any. We didn't see seals and we didn't see polar bears. This area we saw both. They tend to go together, and this seal is just resting on the ice here. [Next slide.]

This is a picture of the great discovery of the seamount. So as you can see, everybody's in here taking pictures of the screens as the seamount is coming up on the display. So usually there's one or two people in here. We had the place -- 8 or 10 people were standing around watching this thing come in about one ping every 15 seconds. Slowly developed. That's about 5 hours of survey to pick up

the seamount. [Next slide.]

More ice. This is the dredge that we used. This big metal basket with chain link on the bottom and some burlap inside. We just lower this down to the seafloor or near the seafloor in an area of very steep slope. What we try to do is find an area where the seabed is sloping steeply where we can lower the dredge down and then slowly drag it against the seafloor and then retrieve it hoping to break off some rocks as we do this. The steep slopes are good for the ease of deployment and to avoid getting a lot of mud that we'd find on the flatter slopes. [Next slide.]

There is the rocks as they came aboard. Another sort of moment of excitement. They don't have much to be excited about out there. [Next slide.]

There is our teacher at sea, washing rocks, trying to keep her hard hat on. This was a particularly large trove of rocks. Probably most basalts, but these rocks will all go to the University of Michigan in Stanford for analysis. So we were mistaken about what some of the rocks were last year, so we're not willing to say exactly what they are now until we get the analysis. Most likely some basalts. [Next slide.]

This was the recovery of the sea glider. This was pretty impressive. We deployed it on day 2 or 3 of the 42-day cruise and picked it up on day 40. In the meantime, it had been operating over hundreds of miles up and down through the water column reporting its position and it came back exactly where it was supposed to and popped

up to the surface on command. We stopped the ship at the spot, looked around, and there it was. So, again, this was a Navy project, part of something they use to support their oceanographic database.

MR. WELLSLAGER: What did they collect?

MR. ARMSTRONG: This was collecting information in the water columns, so salinity and temperature versus depth. So lots of those kind of profiles. I think they are interested in sonar performance, and so those are the characteristics they are most interested in.

Okay. Back to Barrow. That's it.

MR. WELCH: Thank you, Andy.

MR. WELLSLAGER: What was your temperature most of the time? Did it stay pretty steady?

MR. ARMSTRONG: The temperature was pretty steady. Most of the time it was right around 30, 31 degrees and crummy. And then occasionally it got cold and the wind would blow. So we had about a week or so of 15, 16-degree temperatures and 20-knot winds, but most of the time it was just below freezing and foggy, rainy, snowy. The weather people told us this was a bit of an unusual summer there. The last couple of years it's been this way, but normally in this time of year it's dominated by a high pressure system and it's fairly clear, but we didn't see that.

MR. WELCH: I would request that perhaps sometime over the next few months you put together an e-mail and send out to everybody as to how they can sign up for the next cruise.

We have one item of business we need to attend to. We need

to read out loud the recommendation on contracting that we developed this morning so that the court reporter can put it in the actual minutes. So can we arrange to do that? Does somebody volunteer to read it out?

MS. DENTLER: All right, are you ready?

"The panel is comfortable with the wording of the existing contracting policy and recommends that NOAA revise --

MS. ARENSON: -- No, that's the old one.

MR. WELCH: We are going to defer this for a moment.

We have three items to do this afternoon before we get to our administrative items. We need to have the NOAA staff report to us about an update on the status of The Most Wanted recommendations and some of our other recommendations, and then we have two presentations. Should we go on to Mike's presentation first on Great Lakes shoreline mapping?

MS. ARENSON: I think that would be a good idea since Virginia is working on that.

MR. WELCH: Let's do that. Mike, can we go ahead and recognize you?

MR. ASLAKSEN: Thank you. Mike Aslaksen. I'm Chief of the NGS Sensing Division. I've very happy to report to you on one of the loves of my life, coastal mapping and shoreline mapping and what we've been doing here in the Great Lakes, especially related to recent ARRA funds that we received.

Since it's been awhile since you all have been briefed on

the coastal mapping program and shoreline, I thought it would be a good opportunity to give you an overview. I think the last time this was done was by Charlie Charlestrom (ph) back when Charlie was director and one of the federal officials on this. So I'll briefly go over the coastal mapping program; how we do it, the sensors and technologies that we use, and then get into the Great Lakes work with the ARRA funding here in the Great Lakes. [Next slide.]

Again, coastal mapping program. We're defining the shoreline that you see on the nautical chart. Again, our number one customer, our customer is the Office of Coast Survey to support NOAA's nautical charting program. Because it is digital data it is GIS ready data that we output. There's lots of other users of that data, including coastal managers and other folks who might have ecological and environmental needs along the shoreline.

We measure the shoreline in 95,000 statute miles. That's something I'd like to bring up of concern. That comes from Shalowitz's Shore and Sea Boundaries, quite an old reference that was probably actually scaled from existing maps at that time. In all actuality, if we use 1:80,000 scale NOAA nautical charts, the shoreline's about a 166,000 miles. So consideration to look at, but NOAA has many documents and references 95,000 miles. In the digital world it is actually much larger than that. And that speaks to tidally influenced shorelines.

Of note, about 30 percentage of that shoreline -- whatever measure you use -- has not been mapped with modern technology since

1960. What that means is primarily photogrammetry overhead imagery. Previous to that, the plane table technology's actual field surveys was the source of that shoreline. But our goal is to provide the nation with the accurate, consistent, most up-to-date shoreline possible. [Next slide.]

The three components of it is the actual shoreline mapping, kind of the outer coast, and the updates of the ports. You could have a change analysis program. Previously we used to just go and do the mapping whether out of an assessment of how that shoreline actually was. That was really came to be what technology -- commercial overhead satellite imagery, we use quite a lot of classified source within our program, and then readily available other imagery from other sources like the USDA and USGS. So we actually will look at areas, especially the ports for changes and whether those changes warrant a totally new survey, can we map from the existing imagery because it's only a few changes, or is it okay. And then the Emergency Response Program which we do. Primarily at this point it's been mostly supporting things like post-damage assessment of hurricanes like Katrina. [Next slide.]

Again, so here is southern Maine overhead image from Google Earth and you can see just an overlay of a NOAA nautical chart. So A lot of what we talk about here are the things we can't see, what's underneath the water. What the coastal mapping program actually produces is what you can see. So you can actually see here these reef areas. The dotted line here is actually the zero contour or mean low

or low water. We actually collect two shorelines. You have the mean low or low water here which is the zero contour and then the mean higher water which is this darker line here. I'll get into some more details of the other things, but these roads, landmarks, other features that are recognizable for the mariner are all part of the data collections that we collect. [Next slide.]

This is kind of the problem. This is looking at the same area from this area looking to the south. So here's the same area at low water and here it is at high water. So it's obviously a problem as far as collection of data, the standards to do that. We depend on greatly with CO-OPS in the establishment of the tidal zoning and the tidal datums so that we can actually do our flight planning in order to collect these two stages of tide to be depicted on the nautical chart.

So once we have an area, a requirement -- and, again, predominant requirements are supporting hydrographic surveys whether contract or in house. We get lots of requirements from the Marine Charting Division and the Navigation Services Division primarily centered around ports and changes. But once we get an area -- this is Valdez -- we'll do flight planning as far as what's required to acquire the data. We'll determine whether we're going to fly with an aircraft, use commercial satellite imagery, use classified source, whatever the best source is, and then look at the tidal requirements for this. In this area of Alaska, of course, there's quite a lot of tidal requirements. We'd work with CO-OPS to get tide gauges

installed and zoning developed to do our flight planning. [Next slide.]

This is an image of acquisition at low water. This image is something called "near IR," "near infrared" and the reason we fly that at low water is it really does delineate the land water interface. If you look at the same area at high water you can actually -- this is all water here, this is the mean higher water line. So often the transparency of the water is a problem of delineating that shoreline. So those are the two types of sensors. We are still using these two types of bands, but we've also incorporated LIDAR, which I'll take about in a little bit. But predominantly this is the technology we've used for the last 40 or 50 years. [Next slide.]

