U.S. DEPARTMENT OF COMMERCE

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NATIONAL OCEANIC AND ATMOSPHERIC

ADMINISTRATION (NOAA)

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HYDROGRAPHIC SERVICES REVIEW PANEL

MEETING

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TUESDAY

MAY 22, 2012

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The Panel met in the Aleutian Conference Room in the Hilton Anchorage, 500 West Third Avenue, Anchorage, Alaska, at 8:30 a.m., Matt Wellslager, HSRP Chair, presiding.

PANEL MEMBERS PRESENT:

MATT WELLSLAGER, Chair

SCOTT PERKINS, Vice Chair

RADM KEN BARBOR

LAWSON BRIGHAM, Ph.D.

JEFFREY CAROTHERS

CAPT. DEBORAH DEMPSEY

MICHELE DIONNE, Ph.D.

RADM EVELYN FIELDS

WILLIAM HANSON

DAVID JAY, Ph.D.

GARY JEFFRESS, Ph.D.

FRANK KUDRNA, Ph.D.

JOYCE MILLER

NON-VOTING MEMBERS PRESENT:

JULIANA BLACKWELL, NOAA/NGS Director

RICHARD EDWING, NOAA/CO-OPS Director

LARRY MAYER, Center for Coastal and Ocean Mapping, University of New Hampshire

NOAA STAFF PRESENT:

CAPT. JOHN E. LOWELL, JR., Designated

Federal Official

HOLLY BAMFORD, Ph.D., NOAA/NOS Assistant

Administrator

LTJG MATT FORNEY, NOAA/OCS, Navigation Manager

of Alaska

CAPT. GERD GLANG, NOAA/NOS

KATHRYN D. SULLIVAN, Ph.D., Assistant

Secretary of Commerce for Environmental

Observation & Prediction, Deputy

Administrator and Acting Chief Scientist,

NOAA

KATHY WATSON, HSRP Program Coordinator

ALSO PRESENT:

ALAN BALDIVIES, Alaska Energy Authority

LARRY BISCHOFF, Holland American Line

BILL CREGER, David Evans & Associates

JOEL CUSICK, National Park Service

JON DASLER, David Evans & Associates

KAS EBRAHIM, Fugro Consultants

SHANNON EARL, Fugro Consultants

JOHN GERHARD, Woolpert, Inc.

PENELOPE GOFORTH, SeaCat Explorations

STUART GREYDANUS, Port of Anchorage

BILL HAZELTON, University of Alaska Anchorage

THE HONORABLE BOB HERRON, Representative,

Alaska State Legislature, House District 38

BRITTENY HOWELL

MICHELE JACOBI, Office of Response & Restoration, Arctic ERMA

THE HONORABLE REGGIE JOULE, Representative,

Alaska State Legislature, House District 40

& Chair, ANWTF

COLLEEN KEANE, Pacific Environment

TOM LAKOSH, Public Interest Advocate for Oil

Spill Prevention and Mitigation and

Renewable Energy

CELESTE LEROUX

CAROL LOCKHART, Woolpert, Inc.

MOLLY McCAMMON, AOOS

STEVE MILES, David Evans & Associates

SANDRA MOLLER, Alaska Energy Authority

TOM NEWMAN, TerraSond

JOHN OSWALD, JOA Surveys

ED PAGE, Marine Exchange of Alaska

BOB PAWLOWSKI, Office of State Senator Kevin Meyer and University of Alaska Anchorage

MICHELLE RIDGWAY, Oceanus Alaska and Alaska Deep Ocean Science Institute

MARK SMITH, Vitus Marina

CAPT. MICHAEL TERMINEL, Edison Chouest

SCHAWNA THOMA, Office of Senator Mark Begich

THE HONORABLE MEAD TREADWELL, Lieutenant

Governor of the State of Alaska

LARRY WHITNEY

KYLE ZENCEY, Office of Senator Mark Begich

MIKE ZIEGERL, JOA Surveys

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P-R-O-C-E-E-D-I-N-G-S

8:20 a.m.

CHAIR WELLSLAGER: Good morning. Welcome to Anchorage. Nice to see some familiar faces. Good to see some new faces here as well. My name is Matt Wellslager. I'm the chair of the Hydrographic Surveys Review Panel. Scott Perkins, to my left, is the vice chair. We have some administrative things that we need to -- oh cool. All right. Thank you.

Microphone 101, if you press the speak to talk, it stays on until you depress it, and it turns it off. Okay. As the HSRP, we are authorized to have two meetings a year with the emerging awareness of the need for navigational services in the Arctic.

The panel discussed possible locations for this meeting when we were meeting in Norfolk, Virginia, with the consultation of our Designated Federal Official, Captain Lowell. The decision was made to have the meeting here in Anchorage, Alaska.

At this meeting, we're very fortunate to have with us members from NOAA administration, Drs. Kathy Sullivan, the Assistant Secretary for Commerce for the Environment, Observations and Prediction and Deputy Administrator and Acting Chief Scientist for NOAA; Dr. Holly Bamford, the NOAA, I'm sorry, the National Ocean Service Deputy Assistant Administrator; Melissa Mountcastle, our NOAA representative for Human Resources, who will help with the swearing in of our new members; and I have a little bit of a melancholy feeling as well, because this will be the last HSRP meeting for Captain Lowell, our DFO.

He is in the process of transitioning, which was a new term that I learned yesterday, into the private sector, which will be started, I think, June 1st. I've had the pleasure of working for Captain Lowell for three years an HSRP member, and with his retirement, there will be a transition for a new DFO to take the place. We'd like to thank you for a job well done, Captain Lowell.

CAPT LOWELL: Thank you.

(Applause.)

CHAIR WELLSLAGER: In addition, we have a court reporter who likes for us to speak one at a time, with a little red light on, so she can understand what we're saying. You don't have to speak very slow or very fast; just make it work.

The public people have to speak, I'm sorry, the microphones that they can work with as well. So please be sure to as you address the audience or the panel, to have the red light on.

One last bit of protocol. Everybody has a blue folder, yes? If you look inside that blue folder, you will see some paper work, and lo and behold, on this paper work there is some yellow, little yellow marks. The little yellow marks are significant. You want to fill those in with whatever needs to be done in those spots, because that's what you have to then give to Kathy, so the paperwork is complete.

This one, Michelle. Very good. She's to your left, three doors down. Captain Lowell, would you like to address the audience?

CAPT LOWELL: Not so much an address. Just a few logistic things, as we always do. If anybody didn't notice the door right behind us, I actually don't know where the heads are. Kathy?

MS. WATSON: Downstairs and just to the right, just right down the steps here. It's very easy.

CAPT LOWELL: Everybody is to have breakfast. I hope everybody enjoyed it. I think we have lunch coming in. Kathy, I'm looking for confirmation. Lunch we catered also for everybody here, so we would ask all the members to not kind of wander off for an hour and a half, to keep it on schedule and moving.

Matt's already talked about the microphone, speak slowly and clearly. One quick note on acronyms. The court reporter will struggle with them, so if you can, spell them out the first time if you remember, and if not, no matter. I will try to remind you to spell out the acronym.

A couple of other reminders for the old panel members and perhaps a quick introduction for the new panel members. This HSRP, the Hydrographics Services Review Panel, is a federal advisory committee. It is specifically authorized to advise and provide recommendations to the NOAA Undersecretary specifically on topics involving navigational products and services.

The HSRP consists of 15 voting members, 13 of which are here at the meeting. We also have four non-voting members, yes, four, of which three are at the meeting, and I don't know if Larry Mayer has met everyone here. He has been kind of a cloud floating around, certainly for the last several years.

MR. MAYER: I've been called many things in my time, but --

(Laughter.)

CAPT LOWELL: It's either Andy or Larry who typically attend one at a time, but they're both officially non-voting members of the panel, including Juliana Blackwell, of course, the Director of NGS, and Rich Edwing, the Director of CO-OPS.

I am not a non-voting member. I am actually the DFO, the Designated Federal Official. So you can all talk around me. I have nothing to say.

The HSRP is actually mandated to meet biannually, two meetings per year, as Matt said. We typically vote on where the next meeting will be at the next one. I would like to just note for everybody that if you're not aware, that we are operating in somewhat of a challenging fiscal environment, and so perhaps that's something you should be thinking about as we schedule our meetings out. Just keep that in mind.

HSRP meetings are public and open to the general public. All meeting notes are taken and all discussions will be posted on the website post-meeting. So please, there are certain words we don't want to use, and just remember that everything will be recorded and made publicly available.

These meetings that the HSRP has had are typically done in a panel format. We'll bring in people to talk about area of interest to the panel. There will be Q&As with the speakers that the panel members will engage with.

Hopefully, that will help set things in your mind for either the recommendations or the directions you want to take this panel, to build out the knowledge, to provide more in-depth analysis to the Administrator of NOAA.

If you haven't looked at the agenda, we have a full three days. Today is actually broken out with a short field trip, for a little hands-on experience down at the Port of Anchorage.

So I would advise everyone to dress somewhat more casually this afternoon. Do we have time -- okay, we have a little bit of time to change, and I imagine we'll go over the logistics for that meetings as we get closer.

Okay, with that said, I'll hand it back to Matt, and welcome y'all here for the meeting.

CHAIR WELLSLAGER: Thank you, Captain Lowell. One other thing, two other things actually, one of which, if some of you look behind you, others of you look in front, this is the first time I can recall having an art display of landscapes presented to us at these meetings.