So we've transitioned away from just doing those image acquisitions to actually incorporating LIDAR. A lot of this is outer coast dependent, but VDatum is the key tool here. So if we have an area area of requirement, we'll fly imagery at the same time we'll be flying LIDAR. The LIDAR extent would extend the same as the image, we just couldn't depict it that way. Then we'll use VDatum tool to actually contour a shoreline. This is an interesting change because previously it was all human interpreted imagery. It was subjective to that person interpreting the shoreline. Here we have a mathematical shoreline. The time entailed at that point in time is about the same, but this is more of a consistent product. This is something we've documented, we've shared with our contractors and the private industry

folks who want this, but we feel it's a better way to actually represent the shoreline. Then you see the updated shoreline. [Next slide.]

Within port areas -- this kind of speaks to the change analysis and how we update the ports. You can obviously see that there has been a new marina put into this port. This is primarily one of the biggest problems we face in building nautical charts is these new, small marinas, they pop-up little places here and there. But updating the ENC's especially takes quite a lot of time. So we'll collect the new shoreline or the new features or whatever they may be of the marina, and then update the nautical chart. Again, this is more looking to our recreational application. [Next slide.]

Here we have a commercial application where you obviously see some large commercial activities here. The current chart actually shows that there were piers here. This is another big problem; pier ruins and removing features from nautical charts is a big deal. You have to verify that. So we do this in conjunction with the navigation response team. For the ports that we do in any one given year, we coordinate with the NRT's as far as where they're going. We usually provide the imagery upfront to them and our analysis up front. They will verify the work we do as well as in these kind of cases, they're the ones that actually can come in there and remove items that need to be removed. [Next slide.]

So this is an area of Alaska. This is just going to quickly just show the detail and the level of detail of things that we

collect. Obviously, the shoreline, the contour being mean low or low water, transportation items like roads, alongshore features, piers, cultural features, miscellaneous, some type of reference the mariner may use, danger area, an area of rocks, aid to navigation. We do not compile floating aids, but fixed aids we will compile for the chart. An obstruction point being a rock, a linear obstruction point, freestanding feature, landmark, just to give you an idea the level of detail in GIS format that we collect the data which is all bit able to map to ENC's through an S57 format. We don't directly compile an S57, but we are S57 compliant. [Next slide.]

All our data is delivered both to the Office of Coast Survey and the public through the NOAA Shoreline Data Explorer. Again, we deliver it in ESRI shape file format, all the metadata is there, all the project reports, all that associated data the folks can use and they can download this right off the Web. [Next slide.]

So previously we just delivered vector data. Now we've transitioned, especially in this world of ocean coastal mapping and leveraging the multiuse of the data, we're delivering the point LIDAR data and the two emulations of imagery as products. All these are GIS ready with our partners down at Coastal Service Center through their digital coast tool. Can't say enough about those folks for taking this on. Anybody who works with a lot of data and try to disseminate that date, that's not an easy task. But they've done a standup job and really have been a partner with us in IOCM. [Next slide.]

But beyond the charting applications, as I spoke to

yesterday -- a question from Admiral West, you know -- it's a very confusing slide, I'm sorry. The mean low or low water line is really the fixed baseline for all the U.S. boundaries and territories. Whether that's the territorial sea, contiguous zone, the EEZ, the continental shelf, that reference, that baseline is used from that and that's often the shoreline we provide. That's also related here as far as the chart datum. The shoreline as far as the mean high water line is often used to recognize by many states for where they determine between privately owned, state owned, and submerged lands. So just to give you an idea of the multiuse of the data beyond charting. [Next slide.]

Again, just to give you an idea of production numbers. Juliana reported yesterday we deliver about 5,000 miles. That was based on that 166. If you base it on the 95,000 miles, it's about 31, 35. My fault I didn't catch her on that, but that's kind of the issue we're in between the digital data and that old Shalowitz reference. But as you can see, the things of a high priority are again, I think, the ports. Some 60 or 70 ports that we've delivered new shoreline in the last 3 years and then accumulative of somewhere around about 9 or 10,000 miles or shoreline. [Next slide.]

Emergency response. I think you all are familiar with that with a lot of the briefs we've had from hurricanes. I mean, the capability for us to do shoreline mapping allows us to provide this data in a timely manner. Here we see post hurricane Ike. And then we also disseminated that over the Internet for everybody to access.

[Next slide.]

As you can see, going back to 2003 we have all this imagery online. [Next slide.]

Platforms. This is the result of the supplemental from Katrina that we received this aircraft in the last 3 months. We are still doing a transition from the aircraft that it will replace, the NOAA Citation. We also have our sensors able to be installed in other NOAA aircraft, including the NOAA Twin Otter and the NOAA Jet Prop. We also leverage contracting as part of how we deliver data and collect data represented here as well. [Next slide.]

I just thought I'd give the opportunity for you all to see the aircraft. We do have it. It is actually back at the factory with some little kick the tire problems you have with everything else in the world. Being a new aircraft, we had some issues, but this is a big deal for installing and deinstalling sensors in the aircraft, it's cargo door. It's very nice. [Next slide.]

As you can see, it's not your corporate jet. This is a working aircraft. These are racks for the systems. [Next slide.]

The cockpit looking back aft through there. It's very crowded as far as that. [Next slide.]

Then these are the sensory technologies that we employ. Digital camera system and topographical LIDAR. [Next slide.]

ARRA funding. This is right off the web page from recovery.gov and, again, what I'm going to detail is the proposal we put forth using existing imagery of the Great Lakes that was collected

by the National Geospatial Intelligence Agency for a requirement by the Department of Homeland Security. We had been watching this imagery collect. We knew that we probably could use this data in the Great Lakes and just about the time they start to finish up collecting the data is when the ARRA proposals came out. So we were kind of lucky in being able to use the ARRA funding for that. [Next slide.]

This is what NGIA collected. They collected both borders. Beyond the use for what we're doing in electronic mapping, this data will be publicly available. It's one foot ortho mosaics, GIS ready data and then six inch ortho mosaics at the crossing areas. I think the primary customer was border patrol. But as you can see, big coverage areas of the Great Lakes which is because we don't have the tidal issues here, of course, we could use this data as collected to do shoreline mapping.

UNIDENTIFIED MALE: What kind of data [indiscernible]?

MR. ASLAKSEN: As far as what are they collecting?

UNIDENTIFIED MALE: No, the sensor.

MR. ASLAKSEN: Oh, the sensor. It's large format digital cameras. So they're collecting red, green, blue, and color IR as far as their delivery. And all of this data is going to be served for the USGS EROS Data Center once they get done with the quality assurance of it. [Next slide.]

We, of course, did an analysis of the age of the shoreline based on the coverage of the areas of interest. Again, looking at we had some areas we had been mapping in the Great Lakes, that, of

course, won't need updating. But predominantly the imagery is 9 years and older with most of these yellow areas being data collected in the 50s. [Next slide.]

This is another image overlay shows the coverage of the area. What you see are six project areas. We have six prime contractors. We split the amount of work based on amount of work outstanding that they had as well as the capabilities. What you are looking at is these different colored areas are project areas for those contractors. This area here was already completed in 2006. [Next slide.]

So as you can see it is a fairly large undertaking, but, absent as you have probably noticed is Lake Michigan. Lake Michigan has been on our plans to collect those with our inherent resources as well as planning so that hopefully within 2 years we'll have updated the navigable shoreline of the Great Lakes. [Next slide.]

So kind of the take-home message. One reality is, is that the GC's as they are called, or the geographic cells of the shoreline that we deliver to Coast Survey are the single biggest changes to the nautical chart. Captain Lowell can speak to how much time it actually takes to apply, but the changes in some cases take up to 6 months to apply to the chart. Again, the multiuse of the data can't be understated beyond charting as far as territorial limits, coastal zone management community, the storm surge and storm modeling, GIS analysis, and so forth.

The ARRA really was a unique opportunity to update the

shoreline of the Great Lakes, keeping our eyes and ears open for datasets like this was kind of a real good thing that happened. We're going to be updating all this Great Lakes at minimum cost to the taxpayer; but, most importantly, we were having -- I was getting daily phone calls from our contractors. They were laying folks off. So with them being able to know that this work was coming, they were actually able to keep staff on to take on this work and get working.

With that, I'll take any questions.

MR. DASLER: Mike, I just had a question on the -- you were taking about the shoreline mapping and using LIDAR for that and using VDatum. So, is that topographic LIDAR, or combined bathy-topo?

MR. ASLAKSEN: We have used and developed methodologies for using both bathy and topo. We went down the road of topo system as far as the more reliable, more efficient way of collecting data. There's not as many restrictions. We can apply it at the same height we apply with imagery. And the data density and multiuse of the data outweighed looking at bathymetric sensors which are pretty restrictive water clarity, and lave action, that type of things and the densities are different. So, we collect like a 1-meter dataset. The bathy systems are anywhere from 2 to 4 meter. But, if you have those datasets, you can use VDatum to extract contour and classify it with the imagery and apply that.