These images are displayed on the wall are a selection from the exhibit "Coastal Impressions: A Journey Along Alaska's Gulf Coast," sponsored by the Cook Inlet Regional Citizens Advisory Council or RCAC, I guess, and developed in partnership with NOAA Alaska Fisheries Science Center, A-U-K-E, Auke Bay? Auke Bay Laboratories, in the Alaskan Shore Zone Partnership. The photographs were selected from thousands of digital images obtained from Shore Zone surveys, and reflect the diverse, dynamic and often rugged, remote land/sea margins.

The Alaska Shore Zone Program was initiated by Cook Inlet RCAC in 2001, and surveys in Cook Inlet and the Kenai Peninsula have since developed into a partnership of over 40 organizations with data and imagery from over 40,000 kilometers of Alaska's coast, now administered and served online by NOAA.

The goal is to develop an inventory of biological and geological habitats of the entire Alaskan coast. So this is a daunting task, but it's amazing seeing what we've got here. In the process, an incredible archive of high-resolution digital video and imagery has been developed, and this exhibit is intended to share the diverse natural history and spectacular scenery of Alaska's often remote and inaccessible coast.

All imagery and data from the Alaska Shore Zone Program are available to the public for non-commercial use and are accessible online. A flyer with contact information is in the back here. So if you get an opportunity during the break to look at these, it's really quite amazing. There's beautiful imagery and a lot of diversity in the coastline of Alaska.

The second thing, many of know each other but a lot of us don't. So at this time, I would like to ask the HSRP panel members to take a minute to introduce themselves to the panel, what their expertise are in the field, and we can all get a better understanding of who we are and what it is that we have to offer to the HSRP panel that way. Dr. Jay, would you mind starting?

MEMBER JAY: I'm David Jay from Portland State University. I guess my expertise, the reason I'm here is mainly has to do with tides and water level analysis, and I also do work closely with the Port of Portland.

MEMBER KUDRNA: Hi. I'm Frank Kudrna. I'll be a new panel member, I guess, shortly from Chicago. I previously sat on two federal advisory committees, the Sea Grant Federal Advisory Committee and the Science Advisory Board for the Administrator.

I'm a civil engineer, hydrologist. Ran my own practice for about 25 years, and we recently merged with URS Corporation. One of the titles I wear is the Chief Engineer of the Port of Chicago. Thank you.

MEMBER MILLER: I'm Joyce Miller. I am currently Director of Sea Floor Data Services at the University of Hawaii. I'm a certified hydrographer and am still doing hands-on multibeam mapping, and I've been in the business for about 35 years.

MEMBER BARBOR: I'm Ken Barbor. I'm the Director of the Hydrographic Science Research Center at the university of Southern Mississippi. I'm a career naval officer. My last tour in the Navy was as Commander of the Naval Meteorology and Oceanography Command, which runs the Navy's hydrographic, oceanographic and meteorological programs.

I'm a previous Director of the International Hydrographic Bureau in Monaco.

MEMBER JEFFRESS: Hi. I'm Gary Jeffress. I'm educated in Australia. I'm a United States citizen since 2003. I'm a Professor of Geographic Information Science at Texas A&M University Corpus Christi, and Director of the Conrad Blucher Institute for Surveying and Science, an endowed institute which has established a tide gauge network for Texas in cooperation with the CO-OPS, and we've also established a Texas Spatial Reference Center, in cooperation with NGS.

MEMBER BRIGHAM: Good morning. I'm Lawson Brigham. I'm a Professor at the University of Alaska Fairbanks. I was a career Coast Guard officer involved in Polar Operations, and on the panel here I'm working on Arctic emerging issues.

CAPT GLANG: Good morning. Captain Gerd Glang, NOAA. Currently, I'm National Ocean Service on staff with Dr. Bamford, or for Dr. Bamford and for David Kennedy, engaged in strategic planning.

DR. BAMFORD: Good morning. Holly Bamford with NOAA's Ocean Service, and my background's in physical oceanography and organic chemistry. But in our portfolio at the Ocean Service, it deals with the navigational services, special places like sanctuaries, as well as coastal management.

DR. SULLIVAN: Good morning, Kathy Sullivan, Assistant Secretary and Deputy Administrator at NOAA. My portfolio includes everything having to do with environmental observation and prediction. So our ship-based assets, aircrafts, spacecraft, gauges, buoys and so on. My own background is academic preparation in Marine Geology and Geophysics. 15 years with NASA; 18 years as a young Reserve officer under Admiral Barbor's former command, and just rejoined NOAA a bit over a year ago.

CAPT LOWELL: John Lowell, Designated Federal Official. Thank you.

CHAIR WELLSLAGER: Matt Wellslager, Chair of the HSRP. I am the chief of the South Carolina Geodetic Survey and the geodetic advisor for the State of South Carolina. Thank you.

VICE CHAIR PERKINS: Scott Perkins. I am president of T-Kartor USA. I'm a photogrammetrist by profession, cartographer by trade. Expertise with shoreline mapping for NGS and NOAA and shallow water hydrographic surveys on inland waterways, Illinois waterway and Mississippi River waterways.

MS. BLACKWELL: I have no red light, but can you hear me? Okay. I'm Juliana Blackwell, Director of the National Geodetic Survey or NGS, and my portfolio includes geodesy and remote sensing, and the mission of the National Geodetic Survey to provide the National Spatial Reference System to the nation.

MR. EDWING: Rich Edwing, Director of the Center for Operational Oceanographic Products and Services. We do tides, currents and water levels along the coastal U.S., including the Great Lakes.

LT. FORNEY: Matt Forney. I'm the NOAA's Office of Coast Survey, and I'm the Navigation Manager of Alaska.

MEMBER CAROTHERS: Morning, this is Jeff Carothers. I'm with the Pacific Branch of Fugro Consultants. My background is in oceanography and starting the business of hydrographic surveying and high resolution geophysical surveys in the late `70s.

MEMBER FIELDS: Good morning. I'm Evelyn Fields. My background has been with NOAA. I started with the hydrographic surveys and spent most of my career doing hydrographic surveying with NOAA. That's about it.

MEMBER HANSON: I'm Bill Hanson with Great Lakes Dredge and Dock Company based out of Chicago. We're the largest dredging company in the U.S. and we also work internationally. Our interest is in coastal protection and seaport development.

I also sit on the Board of the Ocean Engineering Program at Texas A&M, and so we have an interest in advocacy for the academic side of what we do, and also on the commercial side. I'd like to see if we can get that Port of Chicago working again.

MEMBER DEMPSEY: Deborah Dempsey. I'm a seagoing person. Graduated from Maine Maritime Academy in '76. 18 years of sailing worldwide with Lykes Lines, and I've been a pilot on the Columbia River bar for the past 18 years, and I understand I have some, not shoes but big boots to fill, from Sherry Hickman.

MEMBER DIONNE: Michele Dionne. I'm an ecologist with the National Estuarine Research Reserve System, which is a system of 28 reserves around the country, which are state-federal partnerships with NOAA, and we focus heavily on the connections between the estuaries in the Gulf of Maine and the coastal waters in the Gulf of Maine, especially when it comes to food webs, and we think of fish as the apex predators. Also birds are also important, but my background is in fish. That's what we study, fish, and we're also very involved in local and national advisory committees when it comes to determining how coastal habitats will respond to changes in patterns of inundation due to climate change.

MR. MAYER: I'm Larry Mayer. I'm the Director of the Center for Coastal and Ocean Mapping, CCOM at the University of New Hampshire, and I'm also the co-director of the Joint Hydrographic Center, the NOAA-UNH Joint Hydrographic Center at the University of New Hampshire, and it's in that capacity, as Captain Lowell mentioned, that I'm sitting here.

My background is Marine Geology and Geophysics, and I think I've been doing multibeam mapping probably as long as Joyce. I guess particularly relevant for this meeting is the work we've been doing north of Alaska in the Arctic, mapping in support of potential submission under Article 76 of the Law of the Sea Convention.

MS. WATSON: Kathy Watson, HSRP Program Coordinator.

COURT REPORTER: Hi. My name is Kayla Gamin, and I'm your court reporter and transcriber today. Some of you may remember me from Hawaii.

CHAIR WELLSLAGER: Okay. Well, thank you very much. Welcome everybody. We have some very important business to take care of right now. Our new members need to have their official oath of office delivered and would Dr. Sullivan be so kind as to do that for us?

DR. SULLIVAN: All right. I'm going to ask in a moment the new members to stand. The full oath is here. You don't have to be staring at the screen as we do this. We'll go through it sentence by sentence and ask you to repeat it.

You may in the first sentence use either swear or affirm as you wish, and at the closing, if you wish to not add in "so help God", that is your prerogative as well. So if I could ask all the new members please to stand and raise their right hands. Repeat after me.

(Whereupon, Admiral Barbor, Capt. Dempsey, Admiral Fields, and Dr. Kudrna were sworn in as members of the HSRP.)

DR. SULLIVAN: Thank you, and welcome to the HSRP.

(Applause.)

CHAIR WELLSLAGER: We're also very fortunate to have Dr. Sullivan address some issues for us with regards to positioning for America and the future, and Arctic Annex I and II.

Dr. Sullivan plays a critical role in directing administration of NOAA priority work in the areas of weather, water services, climate science and services, integrated mapping services and earth observation capabilities.

She provides agency-wide direction with regard to satellites, space, weather, water, ocean observations and forecasts, to best serve American communities and businesses. As deputy administrator she oversees smooth operation of the agency. She's the only person I know who has had the opportunity to experience weightlessness in both space and in the ocean.

So it's indeed a pleasure to be able to have you here addressing us with this meeting. Thank you very much.