MR. DASLER: And you're doing that using GPS heights and VDatum?

MR. ASLAKSEN: We collect the data on the ellipsoid, you know, we run it through VDatum with the area, it goes to the GEOID model apply

and then, depending on what time of collection we get -- getting mean low or low water is a little more difficult than mean high water, of course. But you convert all the data to mean higher water and you just contour that zero. Minimum GIS cleaning, but we've got that fairly automated to do that.

MR. DASLER: Nice presentation. I like the graphics.

MR. WELCH: Anyone else?

[No response.]

MR. WELCH: Okay, Mike. Well thank you very much for your presentation and your work.

MR. ASLAKSEN: Thank you.

MR. WELCH: Okay. Are we prepared to go back to our language on our contracting policy? The computer ate our language, so we tried to reconstruct it. So we're going to put it back up on the screen and make sure everybody is comfortable with the reconstruction. It may slightly differ in a couple of words from what we had, but I think the intent and the meaning is the same.

MR. ARMSTRONG: I don't believe we had it in there updating definitions. I think we just said update it only as required by --

MR. WELCH: -- Yeah. Ignore the part in yellow, Andy. That's a little confusing. We're down here in the second section. How's that, Andy?

Jon, Larry?

MR. WHITING: Yeah. It looks pretty good as far as I can tell, yes.

MR. WELCH: Okay.

DR. JEFFRESS: Do we have to identify the Act by the year?

MR. WELCH: We'll double check that and if that should be included, we'll include it. Okay, -- the answer is "no" according to Jack.

MR. ARMSTRONG: Had we called it the "existing mapping contracting policy"? Is that the right title for that policy?

MR. WELCH: I don't believe it is, actually.

MR. ARMSTRONG: I don't think it is either. I'd suggest that we change that to correspond to what we have.

MR. WELCH: "Hydrographic Services Contracting Policy." Thank you for that catch. Anything else?

[No response.]

MR. WELCH: Okay. Virginia, would you read that to us, please?

MR. WHITING: I've got a question. What's the difference in "recommending" and "urges"? Aren't we making a recommendation here?

MR. WELCH: Well I don't think there's much difference, but we can certainly recommend. Let me read this.

"The HSRP finds that NOAA's existing Hydrographic Services Contracting Policy is fairly and adequately constructed. The HSRP recommends that NOAA limit revisions to the policy making only those precise language changes required to conform to the Ocean and Coastal Mapping Integration Act."

Last chance for comments. Let's just make sure we're all together on this and have one more vote on this language. So, do I

hear a motion that this language be forwarded to NOAA as our recommendation?

MR. WELLSLAGER: I would like to make a motion that this be forwarded to NOAA for recommendation.

MR. WELCH: Matt makes the recommendation, and Larry makes the second?

MR. WHITING: I'll make the second.

MR. WELCH: And all in favor, say "aye."

ALL: Aye.

MR. WELCH: Any opposed? No.

Okay, that's the language that is approved by the panel and we'll forward it formally to NOAA. I believe we're officially on record with our reporter. Thank you.

So let's move back to our program. Doug Brown, please.

MR. BROWN: Thank you, Chairman. Doug Brown. I am the Geodesy Program Manager with NGS. My presentation is short. Juliana yesterday in her overview of NGS activities alluded to a study of the state advisor program that has recently been completed in a first draft. This presentation is a preview of the study findings and recommendations that will be presented to NGS's executive steering committee next month. It's also an opportunity to seek your advice and guidance before the report of this study goes external. [Next slide.]

The NGS Ten Year Plan describes a vision for modernization of NGS. One of the milestones in that plan is to perform an analysis

of the state advisor program to determine if it best supports the vision defined in the plan. I was assigned the lead for the study. The Chief Geodesist of NGS, Drew Smith; and the Chief of the State Advisor Program, Ronnie Taylor at the time, are also members of the team. [Next slide.]

The Ten Year Plan provides a challenging vision of modernization that will enable NGS to better perform its mission. That mission is: "To define, maintain, and provide access to the National Spatial Reference System to meet societal needs." Among the improvements identified in the plan are some of the things that you've heard about during this meeting. A new four dimensional dynamic NSRS created through GPS and a new gravimetric-based GEOID, and also progressing the coastal mapping program of NGS along a natural path through integration with other coastal mapping components in government.

The Ten Year Plan also recognizes that fulfillment of the NGS mission, both now and in the future depends on its partners and customers in the private sector, government, and academia; and nurturing this connection is critical to implementing this new NSRS. And the study has confirmed that the State Advisor program will in large measure help us to get there. [Next slide.]

Okay. To set the context for the Study. This is the current structure of the State Advisor Program. Thirty states have a full-time NGS employee, either a geodesist or a cartographer who serves in the state and is supported by a cost sharing arrangement

with the state. Generally the agency that is sponsoring is the Department of Transportation. Nine states and jurisdictions have something that we call a "representative." This can be a fed, a state, or a private person who supports the goals and objectives of NGS, but does not enjoy the support of a formal cost sharing arrangement. Right now there are 14 states in the country that are not served by either an advisor or a representative. [Next slide.]

This is the traditional role of State Advisors which is the transfer of technology, know-how, and procedures to survey professionals so that local and state-wide surveys meet federal standards and practices. Advisors arrive at their positions through several pipelines. One, through the NGS hause pipe; one from the private sector; and also we get them from state and local government which is the case with our Minnesota and Wisconsin Advisors, Dave and Shawn, respectively, who came to us from state and/or local government. [Next slide.]

During the course of the study a review of the literature was conducted. A pretty extensive review. I want to also say that it included two landmark studies conducted in the mid-90s. One by the National Academy of Sciences, and another by a blue ribbon panel called the National Spatial Reference Committee that stressed the role of State Advisors in transitioning the nation to a GPS-based NSRS. That was 15-some years ago. Also considered were the results of two ongoing customer surveys that measure satisfaction and awareness of NGS products and services.

In addition, a web-based survey of federal stakeholders was administered in conjunction with the study. This survey was designed to assess the value of the State Advisor Program to land surveyors, GIS professionals, and other customer groups. A number of personal interviews were held by me with customers and partners of NGS including leaders of surveying and mapping organizations as well as former directors of NGS. Other feedback was received in presentations that I gave to major constituent groups, associations, and to advisors themselves. [Next slide.]

So, after considering the data and information gathered during this study, three major conclusions have been drawn.

One, advisors are critical to implementing the Ten Year Plan. More specifically, advisors are key to ensuring customers understand and are confident in their use of the new NSRS; although we're evolving to this thing that is four dimensional and dynamic, advisors must be clear with customers on the continued importance of passive monumentation in terms of verifying real-time networks. In terms of tracking subsidence and uplifting and other land motion; and land tenure, for instance. So that balance must be struck as we move toward a national four dimensional dynamic NSRS. This is a very important facet in the outreach and education associated with our transition to the new NSRS and it must be handled adeptly by advisors.

Number two finding. The growth of GIS has resulted in increasing attention to the management of spatial information with more customers recognizing spatial information as a basic resource and

focusing on converting spatial data to information that supports societal needs. Many of these needs extend beyond state boundaries and are regional in nature, such as the many impacts of climate change.

Number three finding. Advisors must have the skills and be supported by tools in order to help NGS successfully meet the challenges posed in the Ten Year Plan. Advisors must not only be experts in their traditional measurement role, but they must also possess soft skills, if you will; including: leadership, communication, and negotiation skills in order to achieve -- in order to evolve users towards this new NSRS and to respond to expanding user needs for accurate positioning information. NGS's Corbin Training Center can play a very integral role in building the skill set and developing tools that will enhance the effectiveness of advisors in the future. [Next slide.]

Given the findings, the following recommendations will be reported to the ESC. To expand the State Advisor network where possible; that is, to states that have indicated an interest in supporting an advisor of which there are currently four and you can see in the background of this slide. This is a recommendation that can be achieved with current resources.

Number two. Build skills and provide tools that allow advisors to evolve from the traditional role in support of data gathering to an expanded role of spatial information management.

And number three. Build capacity to enable customers to

better address needs at the regional level. And these enablers are many of the things that have been already discussed during the meeting, such as the new GEOID model, VDatum, OPUS tools and guidelines for real-time position systems. Advisors will be the principle agents for this capacity building which will add impetus to the implementation of the new NSRS. [Next slide.]

Okay. The Executive Steering Committee also charged the study team to include a range of options for restructuring the State Advisor Program beyond the recommendation that is going forward in the study that I've talked about. The options described in the report are shown in this slide. There are eight of them. They vary to some degree according to the number of advisors and/or the source of funding, be it federal, state, or cost sharing. The options are presented in no particular order, but the report discusses the merits of each weighed against what best supports the Ten Year Plan and the availability of resources to affect the option.

In the interest of time I won't go into all eight of those options, but I will cover just a few. At the top left is the recommendation going forward in this study. The option of an advisor in every state which you see halfway down is really the most ideal from a capacity building standpoint. This option is addressed in great detail in the report as well as in the annual budget planning process documentation that describes NGS's 100 percent requirement. But the resources required to achieve an advisor in every state make this a less viable option in practical terms, but one that should be

considered anyway.

Okay, using a mix of regional and state advisors to cover the entire country is also an option for consideration. To some degree this mix is already in place because we have several advisors who currently act in a regional capacity. The Hawaii State Advisor is the best example. He serves U.S. jurisdictions throughout the Pacific with added funding support through collaboration with other NOAA and federal programs with an interest in that region. The report speaks to this mixed option as a way to extend the reach of the Advisor Program absent a significant funding windfall, and keeping in mind the affect in this in labor saving benefits to be gained over the long run from the introduction of new technologies in the Ten Year Plan. [Next slide.]

Next steps are to present the findings and recommendations to our ESC, our Board of Directors at NGS in its October meeting with a view to gaining its approval to circulate the report in its entirety to external stakeholders for their review and comment. Again, I would emphasize my interest in receiving from the panel any advice, any recommendations before we go external on this.

This is my last slide, Mr. Chairman. I'm happy to take any questions.

MR. WELCH: Thank you, Doug. Comments or questions by the panel?

MR. DASLER: I think it's a great program that NGS has and it's a tremendous benefit. I was on a peer review panel for the Grand Canyon Monitoring and Research and Dave Doyle and Dave Hinkle were involved

and provided tremendous technical support on the difficulties of mapping in the Grand Canyon and more recently in Hell's Canyon and the Idaho advisor there as well provided a lot of support.

I had a question. Do other agencies, even federal agencies use the support of NAV advisors? It is kind of interesting that it's just the state DOT's and that kind of thing. Because it's a tremendous benefit and it seems to be under-utilized and it's just those that know the route and how to get in there that are able to gain access to that.

MR. BROWN: Yes. Other agencies beyond the DOT's use our State Geodetic Advisors. To a varying degree, state by state, but other federal agencies on a regional basis consult with our geodetic advisors extensively and they're best used -- their best application is at local and state levels with county surveyors. They, the county surveyors of our country, we conduct a survey of them to satisfy our GPRA, our Government Performance measures, and they, the majority report very favorable on their interaction with State Geodetic Advisors. So, yes, it goes well beyond the DOT to a range of customers at the state and local level.

MR. WELCH: Other comments? Larry?

MR. WHITING: Thank you for your presentation. Alaska has, in the past, made really adequate use of these guys -- these people. And in the last year or so we seemed to have lost both our NAV Advisor and our Geodetic Advisor. Is there any reason why? I don't think the state has decided not to do it.

MR. BROWN: Well I do know that a NOAA Corps officer very ably served as a State Advisor and also as a NAV manager up in Alaska, Dave Zuzula (ph). It's been a year since, I think, he was in that assignment. Maybe a little less. I'm not sure what the follow on, what the succession is for Dave. Juliana knows, I'm sure.

MS. BLACKWELL: My understanding is that there isn't another NOAA Corp officer, per se, that would be put into this State Geodetic Advisor position, but we are in discussions with a university in Alaska to see if there's an opportunity to form an agreement through a university to host a cost share with an advisor through NGS. That's still in deliberation, but hopefully that will come through sometime in the near term.

MR. BROWN: I would say in addition to what Juliana said that NOAA has a regional framework of collaboration and we have one of the most aggressive advocates of geodesy and spatial information in the person of Amy Holman who is the coordinator for the Alaska collaborative region of NOAA. Boy, she is making up the difference, making up that gap that we have right now, that's for sure.

MR. WELCH: Other comments or questions?

Doug, even putting aside constraints and federal resources, in the short term isn't the goal of expanding the State Advisor system likely to run into some problems because of the various budget problems of the states? They're not likely to come up with whatever kind of required match they might need?

MR. BROWN: Yes. That is a consideration. Many of the states

are experiencing budget shortfalls. The preferred recommendation that we are going forward with is to expand it, where it's possible, to those four states that have indicated and are willing to support a cost sharing arrangement. But, certainly, if we wanted to go nationally across all 50 states and jurisdictions, that would be the principle limiting factor: state budget crises around the country.

MR. WELCH: Okay. Thank you.

I'd like to just to, again, acknowledge the presence of our two State Advisors and thank you for being here and give you an opportunity, if there's anything you felt like you wanted to tell the panel, this is the chance. Don't feel compelled if you don't have something to say, but we'd welcome any observations you'd have.

MR. ZENK: Okay. Well I'm Dave Zenk. I'm just real happy to come up here and meet the members of the panel. And while many of you are not local to Minnesota, we are a national program, so don't be afraid to call any of the advisors that are near you or further away. Some of us are better qualified to answer your question or to help you. So, where that's appropriate, we know each other and we'll make those referrals. Thank you.

MR. WELCH: Thank you, Dave.

MR. ELLINGSON: I'll just take a minute to thank everybody. It was really a good learning experience. One of the things that we do is outreach, and this is a great opportunity for me to meet a lot of new people and understand a little bit about how this all works. So maybe I'll be a better contributor in times to come. Thank you.

MR. WELCH: We're glad to have you as part of our meeting. Thank you, John.

Finally, Doug, is there anything -- now you need us to respond or react. Do you need some kind of formal action by us, or informal response? Do we have the document that we should look at, or what do we need to do?

MR. BROWN: Yes, sir. Well it's my intention that this document, this report go before our Executive Steering Committee early next month. And, if I get their blessing, then what I'd like to do is to give your staff a copy of the vetted report for the record and ask that your members take a close look at it and scrutinize it for any comments, any suggestions that you folks would have. That's what I'd like to do before I send it off for external review and comments.

MR. WELCH: And when would you like to send it out for external review and comment?

MR. BROWN: I'm happy to wait if my team members agree, I'm happy to wait until I get that from you. I would like to do it sometime in November before the Thanksgiving holiday, if that's possible.

MR. WELCH: Okay, so we would need to respond informally to you as opposed to as a formal panel action which I think we could do. We could just communicate by email. So we'll stand by until we hear from our folks that you've transmitted the draft, and then we'll respond.

MR. BROWN: Thank you, sir.

MR. WELCH: Thanks, Doug.

MR. BROWN: Thank you.

MR. WELCH: Now I think we're back to the deferred item on the schedule where Captain Barnum, Steve, are you going to give us, sort of, an update of some of the things that the Agency's been doing either on our Five Most Wanted or some of the recommendations that came out of particular prior meetings?

So, please, go ahead.

CAPT BARNUM: Yes and yes. And I'm just going to do it from here if people don't mind. We have it presented up on the screen. So I'm going to go through some of the recent recommendations, give you the status.

Can you make that a little bit bigger, Virginia? Is that possible?

MS. ARENSON: Virginia, why don't you blow up what they recommended and Steve is going to be reading the NOAA responses. Can we just blow up the first column real big? Column B.

[Pause.]

CAPT BARNUM: So on the first task: Improve coordination among federal agencies and the states for seafloor mapping activities. HSRP recommended to NOAA that -- continue the partnership with the Interagency Working Group on Ocean and Coastal Mapping and continue efforts to improve seafloor mapping.

And we heard from Roger, and you've seen some examples today and yesterday of some of the work we've been doing; the partnerships with California and Oregon, Roger is actively working, certainly with the passage of the Ocean and Coastal Mapping Bill, to

stand up an Interagency Working Group of Ocean and Coastal Mapping to coordinate with the other federal agencies on how we coordinate to reach that obtainable goal of map once, used many times.