DR. SULLIVAN: Thank you, Matt, for that kind introduction. You know, the astronaut background really does help a lot. In Alaska, you come up and have a day like yesterday, where at some moments you're seeing all the grand volcanoes at the Alaska Peninsula, and at other moments you're wishing you could see the mountain for real.

But when you've gone over it 300 nautical miles and seen the entire Alaska range above all the low cloud, that image sort of sticks in your mind, and there are not too many ground based views that you need to covet after that one.

Well, Dr. Lubchenco, the Administrator of NOAA, sends her regrets. She wishes very much that she was able to attend this meeting and asked me to personally pass on her welcome to you all and her appreciation for the work that you do.

With the formalities of the oath of office out of the way, I congratulate again all the new members of the panel. We're delighted to have you on board. We welcome and tremendously value the knowledge and professional expertise that you represent, all of you on the HSRP, and in particular the new members joining today who really complement the prior group in terms of both geographic diversity and professional diversity.

We thank you very much for your willingness to serve NOAA on this panel, and I very much appreciate the chance to be here as you join the fray.

I urge you, with your fellow panel members to be forward-thinking and strategic in your analyses of our programs in this area. Your input and advice to the administrator can absolutely help NOAA improve the quality, efficiency and utility of our navigation-related products, services and information.

I hope you make the tremendous can-do spirit and pragmatism that's the hallmark of this great state a hallmark of your tenures on the HSRP. So with everyone now duly installed, let's get down to the business at hand.

Chairman Wellslager, members of the panel, Lieutenant Governor Treadwell, other special guests, colleagues and members of the Anchorage and Alaska community that are with us today, it's my pleasure and honor to provide some opening remarks, to launch us on the work of this week.

I'm really tremendously pleased to be back in Alaska. It's been about ten years since I was last here with the Pew Oceans Commission. We got down to the Prince William Sound side of the peninsula that day, and yesterday we had a fabulous opportunity to get down to the Kenai side, the Homer Bay side and the Kachemak Bay side.

Once again, really drinking in the stunning natural beauty of the entire Anchorage-Kenai area, and connecting that this time with the tremendous work that so many groups within NOAA do with so many state, tribal, local and other federal partners, to advice science service and stewardship in this region.

Every time I'm here, I'm impressed with the knowledge, the multiple talents and the "just do it" spirit that gets things done in Alaska, and I was very much filled with pride yesterday to see so many vivid examples of how much NOAA does in this state, and how all that work matters so directly and so centrally to the lives and livelihoods of Alaskans.

Every member of the Hydrographic Services Review Panel comes from a profession and a region in which they live this truth, that NOAA's science service and stewardship underpins lives and livelihoods in our coastal communities in many vital ways. I hope the deep import of this point pervades the work of this panel for the entire week.

So I've already thanked the new members. Let me now also extend my thanks to them as well. Also, to the team that organized this meeting and all of the arrangements that let us work so effectively this week, our heartfelt thanks for what we know is a tough challenge.

I would be remiss if I didn't add my personal thanks to several of the NOAA Alaska-based staff, in particular Matt Forney, our Navigation manager, who you just met; Amy Holman, who's in the back of the room here, our regional coordinator; and Kris Holderied, who's not with us here. She's down in Homer, where she works as the key liaison for the Kasitsna Bay Lab.

Thank you all for your great support for this region and your ongoing work in the state and in the region. Lastly, I would ask you to join me in also recognizing the fine work of John Lowell. As has been said, he'll be retiring. We'll see if he can pass the retirement test. Many of us have our suspicions about how he'll grade out on that.

But we will be losing him from the uniform and losing him from NOAA's direct service. His very, very many years of work in this field and for this agency, culminating in his work as Director of Office of Coast Survey and the Designated Federal Official for this panel, have been exemplary and tremendously productive and very, very much appreciated.

So John, my personal thanks on behalf of the Administrator and all of your colleagues at NOAA. Thank you very much for a tremendous body of work, service well-rendered and a job very well done.

(Applause.)

DR. SULLIVAN: Well, as I don't need to tell anyone in this room, maritime commerce has been a critical piece of the American economy since our earliest colonial days.

In fact, NOAA traces its roots fairly close to those days, to the year 1807, when President Thomas Jefferson established the Survey of the Coast to chart a new nation's coastlines.

Now, more than two centuries later, NOAA is still relied upon to provide navigation products and services that ensure safe and efficient maritime commerce. Today, over 95 percent of our foreign trade enters or leaves the United States by ship, generating over 13 million jobs and more than $1 trillion in economic benefits.

No other transportation system, air, rail or road, comes close to moving as much cargo or generating as many economic benefits as America's ports and waterways. In today's challenging times, the importance of the United States marine transportation system simply cannot be overstated.

NOAA's Navigation Services Office, consisting of the Coast Survey, the Geodetic Survey and the Center for Operational Oceanographic Services or CO-OPS, these constitute one vitally important part of this overall system, providing the informational infrastructure that is so critical to safe and efficient maritime commerce and a strong United States economy.

These programs also serve coastal communities in a number of other ways, simulating sea level effects on coastlines, selecting alternative energy sites, informing and identifying geological hazards, informing local, state and regional planning efforts.

It is no exaggeration to say that NOAA is quite literally positioning America for the future through these works. That future will inevitably bring great challenges. It will also provide grand opportunities. There's an old adage that the first step to getting to somewhere important is to know where you are, and that's really what we are all about.

When planning for or positioning for the future, it's important to understand where we are as well as the conditions we will face along the way. All around us, we can front everyday challenges to living and thriving on this very dynamic planet.

At NOAA, it's our job to observe, study and understand how this planet works, and more importantly it's our job, it's in fact our core mission, our central function and our highest purpose, to transform that understanding into actionable information, something each of us can use to inform the decisions and plans that we make every day.

All across this country, 24 hours a day, the men and women at NOAA provide and update services, information tools if you will, in the form of forecasts and predictions, maps, models, charts, graphs and a variety of other products and services.

From observations to survey and charting technology, accurate positioning and real time data for emergency response or stakeholder interventions, these offices work every single day to make marine navigation and transportation safer, more efficient and more environmentally sound.

This supports not only the navigation community but also the health of coastal ecosystems, and hence the long-term vitality of coastal communities. Overall, NOAA's mission of science, service and stewardship is reflected in these offices as we work to position America for the future.

Looking over the agenda for our week, it is great to see that so much time will be dedicated to gathering input from those who rely upon and support the positioning and navigation services that help us advance.

NOAA appreciates your attention to ensuring that our services are not only of superior quality, but also relevant, practical and useful in the real world. There are plenty of dramatic examples that show the need for NOAA's navigation services, to help position Alaska for the future.

For example, as sea ice diminishes, as nations seek increasingly to explore offshore energy and other resources, we are confronting an area where we essentially have an entire new coast opening up in the Arctic.

NOAA has undertaken new surveys and are producing updated and more accurate charts. You'll be hearing more about and important new chart later today, in fact. We also continue to test, develop and deploy new water level sensors that can hold up to Arctic conditions.

We have developed an Arctic nautical charting plan, and we're working internationally through the International Hydrographic Organization and other bodies, to coordinate efforts towards mapping and charting in the Arctic.

This summer, we'll conduct our first transect of the Arctic Ocean using modern survey technologies. These efforts too are helping to position America for the new Arctic realities. In addition to these fairly traditional applications, there's an expanding group of users and constituencies with an interest in the data and services that these programs provide.

This is especially true along the coast, to support emergency response and long-term planning. We're establishing new partnerships to support these efforts, including with regional partners like the Alaska Ocean Observing System, with Molly McCammon here in the back, who leads AOOS; working with the Department of Interior, we're accelerating the production of our Arctic Emergency Response Management Application or Arctic ERMA.

This is built upon foundational data from our hydrographic services. ERMA is a powerful web-based geographic information system tool that is proven capable of filling such emergency planning and response needs during events like the Deepwater Horizon oil spill in the Gulf of Mexico.

ERMA proved very valuable to the first responders and the citizens along the Gulf Coast, as they sought to provide information and access information that helped them understand what was happening, where and when involving which partners.

ERMA is also being used today, I would add, to track the movement of marine debris from the devastating 2011 tsunami in Japan.

In consideration of significant telecommunications gaps in the Arctic, the Bureau of Safety and Environmental Enforcement at Interior has partnered with NOAA to develop the capacity for ERMA to operate in remote locations where Internet access is not readily available.

Before emergencies occur, Arctic ERMA can be an important emergency response planning tool, providing a common operating picture to emergency responders, who may one day turn to ERMA to support their response to events such as spills.

We're also collaborating with the Arctic Council's Emergency Prevention and Preparedness and Response Working Group, to incorporate relevant data from other Arctic nations into ERMA, and again, you'll get a closer look at Arctic ERMA later in our meeting.

Another innovative partnership is NOAA's agreement with Shell Exploration and Production, ConocoPhillips and Statoil USA to collaborate in data acquisition and data-sharing in the Arctic, a region which as you all know well labors under severe limitations in available and up-to-date data.

NOAA's Chief of Staff, Margaret Spring, spoke about this emerging partnership at the last meeting of this panel. Since it's of particular relevance to the region we're meeting in today, I'd like to take a few minutes to share a bit more about the agreement and our vision here.

NOAA envisions an Arctic where decisions and actions related to conservation, management and resource use are based on sound science and support healthy, productive and resilient communities and ecosystems. To achieve this vision, we must continue to acquire data and information that improves our understanding of the physical and biological processes and ecosystem functions.

Recognizing that no single agency or entity has adequate resources to meet this task alone, collaborative efforts and data-sharing arrangements are clearly essential. Our initial agreement with the companies I mentioned before was signed in August 2011, to help identify and pursue data needs in the Arctic through collaborative data-sharing activities under five themes: meteorology, coastal and ocean currents, circulation and waves; sea ice studies; biological studies; and hydrographic services and mapping.

We thank Shell, ConocoPhillips and Statoil for coming to the table and agreeing to share their Arctic data with NOAA, and for allowing us to make it publicly accessible in turn. The memorandum of agreement lays out the specific terms of the arrangement, and identifies the types of data that can be shared among the parties.

Specific annexes to the agreement will identify particular data sets that will be unloaded and archived, and will specify how the data can be made publicly available. I'm very pleased to announce here today that Annex 1 has been signed, and that data will be begin flowing shortly.

This first annex lays out protocols for sharing three of the five data themes identified in the original agreement: the meteorology, coastal, ocean circulation, currents and waves, and the sea ice studies. Subsequent annexes will tackle biological sciences and hydrographic services and mapping.

These data can be used by NOAA to bolster our ability to provide safe navigation, support oil spill preparedness and response, and help assure the safety and local communities in the Arctic.

With these additional meteorological, oceanographic and coastal observations data, we'll be better equipped to provide energy companies, mariners and coastal communities with an enhanced scientific foundation to support their decisions and help them pursue safe economic opportunities in these very fragile and rapidly-changing areas.

A number of specific data sets are coming forth under the first annex, including archived meteorological buoy data, 2012 near-real-time weather buoy data, upward-looking sonar data, coastal weather station data, archived sea ice data, and 2012 near-real-time ice data, vessel data and voluntary observing ship data.

As we do with all externally sourced data, NOAA will conduct quality control on these data sets before incorporating them into agency products and services. In addition, we will make the data obtained under the annex available to the public.

Through both the quality control processes and our transparent public access provisions, we will ensure that the data sets provided by industry under the agreement are handled in ways that fulfill both the Federal Standards for Information Quality Act and NOAA's own scientific integrity policy.

This partnership is but one example of NOAA's commitment to public-private partnerships and good government. The leveraging of taxpayer dollars to provide scientific data and information to support safe navigation, responsible economic growth, job creation and energy security.

In short, this agreement helps us meet the growing demands for NOAA's products and services in an efficient and cost-effective fashion. It also helps us realize great progress towards our Arctic Vision and Strategy, which we released last year.

NOAA's Arctic Vision and Strategy is crafted to address Presidential directives on the Arctic, as well as the needs and requirements articulated by NOAA partners and stakeholders in the region. The Vision and Strategy encompasses all of NOAA's capabilities, including fisheries management, weather and sea ice forecasting, climate services, mapping and charting for safe navigation, oil spill readiness and response, satellite, ship and aircraft observations, oceanic, atmospheric and climate research.

For those who may not already be familiar with it, we enunciate six priority goals in the Vision and Strategy: to improve our forecasting of sea ice; to strengthen the foundational science that allows us to understand and detect Arctic climate and ecosystem changes; to improve weather and water forecasts and warnings; to enhance international and national partnerships; to improve the stewardship and management of ocean and coastal resources in the Arctic, and to advance resilient and healthy Arctic communities and ecosystems.

The new industry data-sharing agreement is just one example of ways in which we can come together in new partnerships, to speed our progress on the collective challenges, not only Arctic and in Alaska, but across the nation as well.

I look forward to providing another update to the panel as future annexes come online, and welcome your thoughts on how we might pursue similar agreements and partnerships to address the challenges in this state, and also in the regions that you represent.

Another partnership that Margaret reported to you on at your last meeting is on the Committee on the Maritime Transportation Systems or CMTS. Margaret currently serves as chair of the CMTS Subcabinet Policy Advisory Board, called the Coordinating Board.

Since 2005, when the cabinet level CMTS was first chartered, departments and agencies having an interest and obligation in marine transportation have come together regularly to optimize resources to improve the country's marine transportation system.

Under Margaret's leadership, CMTS is making progress on a number of fronts. These include working with the newly-formed White House Navigation Task Force, to provide an inter-agency forum in which we can better coordinate the federal infrastructure investment decision-making.

It also includes identifying and integrating eNavigation technologies and data to deliver enhanced navigation information to mariners, improving safety and efficiency. As an example of this improved eNav collaboration, we've got a beta test integration of NOAA's PORTS system, that's the Physical Oceanographic Real-Time System, with the Coast Guard's automatic information system for the Tampa port area.

They're also developing a response to Congress on coordinating policy and programs with respect to United States Arctic marine transportation, and they're sponsoring, with the Transportation Review Board, a much-needed conference in Washington next month, to help develop and recommend the use of performance indicators in marine transportation and waterways management.

Having a uniform set of indicators will enable the CMTS to better assess the state and the needs of the marine transportation system. Finally, the CMTS is working to develop a user friendly web-based portal to provide a single, searchable source, for access to the hundreds of government-published marine transportation reports and statistics.

As Margaret has mentioned to you previously, your inputs and thoughts as members of the Hydrographic Services Review Panel on how NOAA can use and benefit from the inter-agency coordination that goes on at the CMTS is greatly appreciated.

Some may wonder why I've highlighted efforts in an area that are broader than the traditional navigation services area, given the focus of the panel. What I think this agreement highlights and the way we're looking across, is the way we're looking across our services at the broader suite of users and needs.

We over and over discovered that this helps us find new opportunities, possibly new efficiencies, and certainly helps us identify high points where the work being done under the heading of hydrographic services, under the heading of navigation, is actually pertinent to and directly beneficial to other stakeholders and to other scientific needs.

One of the fastest-growing demands for NOAA's navigation services, of course, comes from coastal states and counties, as they seek to reduce their vulnerability and exposure to coastal storms and sea level rise. Facing very challenging decisions, not least of which are long-term infrastructure investment decisions, these communities are turning to NOAA for accurate, consistent and reliable positioning, water level, hydrographic, shoreline and other geographic data and services.

We had another great example of that just yesterday on our visit down to Kachemak Bay, where a LiDAR survey flown along the north shore of that bay is providing centimeter scale accuracy, a shoreline determination, trawling-type characterization, bed forms and land forms. We know why we did it in the context of our renavigation services mission, but frankly everyone there was quite surprised to have the Kachemak Bay State park ranger avidly seeking the data, because of determinations that he needs to make, trail maintenance that he needs to undertake, new trails that are on his list, to try to build in, with the LiDAR scale data, dramatically simplifies and eases the planning and the cost of doing that work.

So crossovers that we all tend to not spot or undervalue when we move along with our blinders too narrowly drawn pop up all the time and are surely more than we have ever found yet to be tapped. So this point is tremendously well-illustrated also with respect to the shorter sea ice season that the Northern and Bering Sea communities are seeing here in Alaska.

They're increasingly exposing these shorelines to the ravages of great storms. Entire villages have been forced to relocate in western and northern Alaska. Last year's October winter storm may be a harbinger of the challenges yet to come.

In January, of course, we saw these challenges illustrated vividly with the emergency run to resupply Nome with fuel. NOAA products and services, with the help of the Coast Guard forces and focus of many different agencies and partners were invaluable to the success to that effort as well.

We need to position our coastal and state managers to prepare for new demands here and across the country, and we must do so in times of severe fiscal constraint. I encourage this panel to investigate the ongoing efforts to better coordinate among the federal family with respect to services, and especially to take a look at the efforts that are associated with integrated ocean observing systems, and integrated ocean and coastal mapping.

The demand for sound coastal science, precise geospatial data and real-time oceanographic services is surging, as coastal communities and industries seek access to reliable expertise, good information, and the information services they need to support the everyday decisions they face, as they work to sustain the lives and livelihoods, reduce risks and plan for the future of their communities.

NOAA works to fill this demand by providing for the foundational positioning, mapping, charting and observing systems for safe navigation and efficient marine operations. We integrate these services and data to provide tools for emergency response, to assess vulnerability, to plan for adaptations and to make daily and long-term planning and management decisions.

This diversity of expertise, this multi-disciplinary approach and the commitment to long-term partnerships, those are the elements that are positioning America to meet existing and emerging needs at the local, regional and national levels.

We look forward very much to hearing your input on how we can continually improve and advance our navigation services efforts. NOAA's mission and vision remain valid and compelling, notwithstanding current budget headwinds, but these challenges can also create opportunities.

We need to tap into the creativity and innovation within NOAA's workforce and among our partners, to deliver new technologies and new ways to communicate information, as well as developing creative new approaches to doing business and doing business together more efficiently.

We also need to strengthen and expand NOAA's partnership, thinking beyond our traditional set of partners and identifying new allowances, new alliances that can help us achieve our collective goals. Here again, your ideas and suggestions can help spark innovation, which is especially critical in these tight budget times.

You, the members of our Hydrographic Services Review Panel, are very valued advisors to NOAA on all these matters, relating to and also flowing from, hydrographic services.

However, you are also important ambassadors for NOAA within your respective professional circles. I hope you will use the information you gain through this meeting to provide recommendations to help guide the agency, and help us better engage the public and private sectors in bringing us all together to move forward to address these collective environmental and economic challenges.

I challenge this panel to look closely at NOAA's navigation services, to explore the relationships and partnerships that exist, to examine and identify ones that might be established to meet the ever-growing needs of an expanding user base, as we continue our important work together of positioning America for the future.

Thank you again. I'm delighted to be able to spend the bulk of the time with you today and tomorrow, not quite all of your meeting. But I appreciate the invitation to join you. I appreciate the privilege of swearing in the new members, and I look forward to learning, along with you, more about this region and for my part, more about the good work that you're doing as members of our HSRP. Thank you very much.

(Applause.)