There is going to be a 3-day workshop this November 3rd through the 5th at the NOAA Coastal Services Center to include participants in the federal, state, regional, and academic and private sector mapping organizations. So this is to begin development of a National Ocean and Coastal Mapping Plan. So that is in progress and moving forward. I'm just gonna keep moving forward unless anybody has any questions.

Next one is the task, improve navigation and protect natural coral reef protection. This is with the Port of Miami. HSRP recommended that NOAA provide the necessary assistance to the Port of Miami. There was LIDAR and some multi-beam work done by contract. We are still awaiting the final resolution of the data from the contractor, but that's proved to be imminent. I was talking to Jeff Ferguson earlier, so we're just standing by to get that final data set from the contractor.

The next one is improvement and height modernization for accurate positioning and elevations nationwide. HSRP recommends that NOAA expand height modernization and pursue GRAV-D. I think you heard earlier from Juliana about the work that's happened in the GRAV-D and certainly the budget initiative for the FY10 for GRAV-D. So, that's in progress and moving forward.

Next is the 100 percent requirement of gap analysis for assessing NOAA's progress for hydrographic service improvements. HSRP recommends NOAA develop and deliver -- develop a 100 percent gap analysis of key hydrographic programs. That is in progress, and we owe you a more full answer in the future.

Next is Coast Guard automatic identification system to improve identification and communication between smaller vessels and large vessels. HSRP recommended that NOAA request that the FCC approve the use of AIS. That one proved to be a little bit problematic because this is outside of the hydrographic services purview and it would create the issue of NOAA developing a broad NOAA position that they endorse AIS. So that one, there was no action on that particular one.

The next is the integrated ocean observing system operational wav, observation of plan. HSRP recommends that the NOAA IOOS Wave Plan would benefit from a thorough discussion of its integration with other IOOS requirements. Completed. This is from Zdenka Willis. By the way, she said she is going to attend the next HSRP meeting; could not make this one.

HSRP recommends further development of a strategy to ensure sufficient operation and maintenance funding for a 24/7 system; refined analysis of ship costs; and the identification of potential research, in addition to the small business innovation research. Submitted to NOAA. I do not have a final disposition on this one. So, we'll have to get that from Zdenka.

HSRP recommends that the NOAA IOOS Wave Plan addresses and incorporates wave forecasting modeling. Completed. HSRP is concerned that the corporation that develops the testing and evaluation criteria should be responsible for validating operational capability. Again, I have a hole there, and we owe you an answer on that one.

HSRP recommends that geo-referenced data collected and published should be consistent with NOAA's National Spatial Reference System which provides the foundation for positioning and navigation. Further, all products should provide positional accuracy so that end users have confidence that the data and products derived from them are located at the stated coordinates. NGS continues to work internally and externally to promote, where appropriate, NOAA and other federal agencies use and reference the National Spatial Reference System.

Do you want to add anything to that, Juliana?

[No response.]

CAPT BARNUM: If not, that's okay.

Some of those things include the development of tools like OPUS, OPUS -- and CO-OPS talked about the tools that they're developing. That way, users can, you know, derive their own water levels by submitting their data.

HSRP recommends a closer tie between observing and modeling. The observation plan includes short-term, temporary buoy placements into the inner-shelf and coastal subnets to develop a relationship between offshore subnet station, outer-shelf subnet

stations, and land-based meteorological stations. This is an IOOS on still. It's a blank, and we owe you an answer on that one.

HSRP recommends that temporary stations and the initial use of other wave monitoring stations be identified in a plan to improve the density of the network. Again, I have a hole on that one also.

HSRP recommends that the NOAA IOOS Wave Plan identify a cost-effective strategy to work more closely with industry. Specifically, in the Gulf of Mexico where there are existing platforms that can be used for observations. That is completed. That was an IOOS designation.

San Francisco, California, HSRP Meeting. PORTS®. HSRP recommends that NOAA continue to aggressively seek federal funding for PORTS® through the budget process. We heard about that earlier today. And NOAA continues to investigate those options such as trust funds and through post-incident Department of Justice settlements.

MR. WELCH: I'm going to make a comment in place of Admiral West. I think he would still observe at this point that the fundamental policy question of funding for operational for PORTS® -- expenses for PORTS® is still unresolved and perhaps even more of a difficult nut to crack given the federal budget problems. And it will be interesting to see what the next proposed fiscal budget that's released next year says about PORTS® funding. Thanks.

CAPT BARNUM: Next one is NOAA's hydrographic modeling and observing systems. Recognizing the current climate of limited resources for NOAA Hydrographic Services and other Integrated Ocean

Observing System. The panel recommends that NOAA undertake a pilot project in a major commercial port to integrate its hydrographic services capabilities with the various sensors and systems being operated by others to demonstrate the full benefit. That was a -- we are integrating wave data to include that in our hydrographic products and services.

Next one I have is coordinated ocean and coastal mapping for product/service delivery. HSRP recommends that NOAA reinvigorate internal efforts to establish seafloor mapping standards amongst its own mapping programs and seek endorsement of those standards within the wider federal mapping community. Again, part of the IOCM effort; and again, the interagency work in process. We are working to develop, although it's not a standard yet, OCS is -- well, through Roger Parson, IOCM coordinator, the NOAA IOCM coordinator, is working with other NOAA mapping programs and the interagency process to develop a standardized manual for which others can follow.

CAPT BARNUM: Did you have a question, John?

MR. DASLER: Yeah. So, is NOAA starting to implement now the collection of backscatter or snippets data concurrently with multi-beam? Is that -- you know, would -- I think that would be part of that.

CAPT BARNUM: That would be part of it, yes. And we are looking at the collection of that data while we are in that particular -- mobilization of the asset is the biggest cost and making sure we can collect as much data as we can while we have that asset on scene, yes.

HSRP applauds the NOAA California seafloor mapping project. We talked about that earlier and NOAA advertised this effort as a model for partnership with other states. And I think that has been done. We saw evidence out here with the follow-on work with Oregon. And I think it's fair to say there's interest from other states as well.

HSRP recommends that NOAA intensify efforts to coordinate with the U.S. Army Corps of Engineers on navigation safety in federally maintained channels from common standards for hydrographic surveys to reducing the time it takes for channel navigation data to move from surveyor to mariner. We heard about that earlier and yesterday from Captain Lowell and the work that we continue to work with the Army Corps of Engineers to get the channel frameworks and also our challenges of getting data in a standardized format that we can quickly apply to the nautical chart. So those coordination efforts continue.

HSRP recommends that NOAA and other federal agencies surveying U.S. waters undertake a coordinated prioritization of survey areas with port and maritime organizations to ensure that the most critical areas for maritime commerce are a high priority, and so these coordination efforts continue. Port prioritizations for security interests, that's the maritime -- the main security have initial cut at those ports. But there still remains a significant amount of work within those ports, what areas and how often. That's still in progress.

Surveying on the ellipsoid. HSRP recommends that NOAA accelerate the implementation of GPS water levels -- GPS derived water levels for hydrographic surveys. This implementation could begin with survey activity in the lower Columbia River in 2008 by logging data that will support post-processing of GPS and inertial data for correct soundings. NGS continues to work with OCS and CO-OPS on the development and implementation of tide buoys and the establishment of GPS ellipsoid heights on tidal benchmarks to support GEOID and VDatum development. So, it's in progress, and we're working towards that, Jon, as a goal. We want to be there, too.

MR. DASLER: That did happen on the Columbia River and it's under review at the Pacific hydrographic branch now.

CAPT BARNUM: Okay. Further, NOAA should equip the NRT's for conducting hydrographic surveys relative to the ellipsoid for FY09 before bringing on any additional NRT's. No additional NRT's have come online, and the equipment that was suggested will be upgraded as funds allow.

Positioning accuracy standards. The HSRP recommends that NOAA establish and validate VDatum/GRAV-D model accuracy standards for various applications such as surveying and shoreline mapping, and establish an operational infrastructure to support the use of Real Time Kinematics or Post Processing Kinematics to use the new solutions for collection of hydrographic surveys. NGS along with OCS and CO-OPS recently completed initial total propagated uncertainty for Chesapeake Bay and other areas which is a first step towards this required

metadata for hydrosurveys. NGS has already developed and established the use of VDatum for shoreline mapping using standards during 2008 operations. And we continue to advise -- NGS advising Coast Survey on the process and use of direct georeferencing data (GPS & IMU) from NOAA vessels. This is in support of the ellipsoid reference surveys. So we continue to work internally to put that into operation for both our in-house and contractor buyers.

Next we have PORTS®. HSRP recommends supporting PORTS® by strengthening the ties between PORTS® and the Integrated Ocean Observing System, maintaining the highest level of quality assurance. CO-OPS provided IOOS community with standards.

Next, we have replicating the integrated PORTS/IOOS system development in Tampa Bay in other areas that have PORTS®, or in new PORTS® under development. Tampa Bay PORTS® is a collaboration with NOAA and the local partner.

Committee on Marine Transportation. HSRP recommends that NOAA continue interagency participation of the CMTS by the incoming Secretary and NOAA Administrator continuing this participation. I can say that probably evidence of the Secretary in his press conference and the words that he said, I think, will bear fruit in his support of the CMTS.

HSRP advocates continuation and institutionalization of the CMTS through the issuance of a presidential executive order or the enactment of authorization legislation as appropriate. CMTS agencies are working on this; CEQ and Ocean Policy Task Force also aware of

need. HSRP recommends that a NOAA Corps officer again be placed on Coast Guard cutter missions during 2009 deployment to the Arctic Ocean. We heard from that earlier, and that was done.

I'm not sure if Lieutenant Guziski (ph) is off -- do you know if he's off the -- is he still on the Spar, or is he off?

MS. DENTLER: He's back.

CAPT BARNUM: He's back. Okay. He just got back. So our two Arctic missions are completed between Andy and Coast Guard Cutter Spar.

MR. WELCH: It would be interesting if that report, when it is ready, to be sent to us.

CAPT BARNUM: Absolutely. Absolutely.

HSRP recommends that both agencies continue their operations in the future with respect to expanding hydrographic services in north Alaska. We continue in this participation and development of this issue.

HSRP recommends that NOAA investigate and encourage portraying speed reduction zone information on its navigational products with respect to preventing whale strikes. Completed.

Integrated Ocean and Coastal Mapping. HSRP recommends that NOAA develop a vehicle for the dissemination of planned mapping to the other agencies and coastal communities well in advance of operations to provide opportunity to address other needs. And NGS, CO-OPS, and both Coastal Survey and CSC have put their planned projects on Geospatial One-Stop. This is the site that's maintained by the

Department of the Interior and this is with the cooperation of the Interagency Task Force under the Ocean and Coastal Mapping Integration Act. The one-stop for finding out who is doing what, where.

HSRP recommends that NOAA implement an internal coordinating mapping effort as a demonstration of integrated mapping. Status on that: In addition to internal NOAA program collaborations on the California seafloor mapping and Oregon partnerships, NGS and CO-OPS individual collaborations with other organizations. So we routinely are working to collaborate with others on their mapping efforts. Again, the -- not only through the California/Oregon, but also with internal NOAA where we've collaborated with our own National Center for Coastal and Ocean Science mapping efforts of the Caribbean corals to incorporate that data onto the nautical charts. That's a good success story.

Implement improvements recommended by the Baltimore stakeholder panel. Work closely with the U.S. Army Corps of Engineers on survey standards and datums, similar to what we heard before. And again, as I said, the coordination continues. This is an issue that spans the coordination with multiple corps districts who, to be frank, do business different ways. And if we can get -- work towards a standardized methodology, both in datums and data transfer, it would greatly enhance the efficiency of getting that data to the nautical chart.

MR. ARMSTRONG: Could I ask either you or Jon if -- has the Corps made any sort of commitment to full coverage surveys for their maintained channels?

CAPT BARNUM: Not that I'm aware of. There was a recommendation, I think, out of AFIS-1 report that the U.S. Army Corps investigate or suggest that they use full coverage systems.

MR. GOLTZ: I just want to make a comment that everybody needs to understand the Army Corps surveys for different reasons. It's not always navigation. And so the bulk of their surveying is either pre-dredge or post-dredge so they can tell the contractors what they have to remove; and then, of course, then they can pay the contractors based on their survey requirements. And none of that really requires the full imagery. So what that type of recommendation is going to create is a new -- basically a new requirement on their surveying group. So you just need to understand that this actually asking them for more than they would typically do. Thank you.

MR. ARMSTRONG: Yeah. I think that, specifically, the recommendations that the HSRP had were more to the point of -- HSRP recommending that those kinds of surveys be used in the channels, then, that NOAA, sort of, establish common formats for obtaining the Corps data. My recollection of that Baltimore meeting was -- or that meeting where we talked about that was our concern, or the panel's concern that full coverage data was not being obtained in the most critical of the nation's waterways.

CAPT BARNUM: Okay. Next, we have improve user-friendliness of hydrographic products to encourage more widespread use of this information and a broader understanding of its utility. Action pending. Still considering approaches on these recommendations. OPUS, OPUS RS, OPUS DB, LOCUS, some of the user tools we heard about earlier are some of the examples of that. So we're working towards making the products more user friendly and our services. Got one last page. Almost done.

Require and fund accurate hydrographic data for all habitat restoration projects funded by NOAA. HSRP recommends that all habitat restoration projects funded through NOAA use appropriate hydrographic information that has been collected and verified to NOAA standards, and that NOAA take steps to ensure that it has the personnel, funds, and capacity to provide this information, especially for height modernization, GRAV-D, and VDatum. Action pending. We're still considering approaches on these recommendations. Ongoing research and training through coastal program, coastal mapping coordination with the National Estuaries and the National Marine Sanctuary Program.

Establish a budget line item for PORTS® and increase its funding. This is similar to some of the other recommendations we heard earlier. The HSRP recommends that NOAA create a budget line item for PORTS® in each proposed presidential budget and continue advocating for increased federal funding for this program.

If NOAA is unsuccessful in obtaining increased funding for PORTS® through a line item in the President's budget, we recommend

that NOAA examine an interim process to cost-share based on an established funding formula to encourage a more rapid expansion of the PORTS® program that will lead to full federal funding of a nationwide PORTS® system. So, as we heard earlier, the current Administration supports the partnership funding process, so continuing forward as we have been.

Continue improvements in the Integrated Ocean Observing System. NOAA integrates additional IOOS observations taken by the regional associations into PORTS®; waves being integrated, as mentioned earlier. IOOS continues to work on the fielding and implementation of the surface currents through H -- high frequency radar into navigation services; been submitted to NOAA. I still owe you an answer. I have blank for that, so we still owe you an answer on that one.

Regional associations continue to provide outreach and products and services. Los Angeles/Long Beach projects to the marine transportation sector. Again, that's from the Baltimore. We still owe you an answer on that one.

Seek non-traditional supporters of hydrographic services. The HSRP recommends that other similar manufacturers or industries that depend on hydrographic data be identified nationally and encouraged to provide feedback on the utility of those services as well as possible recommendations for improvement. Action pending. We're still considering approaches how to accomplish cost benefit study of the National Spatial Reference System, CORS, GRAV-D, and a

proposed study and the cost benefit of the Coastal Mapping Program and the National Shoreline in FY10.

Build upon stimulus funding obtained in the American Recovery and Revitalization Act. The HSRP urges NOAA to take advantage of any future economic stimulus funding opportunities. We concur. I would fair to say that we're ready. All of our contracts have significant room for contracts, and I think we've proven that when the contracts come in, they go out. So, we're standing by and ready for any additional economic stimulus, and certainly we'll watch for anything that may be occurring within the Administration.

And that's it.

MR. WELCH: Thank you, Steve. And has that document been distributed, or can it be distributed after the meeting by e-mail?

MS. ARENSON: We can. Do you want me to wait until it's actually final and we have all the holes filled in? It's kind of a draft status right now.

MR. WELCH: Yeah, sure.

MS. ARENSON: Okay. Thank you.

MR. WELCH: I mean, there's no -- there's no immediacy to it. But I think it would be nice to --

MS. ARENSON: Okay.

MR. WELCH: -- get it around at the appropriate time.

And I would like to suggest that we continue to get periodic updates on some of these things. We don't have to go through the entire list every time. But to the extent that something

meaningful has happened on a particular recommendation, it would be good to flag that and make sure people know.

CAPT BARNUM: I think, maybe, a better way for the future would be to have this list and have it in everybody's hand and they can review it. If there's any questions, then people can ask.

MR. WELCH: Okay. Thanks.

Any other comments on these recommendations?

[No response.]

MR. WELCH: All right. Well, thank you, Steve.

Okay. We are winding down. We've got a little bit of administrative business to attend to. And we still have our goal of completing action by 3 o'clock. So let's be efficient in our discussion.