CHAIR WELLSLAGER: Our next speaker, the keynote speaker as a matter of fact, is going to be introduced as a favor to me by Dr. Lawson Brigham. He was kind enough, since he knows the gentleman, to best step up and provide us some interesting information about our keynote address. Thank you, Lawson.

MEMBER BRIGHAM: Thank you, Chairman. Good morning everyone. It's a pleasure for me to introduce our keynote speaker.

Our speaker came to Alaska 40 years ago, after his education at Yale and Harvard, or actually before he finished his education at Yale, to work for Governor Wally Hickel in many capacities.

He's a prominent businessman. He has been an Arctic advocate from day one here in Alaska, and has been a public servant. He served on the Arctic Research Commission for eight years and prominently as chair, and I would say he might agree that one of the most important accomplishments during his time on the Commission was his influence in getting the United States to review its Arctic policy, and having President Bush sign that Arctic policy, which stands today, word for word, this very day as our national policy.

We're one of the few countries where the head of state actually does sign a policy statement on the Arctic. Mead was in Governor Hickel's cabinet as a Deputy Commissioner for Environment Conservation in the early 1990's, has been a member of the U.S. delegation to the Arctic Council since its inception in 1996.

So he's been involved in all of the Arctic Council meetings and all the gyrations of the Council in interesting times there. In November of 2010, he was elected, I would say with a -- overwhelmingly as the Lieutenant Governor of Alaska, and inaugurated with Governor Sean Parnell in January of 2011.

It gives me great pleasure as an HSRP member and as an Alaskan to introduce our Lieutenant Governor, the Honorable Mead Treadwell.

(Applause.)

LT GOV TREADWELL: Well, it's a pleasure very much to be here. Lawson, thank you for that introduction.

What Lawson didn't say was that while I was chair of the U.S. Arctic Research Commission, he was deputy director, ran the Alaska office. We didn't get to see him much, because he was actually crafting a document, which I'd like to say is a first.

We had, through the Arctic Council auspices, the first time that nations ever came together, to look at the future of Arctic shipping, through the Arctic Marine Shipping Assessment, which Lawson chaired for the Arctic Council.

Lawson, many other things. You were able to sign the globe for sailing further north and further south than anyone alive, anyone who's ever lived, but as captain of a Coast Guard ice breaker.

But I will tell you bringing eight Arctic nations together to think about something that explorers have been considering and working on and losing their lives for, for close to a thousand years is quite a significant accomplishment. Thank you very, very much.

I want to say, Mr. Chairman Wellslager, thank you very much for bringing this committee to Alaska. We understand that resources are constrained. Dr. Sullivan, it's wonderful to see you again.

I think I first met Dr. Sullivan in the late 80's, around the time that she was helping launch the Hubble and fix the Hubble. It may well have been at a swimming pool in Houston, near Johnson Space Center, where she was showing a FACA advisory group like this, that I was accompanying Governor Hickel on, looking at the future of space exploration.

I've enjoyed our friendship now for over 20 years, and thank you very much for coming back to NOAA and being the leader you are. Sorry David Kennedy didn't get to be here. I got to meet David Kennedy first during the Price William Sound oil spill, and we've followed each other's careers for some time.

Dr. Bamford, it's very nice to meet you today too. Others on the group, Captain Lowell, please don't really, really retire, and Larry Mayer, as one other thing I can say that I helped get going at the Arctic Research Commission is that nobody was able to figure out how we would get money for your missions mapping the Arctic, so we just started talking about it more loudly, without OMB's permission.

Then ultimately they came around with money for the project. So the 50 or 60 million dollars that you spent over the last ten years; maybe it's not that much, I'm not sure, but to figure out what our new territory is in the Arctic. I'm very, very proud of your work. Thank you very, very much.

Let me just say that this is a neighborhood, and for those of you who are new to Alaska, new to the Arctic, we like to think very much of this place as a neighborhood at the top of the world.

Since 1988, when we opened the border between Alaska and Russia, we've done everything we can to build this community up here, because it's important that the community know each other as change comes about.

Lawson mentioned that we did push, at the Arctic Research Commission for NPSD '66, the Arctic policy of the United States, and it is the policy in that -- and also confirmed by Congress through the Coast Guard Authorization Act, that we develop a marine transportation system that is just three words: safe, secure and reliable.

If you think about that policy of the United States, and how to implement that policy and that mission, your work of making sure that we map the coastline of the Arctic, that we map the navigation routes is very, very important.

In the age of an accessible Arctic, the question our nation has to ask is are we ready, and the Hydrographic Services that NOAA's programs provide are very, very important to getting us ready. Before we talk about coastal data, let me just go to a quick geography lesson.

Alaskans love to put this map up. In fact, I can probably even get you a PIN with this map in it, and if I can't, two of the legislator who are here, who will be speaking later on today, Reggie Joule and Bob Herron are good at handing them out as well.

We have 44,000 miles of coastline. By some estimates, that's five times that of the continental United States. We have borders that are in transition. We have a maritime border with Russia which the Russian Duma has yet to ratify. We had a disputed border with Canada in the Beaufort, where hydrographic information and other information is very important, getting to upgrades on that.

We have disputed internal borders between the United States and the state of Alaska, certainly related to rivers and navigable waters, and there's quite a bit of work being done at our state level on navigable waters, wet waters are navigable and so forth. All of this depends on important hydrographic information.

We also, you'll hear many times today that the Arctic is changing dramatically. Turnagain Arm, just south of here, has the highest tidal range in the U.S. and the fourth highest in the world, in Cook Inlet.

Just last month, we had 2,666 seismic events. Last week, 428, and if that doesn't change geography and topography, I don't know what does. Some of it triggers volcanoes, tsunami and other underwater changes.

Coastal erosion has been estimated to double in the 50 year period for a segment of the North Slope coastline, according to a USGS 2007 report, and we're seeing lots of new sedimentation with thaw in rivers and rivers bringing new sources of sedimentation to the sea. This is important for navigation certainly; it's also important for habitat studies, to understand what's happening there.

Thousands of vessels ply Alaska's waters each year. Large cargo vessels transiting the Great Circle Route; fishing vessels in the Bering Sea; commercial, chartered, tug boats, barges, cruise ships, and sport and commercial fishing has the equivalent impact of nearly 90,000 full-time jobs, and it's the largest fishing industry in the country.

In both the IPY reports, the USGS reports, other observations, have shown a decrease in sea ice with changes, constantly changing variables for our weather models. So as you look at the Arctic and think about the opportunities here, just think about this area as key to America's fishing industry, key to our global shipping industry, key to America's oil and gas industry, and yeah we are now third place, behind North Dakota and Texas, but watch out.

I'm going to win back that. I've got a semi-counterpart in North Dakota salmon dinner after he overtook us last week, and I want to win back a nice big steak dinner some time soon. We are a tremendous aviation state, where polar aviation is important to the world. Close to 49,000 Alaskans work in aviation.

We're a major mining state, a major tourism state, and all of these industries depend on hydrography, on weather and science. Now I don't have a very good numerator and denominator to give you today, except that I will tell you that Michele Ridgway, who chairs the Alaska chapter of the Explorers Club, often reminds me.

She says "Mead, when I hear that your responsibility is to work on Arctic issues for the governor and also to work on Arctic research, I look at that as saying that your job is to advance multibeam mapping in the Arctic."

So here I am, doing my job, to advance that. She wanted me to remind you that before the Trans-X consider this summer, there's been no major multibeam mapping in the Arctic, and we only got seven percent of that ocean. Single-beam, I see Larry saying maybe "no" is not the right way to put it. But we're going to advance it anyway.

Let me just talk about Arctic shipping potential for a moment, because this is very much on our minds. I was in Los Angeles the week before last, and one of the things that happened in a meeting of investment people from around the world was I had dinner with the two people who lead the Russian Investment Fund, the Russian Private Equity Investment Fund.

This followed a visit that we made to Russia in September of last year, where Vladimir Putin convened a meeting of the Russian Geographic Society. He laid down a challenge last summer about Arctic shipping, that I think America needs to pay attention to.

He announced that he's going to build nine new ice breakers. He announced that the northern sea route would, for the globe, take on the significance of the Suez Canal.

Now when you think about it, the Suez Canal carried 18,000 vessels last year, and the numbers of transects of users of the northern sea route from one end to the other is probably about 18, 18 to 25.

But it's still a very significant ambition, and one that I believe America should pay attention to, because there's nothing that goes in or out of that sea route that doesn't come through the Bering Strait, which many people around here refer to as the Bering Gate.

Ice cover is at historic minimums, but the fact is that technology and global demand are as much advancing Arctic shipping as receding sea ice is. I was in Louisiana with Captain Terminel in March at the launch of the Aiviq, which is one of the first commercial ice breakers, American commercial ice breakers working in the north, and we are moving forward this summer on major offshore exploration.

International shipping of oil and gas cargoes through the Bering Strait is growing rapidly, because geostrategically, what this ocean means, think about this, is it means that all of a sudden, with this route open, natural resources in this part of Russia, that might otherwise be only headed to European markets, can now to go to Asian markets.

Norway, with liquefied natural gas at Hammerfest, has announced with the Russians that they want to serve the much higher value Asian market with LNG through the Bering Strait, and will do some testing this summer. So significantly, the advance of this ocean gives the largest energy producers in Europe an Asian option.

Likewise, it gives North Americans an Asian option. There is a feasibility study being done by the Koreans, to bring natural gas from the mouth of the MacKenzie, which has never been able to support an economic pipeline, yet down to North American markets, where Korea Gas is paying for a feasibility study to go right past us, again through the Bering Strait.

Here, we've got the possibility of 27 billion barrels of oils, 135 trillion cubic feet of natural gas in this offshore area, and it's quite significant that energy will be a major driver for shipping. It's not just us. Six of the eight Arctic nations are drilling for oil offshore in the Arctic. So that's something to be aware of.

Here in Alaska, we have a million barrel a day challenge, where the governor has said we'd like to take the Trans-Alaska pipeline, which flows from Prudhoe Bay south the Port of Valdez, which is now down to less than one-third of its operating capacity. At its height, it carried 2.2 million barrels. Today, it carries less than 600,000.

We're trying to see development onshore and offshore in the North Slope, to help restore that pipeline, so it doesn't become the world's longest chapstick. We believe Alaska has the potential to keep America strong for decades.

So from ports and mapping to shipping, public and private investment in the Arctic is taking off, and NOAA's work, NOAA's hydrographic work is very, very important to this for the nation.

Let me talk about a couple of risks and challenges that we see as very important with the state of Alaska. It's not hard to connect the dots between vast energy resources and accessible waterways.

A tremendous amount of energy is about to be shipping all over the Arctic, and it's going in both directions. Let me just say this: the shippers, some of the shippers who were here just earlier this month, will tell you that yeah, we're taking -- I think there were nine cargoes of gas condensate taken off Northern Russia through the Bering Strait last year.

Some of those tankers were filled in the opposite direction with aviation fuel headed to European markets. All of these shippers will tell you they're looking for backhauls as well. So it has led us to look at four different things that we feel are very, very important in Alaska related to shipping.

Number one, first and foremost is marine safety. There was a headline in Friday's *Vancouver Sun* that said "Exxon Valdez-like Oil Disaster in Arctic Feared. Expert says sending fuel to China via fragile choke point in Alaska waters almost guarantees a major disaster."

Now that's the kind of, you know, headline that talks about danger and is supposed to help get us to act. I will say this: The policy of the state of Alaska is that we feel the dangers posed by unregulated itinerant vessels are real and current, and we are very concerned that we don't have the regulatory capability for ships either transiting the Aleutians right now or transiting the Bering Strait, to even know who's coming, to even know what they're bringing, to even see if there's a contingency plan that they've got filed appropriately.

And our capability to get that legal regulatory issue depends largely on passage of Law of the Sea. It's a very major issue, and you'll find a number of ways I'll list in a moment that we're working on this.

So number one is the marine safety risks. I should say that besides the marine safety issue that's very important to Alaskans, we're also concerned about what does, when the world is bringing energy past your front door and people who live at your front door in the Arctic are paying more for energy than any place else in the world, what can we do to get energy in Western Alaska to more approximate global market prices, and not the very high cost that Alaskans pay?

We also look at what this means for the viability of our resources on world markets, and when we ship a third of the ore from Red Dog here to European markets, but we do it around that way, we know that there's greater value to our shareholders, to the shareholders who live in the region with Arctic shipping.

We see other prospects that could also get on the water there, such as Northwest Alaska coal. We also, as was mentioned by Dr. Sullivan, we had the *Renda* that came in this year, and the question is how can we cooperate with energy in this region with other areas?

Then finally a question that people are asking, especially in the Aleutians, but being asked by our legislature through the Northern Waters Task Force and others is how do we take advantage of this economically, so that we capture some of the jobs? Kamchatka has said that they want to be a transshipment port. Hokkaido has said that they want to be a transshipment port.

The question is will there be a transshipment port for the Arctic, where is it going to be, and where's the appropriate place for it to be, the most competitive place to be, and there are many of us who believe that the Aleutians will ultimately be that. So that's the way we're looking at Arctic shipping at this point.

Observation gaps. NOAA Chief Jane Lubchenco publicly said last summer there's insufficient Arctic climate data collection and observation to do the modeling and forecasting it's expected to provide, and we appreciate her honesty.

A USGS report released at the same time acknowledged Arctic science gaps, and said the most challenging factor in Arctic forecasting are changing Arctic climate conditions. Brenda Pierce, manager of Energy Resources Program for USGS said, "We may know something now, but how will climate change that? Or will it be storminess, or oceanographic patterns, or waves?"

Alaska's Director of Emergency Management, John Madden, put this in a local perspective. "The biggest change in our preparedness is for fall sea storms. The changes in nature, timing and extent of sea ice means that 30 year averages may be useless."

Now if you think about that, that really does speak to an observation gap. I spoke to a group of Federal Emergency Management folks this spring, and told them what I'm telling you. Kathy mentioned the big storm that we had last fall. We call it a "burricane." In fact, we don't give names to these storms, like a lot of --

But if you had them in the Gulf, you would definitely do that. The changes in the nature, timing and extent of sea ice means that our 30 year averages for snowfall, ice flows and fall sea storms are useless. Changes in the environment yield a change in the consequence of natural disasters, and changing activities in the Arctic add increased uncertainty about the capabilities we need to develop.

So the ongoing question is how do we prepare for the worse, and conversely, how do we swiftly mobilize? How do we allocate resources when the environment is so irregular?

I think a very important part of that answer you'll hear from Molly McCammon with the Alaska Ocean Observing System, the work of CEON and how that nests into the various Arctic regional and global observation systems is very important to us.

I'm doing my best I can as co-chair of the State Committee on Research, to bring state agencies to the table to be a contributor, as well as a taker from those observing networks.

I can just tell you it's not just for public safety, it's not just for shipping. As Dr. Sullivan also mentioned, we have tremendous wave and tidal potential here for power in Alaska, and those hydrographic services are very useful as well.

So if you don't get enough information about that, Mr. Chairman, just let us know. We'll be sure to get it to you. So those are the two challenges, and let me just give you -- let me finish up by saying here are a number of things the state of Alaska is doing to get ready for this accessible Arctic.

We're very actively involved in the Arctic Council. We participated in the negotiation of the search and rescue agreement. But I also say this as a possible recommendation for you. That search and rescue agreement is a start, not a finish.

It's a start where the nations of the north come together to figure out what are our capabilities, how well do they play together, but what are the deficiencies in our capabilities and how do we fill those deficiencies?

NOAA will be at the table, both the hydrographic -- it will point up our hydrographic deficiencies. It will point up our modeling deficiencies, and a search and rescue exercise, major search and rescue exercise is the commitment the Arctic Council made when Secretary Clinton signed that in May of last year. It's very, very important that we work that agreement, to get the best out of it.

We've said the same thing about the Oil Spill Task Force that is negotiating a new mutual aid pact for the Arctic, a new binding mutual aid pact for the Arctic. We think that's important that we use the exercises contemplated under that agreement, again to point out our deficiencies and to fill them.

Mr. Chairman, as you look at your own recommendations, playing hard with those new exercises to get what we need in the Arctic, I think, is very important. We are supporting Coast Guard studies on vessel traffic in the Bering Strait, and you will hear, in your agenda, about the Bering Strait port access routing study.

I was very glad to hear the State Department has now broached the issue with the Russians on how we might begin to organize this area of the Bering Strait. I would leave it to you this way, because if you're looking for resources to help cover hydrographic needs, take a look at some other actively growing areas of commerce, and how nations have worked together to do that.

One example I'd like to think of is the St. Lawrence Seaway. Master of a vessel going through the seaway will cross the U.S.-Canadian border 23 different times, yet there's one number to call and our various states, the United States and Canada cooperate on that together, and figure out what we need to have on the Great Lakes together.

The Bering Strait, having this importance not just to the Russian-administered northern sea route, Canadian-administered Northwest Passage, our own interest, the interests of nations across the pond is such that understanding the international capabilities to help us get what we need is important.

I should say that we are also very actively participating in the Aleutian risk assessment study, where some of the money from Selendang Ayu is helping us understand how to keep more ships off the rocks there in the Aleutians, and that's important.

We're working with the Coast Guard to establish forward basing in Alaska, to respond more quickly to maritime accidents and spills. You'll hear later about the work of our legislators' Northern Waters Task Force. We're conducting a port study with the U.S. Army Corps of Engineers to understand where we might have a deep water port in western Alaska. We are developing an AIS network with a marine exchange of Alaska, and you'll hear from Captain Ed Page tomorrow.

We're very actively involved in the statewide digital mapping initiative, and this is a place where the state is bringing real money to the table. There will be a meeting, a pan-agency meeting in Washington late in June, where we're trying again to get federal agencies to team up with us, to better map Alaska onshore, but it very much relates to the coastal and offshore charting that you're supporting here.

We support the IMO mandatory code for ships operating in polar waters. We support ratification of the United Nations' Conference on Law of the Sea, and I will tell you that there are many conservatives. I am a conservative. There are many conservatives that don't support Law of the Sea. But I will tell you this: For an Alaskan, we rely on the 200 mile limit for our huge fishing industry. We rely on knowing who owns what to be able to have a stable oil industry, and we're going to rely on Article 234 for the appropriate regulation to prevent oil spills.

That's why you'll see us saying let's work out the other problems that people have with that treaty around the country. But it's very, very important for the future of Alaska, and Alaska's contribution to the nation that we move forward with Law of the Sea.

You'll see us doing lots of work with new platforms and unmanned aerial vehicles. We have a NASA agreement. We're excited about the FAA's requirement now that they have an operating area in the Arctic for unmanned vehicles, and we see that as an important new platform.

I'd be remiss to say that we are, if I neglected the fact that we have a Marine Pilots Board that has been looking at Arctic shipping very intently. We've got an Aleutian ports study that's been proposed, and finally, Dr. Sullivan mentioned Margaret Springs' chairmanship of the CMTS.