Rebecca, how do you want to proceed and which items do you want to take up first?

MS. ARENSON: Why don't we go ahead and do the meeting planning for the out years, and then, I would suggest we do the interim chair selections and I think that probably wraps most of the issues up.

MR. WELCH: Okay. Rebecca has distributed in advance a little document about future meeting planning with some thoughts that the NOAA staff had, particularly focusing on areas that -- regional areas that we haven't been to -- I'm sorry, Adam?

MS. ARENSON: It's in the left hand side of the your folder. There are two documents. There's one calendar in blue, and then also,

there's a document showing some proposed times and places. So, it's on the left-hand side of your folder.

MR. WELCH: If I can summarize the, I guess, the gist of it, there's a feeling that we haven't had public meetings recently in a couple of regional areas; specifically, of course, Hawaii, as we've talked about in the past. I think there was a feeling we haven't had a public meeting in the Pacific Northwest in a while. That Seattle meeting that many of us went to apparently was not a public meeting. And then, it's been a while since the group was in the New England area.

So, am I correct, Rebecca, those seem to be the areas of regional deficiencies, as you all have identified them?

MS. ARENSON: Right, yeah. There's never been a meeting out in Hawaii or Pacific Islands; none, really, in the Pacific Northwest; none in New England since 2005; and none in Alaska since 2006; and haven't actually ever met in the Caribbean, but there were a couple meetings in Florida, and it's fairly close.

MR. WELCH: And then the other item that, I guess, the NOAA staff has raised is the occasional meeting in the Washington, D.C., area, particularly the desirability of doing that when shortly after new members are appointed to the panel so the various administrative things for new members can be attended to.

So, I know we left our last meeting with a fairly strong message that we wanted to try to schedule Hawaii as soon as it was feasible. There was recognition that this meeting was not a feasible

time for both logistical reasons, budget reasons, and political reasons. I wonder if I could ask NOAA or Jack or whoever: is Hawaii in the next budget year feasible from those standpoints?

CAPT BARNUM: We plan for two meetings a year. You know, there's certainly rumor of a CR initially. But I don't think Hawaii is, depending on what time of year you go, season or in season, I think it would cheaper off season, is not out of the question. I mean, I think Hawaii and the Pacific Islands have their own special, unique, hydrographic needs and I think it would be certainly one of the areas, I think, the HSRP may want to visit. So, I know it sounds an exotic place, but it is part of the United States and its territories and it does have some unique situations. So, I don't think it's out of the question.

MR. MYRTIDIS: And also, if it is close to a Saturday, NCL will accommodate you on our beautiful Pride of America. I'm not going to be -- you know, my term is terminated, so I will not have the pleasure, but you're still invited. Just make it on a Saturday; Honolulu.

MR. WELCH: All right. Thank you.

I guess what I was thinking -- and this was just me personally -- that if Hawaii was feasible in the next budget year, I would think that probably people would -- if we were going that way, we'd want as much time and notice, both for our own personal schedules and for the staff to make the arrangements and things; which would seem to me to push it back to the late summer/early fall meeting which

could take place before the end of the budget year so you didn't have to worry about whether you were stuck with a continuing resolution or not. And then you could have a spring meeting at another location or Washington, D.C., to accommodate the new members or some other region.

But what thoughts do other folks have?

DR. JEFFRESS: It sounds good to me. And is it possible to arrange, while we're in Hawaii, to get the senator -- I've forgotten his name again -- an invitation and get on his calendar?

MR. WELCH: Obviously, it depends on what people's travel schedules are and the Senate --

UNIDENTIFIED MALE: [Inaudible.]

MR. WELCH: Well, except that he might be in Congressional session, depending on what things were.

DR. JEFFRESS: [Inaudible.]

MR. WELCH: Well, that's true.

MR. WELLSLAGER: I think we've had several meetings in the D.C. area and the user groups are going to be thinning, I guess you could say, for a public notice. Would it not be more beneficial to say do a Boston meeting or Maine, since it's been since 2005 we had a visit there to conduct the meetings. It would be, I guess, close enough to the D.C. area if we needed to do something that way, we could. But it would be a good user group meeting there instead.

MR. WELCH: That's a good point, Matt. I'm a little bit concerned that as we have more and more meetings in the Washington area, we do lose the possibility of attracting user panels. Now, the

advantages of a Washington, D.C., meeting; first, there's the administrative advantage of taking care of the new members; and second, there is the advantage that while you might lose the presence of your traditional users, you might enhance your ability to get high ranking NOAA or Department of Commerce officials or even congressional types. So that becomes a draw for the Washington area.

Rebecca, how important is it to have a D.C. area meeting for the new selectees?

MS. ARENSON: In terms of administrative stuff, I think as long as there's a NOAA facility that could do things like fingerprints and I.D. and whatnot, then that's probably not as supercritical that we do it in D.C. But I haven't looked into that in detail, and I'll see.

CAPT BARNUM: It does make it easier if there's a field facility nearby.

MR. WELLSLAGER: Well, what about possibly Annapolis? I mean, you've got a U.S. government -- the Naval Academy right there. Would they be able to facilitate some process like that, and it would be around the D.C. area?

MR. WELCH: Yeah. Well, I think Annapolis/D.C. is -- I mean, that's all considered. Those of us in D.C. consider Annapolis to be right down the street. I don't know what other -- are there regional NOAA facilities in the New England area that could accomplish your purpose in Boston?

UNIDENTIFIED MALE: [Inaudible.]

MR. WELCH: Gloucester, Woods Hole. There are such things as mobile fingerprinting these days, you know.

UNIDENTIFIED MALE: We would be happy to host it, but we don't have fingerprinting.

MS. ARENSON: Ed, could I suggest that maybe we make a decision about whether to do D.C. or a regional location and then we can look up the issues and go from there, just have some sort of a decision then moving forward?

MR. WELCH: Well, I think that's a good way of proceeding. And I'm going to suggest that -- how many people would prefer to be in the New England area next spring versus the Washington, D.C., area?

New England? Who likes New England? Two or three.

Is there anybody advocating Washington, D.C., area in the spring?

[No response.]

CAPT BARNUM: I would just say -- you know, whatever your criteria for -- I know what -- ultimately, it's A government decision, you know. But we'd like for, certainly, the panel to think in terms of where you haven't been and where you need to go to hear -- the idea of having these regional field meetings is to hear from the users. So think in terms of where you haven't heard from and who you want to hear from about their products and services.

MR. WELCH: Well, I guess the sense is that we haven't been to New England in a while.

MR. WELCH: Is it the impression of the committee that we'd like to try and schedule a New England meeting in the spring at a location that the staff can work out a little bit, whether it's Boston or Portland or Providence? We could have Admiral West host us in Providence.

MR. MCBRIDE: Ed, we haven't -- actually, we've never had a public meeting in PNW?

MR. WELCH: Apparently, that Seattle meeting was not considered a public meeting.

CAPT BARNUM: That meeting was an administrative meeting for the new members.

MR. MCBRIDE: All right. Well, then perhaps that might be an appropriate place. We've been up in the northeast on more than one -- at least one occasion already.

MR. WELCH: Any other feelings?

[No response.]

MR. WELCH: Well, am I getting an impression that there's some desire to go to the Pacific Northwest, as opposed to New England? We need to make some snap decisions here.

MR. DASLER: I'd just comment that -- I mean, I won't be at either of those, but the U.S. Hydrographic Conference is scheduled to be in Portland, Oregon, in May of 2011. So, you know, we've had a meeting in the past, jointly, with the Hydrographic -- U.S. Hydrographic Conference.

MR. WELCH: Okay. So, if we for some reason went to New England, we could think in terms of Portland a year later.

Well, let me take the prerogative as Chair and suggest that we look into a New England meeting next spring and a Hawaii meeting next late summer/early fall, whether it's August/September timeframe. Is that -- is the will of the committee comfortable with that? And of course, we have to recognize that this is a proposal that we would be making to NOAA itself, and they do have the ability to steer us in another direction.

Okay, Rebecca?

MS. ARENSON: So, I have to actually put some dates out that looks like they would work. August is often a bad time for meetings since everyone seems to be running around on vacation. So if you wanted to do September and not deal with Labor Day and September 2010, really, the only week that makes sense is the 14th through the 16th. And if we're looking at March for a meeting, I was hoping that I could find out if anyone has any major conflicts so we could eliminate those dates right now.

MR. WELCH: I'm sorry, Rebecca, I heard what you said about September. But I missed what you said about the spring.