I will tell you, and this is something, Mr. Chairman, your committee should look at, the draft report that CMTS is bringing together on Arctic shipping. Make sure that your recommendations on hydrographic mapping, hydrographic needs are included in that. Dr. Brigham and I helped Congress draft that legislation at the beginning. That assignment was given to CMTS.

There's some update on that legislation working its way through Congress right now, and I guess I'll put it this way. If America doesn't think hard about this Arctic shipping potential, we're lost. Somebody else is going to go up there and rearrange the furniture. If it's not us, we may not be happy with the arrangements we get.

We have every legal opportunity to be there, but we've got to stand forward and take our responsibility. So with that, I just would like to say that on behalf of the state of Alaska, on behalf of many of the great people here in this room who work these issues every day, we're very, very happy that you came here. I'm happy to answer any questions, and thank you so much for coming. Godspeed in your work.

(Applause.)

MEMBER BRIGHAM: You want to take some questions?

DR. SULLIVAN: Sure.

MEMBER BRIGHAM: Do we have time for questions, Mr. Chairman?

CHAIR WELLSLAGER: Yes, as a matter of fact we do.

MEMBER DIONNE: I want to ask about that initial map, which was similar to the one you have up now. It's an amazing view. I've never looked at the North Pole from above, and whatever you want to call it. What do you call this?

LT GOV TREADWELL: It's a polar projection.

MEMBER DIONNE: Okay. What portion --

LT GOV TREADWELL: It's the only map I have in my office, by the way.

(Laughter.)

MEMBER DIONNE: What portion of the air surface are we looking at here, the un -- the submerged part?

LT GOV TREADWELL: Yeah. I was going to say about one-eighth, 11 or 12 percent. If you quizzed, and I'm not talking about Jay Leno's quiz of the person on the street, but if you quizzed most Americans of which oceans bordered the United States, the Arctic would be dropped off almost every time. Yet we are bordered by the Arctic Ocean.

MEMBER DIONNE: That other map with the Alaska obliterating the Mississippi Basin, you could do yourselves a favor by coloring in the parts of the U.S. border that aren't bordered by ocean, because Maine did pretty well on that map actually, and we got a few extra --

LT GOV TREADWELL: Yeah, and by the way, as an Alaska who's worked a long time to support marine science, we admire much of the work that's gone on in Maine, in commerce management. We've had a number of experts from Maine up here working with us, and thank you for being here.

MEMBER JEFFRESS: Gary Jeffress. I must say I'm very impressed with your knowledge and the background that you have of this issue. I only wish Texas had leadership as smart as you.

But my question is regarding the Bering Strait there. It's going to be a choke point, it looks like, for the traffic, and I can't get sort of the scale of why that is. Is that going to require some kind of transportation traffic system to monitor the flow of traffic through that gap?

LT GOV TREADWELL: You know, I would urge you to take notice of the Coast Guard's port access routing study. But also you will hear from Alaska natives while you're visiting here and so forth.

Just remember that most of the food on people's plates in these coastal communities comes out of this ocean, okay. Now whether it's people that rely on whaling, on walrus, on seals.

I remember being the Kaktovik one time, and people who were driving heavy equipment for a living had stopped, because some Belugas had gone by, and so they had gone out to catch dinner.

The point is is that we are very reliant on the resources of the Bering Sea for subsistence, as well as economics. What that means is that when ship traffic goes through, you want to make sure that it's not in conflict. Now if you're Shell and you're operating up here, you're under a huge amount of regulation there.

But if you and I go by a Liberian tanker, we can sail at will where we want to sail, and there's no vessel traffic system. So at the very least, it would allow us to at least know who's coming, know what the threats are, let them know, listen, we'd really rather than you sail west, on the west side instead of on the east side.

It's not necessarily going to be static shipping lanes because ice changes, migration patterns change and so forth. That's why it's important for us to have the data, but it's also important for us to link up with the Russians, even if it's a small number of ships.

I mean we've seen big fights just on the track of the icebreaker *Healy* during whaling season. So it's important that we have that choke point and we avoid conflict later.

MEMBER BARBOR: Ken Barbor. You know, I appreciate your perspective on this global and national energy and transportation issues that we need to get under our wing. However, you had but one very brief tourism, in particular in ecotourism, which I would think is a stressor for hydrographic services.

LT GOV TREADWELL: Yes, it has been, and I saw a Canadian presentation where the Canadian Coast Guard will show you several specific places that's been a stressor in the Northwest Passage, for absence of hydrographic data actually.

I was involved in kind of the creation of ecotourism in this region with the Russians years ago. In the early 90's, I was part owner of a company that bought close to 5,000 people to Wrangel Island on the coast of Chukotka, and a lot of it was using Russian vessels and Russian charts and a Russian coast pilot type cases.

This is an area that potentially will grow. These are ships that want to go off the normal track, and I think it's important for many different reasons, many of the reasons that Dr. Sullivan mentioned, that we have the good baseline data.

So I guess I wouldn't assume, I mean for example, and Mr. Chairman, at some point in this, as you look at the Arctic, I hope you get the Arctic submarine lab and the Navy folks to tell you what their requirements have been, because we had a very interesting situation in the Arctic Research Commission, when we declassified data that had been taken by most of our submarines during the Cold War.

There's close to a 1,000 mile stretch right here, where we didn't want to -- where the Navy did not want to declassify the data, because basically they were following a single track. I was out on the ice last spring, where the captain of the USS Connecticut told me that coming through the Bering Strait, he encountered 90 foot deep ice keels, where the play, the state of play between the bottom of the ice keel and the bottom of the ocean gave him, for a very long submarine, just about 50 feet of play and very little wiggle room to meet his transit.

And the point of it here is that there's, you know, whether it's for military purposes, where you may need to go off the beaten track, so to speak, or tourism, it's very important to have full hydrographic data in this area.

CHAIR WELLSLAGER: We have time for one more question. Anybody else?

LT GOV TREADWELL: Dr. Terminel?

CHAIR WELLSLAGER: Oh, I'm sorry.

CAPT TERMINEL: In your experience in the Arctic and the missions that you sat in. Two weeks ago, Commandant Papp suggested that he needed six ice breakers, and the US Coast Guard has a study that calls for $1.2 billion per icebreaker. In your experience, and the need for the surveys that are going on, where do you think this is going to come from?

LT GOV TREADWELL: Well, I guess I'll put it this way. Thank you. Captain Mike Terminel, I hope you get to meet while you're here. Mike is with Edison Chouest and I was with him on the launch of the Aiviq.

First off, there's -- I'll tell you, that Alaska is very happy that the budget this year has one icebreaker, one new icebreaker in it. There's a suggestion, and I testified before a Congressional hearing in December, where we said let's look at leasing icebreakers, because we may be able to get them for the two to three hundred million dollar range, rather than the eight to nine hundred million dollar range the Coast Guard is contemplating.

I guess I would put it this way, and Lawson and I, there's one other steak dinner bet that I've got, that Lawson and I will probably have to settle around 2020, which is how much trans-Arctic shipping is actually happening.

His Arctic marine shipping assessment has predicted that most of the shipping will be destinational shipping in and out of the Arctic, some tourism and science, not much trans-Arctic. I see, talk to people who see this trans-Arctic opportunity a lot.

I'd put it, I'd like to answer Captain Terminel's question this way. A billion dollar ice breaker is barely worth a mile of dirt in the Panama Canal, and if this ocean really is going to play the role in global commerce that some people contemplate, we've got to look at the investments.

Furthermore, if you're going to have unregulated shipping come through and not be preparing for oil spills, we have a problem. That's why Article 234 and some other things may encourage people to join up with OSROs, that could pay for some of this ice-breaking capability.

The U.S. does not charge for ice-breaking at this point. Canada and Russia do. I'm not urging the U.S. to start charging, but I think it is important that the shipping risks cover the costs of preparing for oil spills. But those are some of the questions that we were grappling with in a White House meeting just before the President's budget came out this year.

MEMBER DIONNE: You were mentioning return on investment. Wouldn't 1.2 billion somebody said, wouldn't that create a few jobs in this country?

LT GOV TREADWELL: Yeah, yeah, you know, and I guess one of the interesting questions is how much will this advance American commerce versus Asian commerce. I'll tell you, a group of lieutenant governors met with the Chinese premier in October, and we were all looking the scoreboard of our various states on trade issues with China.

I said well, I've got an asterisk next to our number, an asterisk next to our number on the scoreboard, because while we do, while China is now our largest trading partner in Alaska, the fact is it's a much larger contributor to our economy, where we're joined at the hip in Asia's global air transportation through Anchorage, the fifth largest air cargo port in the world, with air cargo that's headed to Europe.

I heard what Dr. Sullivan was saying about the importance of shipping, bringing 95 percent of global trade. Ultimately, if this route, one of these three routes can lop 40 percent off the distance from East Asia to European markets, somebody's going to figure out how to use it.

And whether, while it may be East Asia and the European trade, I believe the United States citizens here and places like Adak, Dutch Harbor, other places, could get jobs helping to service that trade in western Alaska.

CHAIR WELLSLAGER: Okay. Well thank you very much. But before you leave, we have a special presentation we'd like to make with you.

DR. SULLIVAN: So Mead shared a bit of a story of one our earlier meetings, and another piece of that story is he was looking at that time for some maps, some insight about Kamchatka, and he was going to meet with senior officials from Kamchatka shortly afterwards, and he said he couldn't find any good, you know, aerial or space-based imagery that sort of gave a regional perspective.

I of course said I know exactly where you can find some. I took a couple, the STS-9 crew took a couple. You know, here's who you call.