MS. ARENSON: So, for March, I was hoping we could figure out if there is any major conflicts right now, for March.

MR. WELCH: Do we know when Easter is?

MS. ARENSON: Isn't that in April?

MR. WELCH: I don't know. Do we know ----

[Off the record discussion.]

MR. WELCH: Is the time in September that you mentioned, is that the first full week after Labor Day or is there another full week?

MS. ARENSON: No. It's the first full week after Labor Day and in terms of travel, I might not live due to our travel people being annoyed if we try to do it any later in the month, so I really don't think we should do it any later than the middle of the month.

MR. WELCH: No, I understand. I was just wondering if there was an intervening full week between Labor Day, and there's not.

Okay. Would it be acceptable to folks if we go back and consult with the NOAA folks, consult with Tom, and confirm that week that Rebecca identified in September as our target time for a meeting in September in Hawaii and we'll try to pick a time in March as a proposed week and get that week out to people to make sure that that would be acceptable for a New England meeting?

MR. WELLSLAGER: I think that's a good idea.

MR. WELCH: Because I think the earlier we can nail down both of these meetings and dates, we can all prevent our calendars from having a conflict on that week if at all possible.

DR. JEFFRESS: Can I ask Rebecca to scratch out the first week in March? The Harte Research Institute is sponsoring a sea level rise conference and I believe there's a bunch of NOAA folks coming to that.

MR. WELCH: Harte Research?

DR. JEFFRESS: H-A-R-T-E, named after Ed Harte.

MR. WELCH: Okay. I think -- is that enough direction for you, Rebecca?

MS. ARENSON: Yep, that's great, and Admiral West has a conflict the second week, so we just scratched both of those.

MR. WELCH: Okay, well we'll -- we still have more to -- Elaine?

MS. DICKINSON: I have a conflict on the last week of March. I'm leaving the country on the 27th. So I don't think I'm going to want to take another trip the same week.

MR. WELCH: Okay. Well, anybody that has problems needs to get them to Rebecca as soon as possible, and we'll do our best to minimize conflicts with people's problems.

MS. ARENSON: [Inaudible.]

MR. WELCH: Okay. Apparently, we're supposed to talk about it an interim Chair between -- why do we need an interim Chair as long as Tom continues to serve until he's replaced?

MS. ARENSON: Well, Tom is probably, in his mind, certainly is not functioning after January 1st as the Chair. So, I thought the idea was to have someone to bridge the gap.

MR. MYRTIDIS: I see a good one right there; right? Ed, I'm sorry? Yes.

MR. WELCH: Yeah. I mean, it seems like to me that -- I mean even if -- first, it would seem like to me, Tom would continue until he's replaced; and second, even if he doesn't, we have a Vice-Chair who can serve until a Chair replaces the Vice-Chair.

MS. ARENSON: Okay, thanks Ed. I'd be more than happy to bug you with details.

MR. WELCH: Okay. What other administrative things do we need to deal with at the moment?

MR. DASLER: I just wanted to bring up from yesterday the conversation on the Arctic. In past meetings, we discussed maybe having somebody from MMS and -- attend one of the meetings and look at the possibilities of -- with all the funding we might be getting out of Chukchi Sea or future lease blocks and exploring maybe them funding the -- all of a sudden their push for the need for infrastructure in the Arctic.

MR. WELCH: Okay. So that would be a possible agenda item for -- attendance item for a future meeting.

Okay. Can we -- did we make a note of that Rebecca?

MS. ARENSON: The one other thing I wanted to ask was, do you need to have a follow-up conference call to go over any recommendations or any kind of a recommendation letter that you're going to write?

MR. WELCH: Well, I was just going to mention that. I think traditionally what has happened -- remind me if I'm wrong -- is the Chair, Tom, has generally gone back and talked with staff and anybody that had suggestions for what should be in a follow-up letter to the NOAA Administrator following the meeting would get that to Tom and he would draft something and he would send it out to people for an informal review. And I think we polled people by e-mail in the past.

I don't think we actually had a formal vote of the panel. Is that -- do we remember?

MS. DENTLER: We voted.

MR. WELCH: We voted as far as what ought to be in the letter? Okay.

CAPT BARNUM: I think that was done where the letter was drafted, and then there was a conference call and everybody just weighed in and said, you know, gave their acknowledgement.

MR. WELCH: Well, regardless, before anybody could make any consent, you know, informal or formal, there needs to be something to look at. So, why don't I take on the task over the next few days, trying to draft something in consultation with our -- Rebecca and the rest of our staff, and then it could be distributed to folks. We could figure out then whether we need to have a conference call to formally approve it, or whether we can do it more informally. So, if you do have a suggestion, though, as to what you might want -- an item you might want to be mentioned in that letter, if you can -- don't tell it to me today; I'll forget it. If you can e-mail it to me, that would be appreciated.

And the other thing that I think we need to do, again, but not today, is: Tom had distributed a draft letter to Dr. Lubchenco about comments to the Interagency Ocean Policy Task Force. I think that might be in our packets. I know it was distributed to us by e-mail.

MS. ARENSON: It's not in your packets.

MR. WELCH: Okay. Tom distributed it to us by e-mail previously. And basically, it was just asking Dr. Lubchenco to put before the Interagency Task Force the Five Most Wanted recommendations. Is this it, Virginia?

MS. DENTLER: Yeah, this is the [inaudible.]

MR. WELCH: Do people want to skim through this for about two minutes right now and we could vote to -- whether we're satisfied with it and send it to her, or do we want to wait?

Let's wait. We've got -- let's just -- yeah, let's wait.

Do you have anything else we need to attend to?

MS. ARENSON: I was just going to suggest that because there's a possibility we might have a conference call and due to the FACA regulations about announcing it appropriately ahead of time, that it would be nice to pick a tentative week now so that people are thinking about that and we can -- if you want us -- if you end up sending a letter to Dr. Lubchenco that, you know, we can do it more timely versus 3 months from now. But it's up to you guys. Just a suggestion.

MR. WELCH: Okay. I think on a conference call like that, which would be a short one, Rebecca, I think the idea -- what I would recommend is that we just talk with Tom, and Tom and the staff come up with a suggested date. We send it out to people and those who can participate can participate, and those that can't -- you know, if we all start looking at our calendars here, we're going to ----

MS. ARENSON: Okay. Thanks.

MR. WELCH: Okay. I would like to take a couple of minutes, I know people are anxious to leave, but this is the last official meeting for Captain Steve Barnum, before his retirement. I hope we'll see him at future panel meetings. But it won't be in this particular capacity, and I just think we ought to acknowledge his service and help to the panel over the years and for his entire Federal Service because he's not only ending his role with HSRP, he's retiring from his federal career. So, I would like to acknowledge that and thank him and congratulate him.

[Applause.]

MR. WELCH: And we do have several panel members who, if new panel members are appointed in the interim will be rotating off before the next official meeting. I think it's Jon and Minas and Larry and Tom, of course; and Adam, are you one of those rotations?

MR. MCBRIDE: No, Sherri.

MR. WELCH: Sherri, right. Okay. So, we need to take note of that. That's a sad note, I guess. But again, thank you. Thanks to all of you and congratulations and we hope that you'll continue to participate in one form or another, whether you're an official member or not, and if the government bureaucracy wheels turn slowly, you may be with us in New England as an official member anyway. So maybe it's farewell in that capacity and maybe it's not.

And finally, I would just like to acknowledge all the work of the NOAA staff in putting this together and starting with Rebecca, and everyone else, and the presenters who made presentations to us and

their good comments both from the government and the public sector, and the people that came to the public meetings and contributed to our work. So, thanks to all.

[Applause.]

MR. WELCH: And with that, do the panel members have any last comments or questions?

MR. MYRTIDIS: Let's go have a beer.

MR. WELCH: Let's go have a beer. Do we need to have a formal vote on that? Okay. Thank you very much.

Our meeting is adjourned.

[The public meeting adjourned at 3:00 p.m., September 24, 2009.]

~ I N D E X ~

~ T R A N S C R I P T C E R T I F I C A T I O N ~

I, Jennifer L. Coots, a certified court reporter, do certify that the above transcript is a true and accurate verbatim representation of the Public Meeting of the Hydrographic Services Review Panel held in Duluth, Minnesota, September 23 and 24, 2009, as recorded, transcribed, and reviewed by me to the best of my ability.

This 19th day of October, 2009.

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