There was a significant international furor over the ones that were taken in 1983 by STS-9, so much so that we were sternly cautioned to not point, don't put any fingers on shutter buttons when you're anywhere near these areas.

So it was quite a flap, but they're fabulous images. It's, you know, an American official, so I told an American taxpayer where to find this great image, and he duly did. Not long afterwards, having a meeting with the governor of Kamchatka, trying to open up tourism and asked about maps and maps are quite classified in that society.

Mead said well that's okay. I have a great picture to give you. He brings out this gigantic picture, which was undoubtedly classified above Top Secret in that country. So I thought it would be fun to sort of parallel that and update the story some 20 years later, with not a photo, but what you actually asked me for the first time, which is a map.

For those of you who may not know, there's a very great back story here. This has to do with Kotzebue, one of the significant towns on the west coast of Alaska, that's a major access point and supply point for a lot of smaller coastal communities and inland dwellers.

Formerly, the area around Kotzebue was charted no better than 1 to 700,000. It's a very dynamic shoreline with seismicity and storms, as we both talked about. Stakeholders were bringing forth requirements, critical requirements to update that, to improve access to the region.

A three-year effort led by NOAA, with a Hydrographic Services charter, but absolutely critically involving contractors and stakeholders from around the region as well. From within NOAA, our CO-OPS program provided tide gauge data. The National Geodetic Survey provided shoreline mapping.

I would add some of that was through partnerships with the U.S. Geological Survey, that make it possible for federal agencies to have access to what are called National Technical Means, which is the shorthand for the satellites that I won't talk to you about. And then Office of Coast Survey, with the hydrographic surveying.

So Mead, I'm delighted to present to you the new 1 to 50,000 scale Kotzebue chart area. Here you go, and I suppose in a small comic sidebar about the joys of dealing with the federal government, one would think that we would present this to the lieutenant governor of the great state of Alaska framed or mounted.

But in fact, it is not legal for NOAA as a federal agency to do this. Our charter is to produce useable charts, in paper or electronic formats as navigators may need them. It is not to make tchotchkes and present those.

So with my apologies, Mr. Governor, we leave it to you to determine how you wish to display it in your office.

LT GOV TREADWELL: I appreciate that. Thank you very much.

(Applause.)

LT GOV TREADWELL: Well, I'll make sure that the people doing the western Alaska port study have this chart. Thank you, and by the way, when I did hand that picture to the Governor of Kamchatka, his jaw dropped.

He reminded me that he had been a fighter pilot in Vietnam, and not exactly on the side that we were on. But it did help us open up trade and commerce there. Thank you very, very much.

(Applause.)

DR. SULLIVAN: And I understand that our presenter, Reggie Joule, has joined us as well. I know he'll be speaking to us shortly today. But Reggie, we'd also be honored to give you a copy of the same chart, with the same caveat that you have to decide how you want to frame it.

(Laughter.)

REP. JOULE: That looks familiar.

DR. SULLIVAN: Well, look a little closer to the right now.

REP. JOULE: I can see almost where my house is.

DR. SULLIVAN: Oh, there you are.

REP. JOULE: I'll tell you how things are going and how much -- I was just on a teleconference with the Northwest Arctic Borough Assembly out of Kotzebue, and as I was listening to NOAA and others present here, I was also listening to NOAA and others present up in Kotzebue this morning as well.

But this will be given to the people at home. Kotzebue is my home community. So thank you very much.

(Applause.)

CHAIR WELLSLAGER: Okay, very good. We have scheduled a 30 minute break. So --

CAPT LOWELL: Just one logistical announcement.

CHAIR WELLSLAGER: And before we have that break, we have one logistical announcement. But during that please, the old existing panel members meet with some of the new panel members, or the guests that we might have, and we will get started back at about 10:30. But one minute.

CAPT LOWELL: Yeah, just one last logistical announcement, and this one is actually for the members of the public who are here.

First off, welcome. We always like to see public at all federal advisory committees. We do have a visitor sign-in log, and I would request everybody please sign your name. It's required by law that we do take note of who comes, and I would like to note that there's a public comment period at the end of every day.

So should anybody wish to stand up and make a statement to the panel members, by all means. I believe it's scheduled for 5:00 today, 5:30 maybe.

MALE PARTICIPANT: It's 5:30.

CAPT LOWELL: But regardless, at the end of every day, the public will have a chance to stand up, and the mics will be open at that point.

MS. WATSON: 5:30 it's scheduled, public comment.

CAPT LOWELL: It's scheduled for 5:30 today. All right. Thank you very much.

(Whereupon, the above-entitled matter went off the record at 9:55 a.m. and resumed at 10:35 a.m.)

CHAIR WELLSLAGER: Welcome back. I see a few empty seats, but I think they're going to slowly start filling in. Next on the agenda, the delivering NOAA's navigation products and services for the Alaska Arctic region. Captain Lowell will start this for us.

CAPT LOWELL: Okay. We're back online. As before, good morning everybody.

VOICES: Good morning.

CAPT LOWELL: My name is John Lowell. I'm the outgoing -- well, I guess the DFO for the next three days. I'm also the Director of the Office of Coast Survey, as you've been told before.

What I'm going to do is take a couple of minutes here to kind of run through what it is that we've done over the last couple of years, and what it takes to get a nautical product, and this one is a specific nautical product, the chart, which is designed for the end user, which is typically a Solis-type vessel, operating in an area.

But in the case of Kotzebue, it's actually quite a few smaller vessels that will be operating in and out of there, sporting basically Kotzebue and the interior areas that Kotzebue supports. Now although it says "Office of Coast Surveys," it's not Office of Coast Survey. I meant to actually correct this slide.

This is a combined nav service effort, and it involved both federal assets and contractors, and it's to give you kind of a little bit more in depth, over and above what Dr. Sullivan was talking about on her last little presentation.

So let me start it off with the National Ocean Policy. There is a draft implementation plan out there. The panel has been briefed on this before. I'm not going to go into a lot of details, but there are nine big objectives there, two of which are involved in this particular project that I'm about to talk about. One of them is the mapping observations and infrastructure part, and the other is Arctic as a geographical area of interest. So there's two areas called out in the National Ocean Policy that have helped refine what it is we're doing.

So I'm talking about Kotzebue. Now Kotzebue is a small -- well, I guess it's a pretty good-sized village for that part of Alaska up on the coast. It gets iced in during the winter. It's ice-free during the summer. There is a major airport there, and it supports quite a bit of the interior from that area.

They typically take a number of barges that go up there, fuel barges, cargo barges and such. The port is not necessarily a port as you will see this afternoon. In fact, I believe it's -- in fact, I know it's a very, very small port.

What they do is they lighter off all of the larger barges onto very small barges specifically built for the area. They draw, I understand, about four feet, and then the tug companies bring them in and out where they pick up their fuel and their cargo.

So what we did is a number of years ago is we recognized the Arctic as an area of interest. We sent our navigation manager up there to try to get some idea of what is it people need, where are we lacking in information, which of course the answer was everywhere, and where is it that we need to operate. How do we need to prioritize our forward progress through that area?

Kotzebue stood out for a number of reasons. This thing is right in the way for me to look at this. But anyway, Kotzebue was identified as part of the plan. It was also a slight step north. The Office of Coast Survey and the Office of Marine and Aviation Operations have not operated up in the high Arctic in quite a few years.

So you could say we were kind of getting our feet wet when we were operating in the Bering Strait area in 2010, and then in 2011, we went north a little bit further in the Kotzebue. So this is kind of a normal progression of events.

So I should also mention, and I know the old panel members have been briefed on it, but for the new panel members who haven't seen it, that there is an Arctic nautical charting plan the Coast Survey put out, I believe last year or early this year, February 10, 2012.

It identifies actually a series of charts to support the maritime infrastructure that we foresee coming. Although it's not in draft anymore, it actually went into a final.

Of course, these documents are always in draft and so any input that anybody in any of these regions has, we are open to listen to it, and it will be modified accordingly. There's a little URL where it's located.

So where are we at? 16005, that's just a chart number. No quiz on that. But it is actually the best available coverage for Kotzebue prior to the release of this new chart I'm going to be talking about. This is on a 1 to 700,000 scale.

Kotzebue is right in here. So it's not as far north as Barrow up here. Here's the Bering Straits down in here. So we're just kind of moving our way north. Here's Red Dog, I guess, in reference, because I think we'll be talking about that in passing also.

But you can see there's a lot of shipping traffic that kind of goes up through the Strait. The barge traffic kind of hugs the shore coming over here, to support the Anchor Out, and then the lighter off into Kotzebue. That's pretty much how it's working.

So the customer request comes in. Industry and government in Kotzebue request a larger scale chart, and we put it on the schedule for acquisition, excuse me, to try to get the chart out by the 2012 season. To do that, you have to plan ahead. So although this is not exactly in a timeline here, we did visit Kotzebue in July 2011.

This is during the acquisition. We had already had -- the shoreline was in progress at the time. The tide gauges were already installed and operating, and the vessel, the ship, the NOAA ship Fairweather was up there collecting data. We just went up to see how things were going, and talk to the stakeholders in the area, to see how and any final changes they might want on that.

So here you go. This is kind of a blowup of the 1 to 700,000 scale. So here's Kotzebue. This is the shoreline. I don't actually -- I don't know how old it is off the top of my head, but you can pretty much be assured that all that data is way, way outdated.

You'll see it shows a big shoal here offshore, and there is a shoal there, but you'll see what the new data that there is, our passageways through it. Of course, to try to land a ship with this, on this scale chart is pretty silly.

This is a picture of a current meter going in there. So tides were collected summer of 2011. CO-OPS, of course, oversees all this. This is a combination of -- actually, is Rich here? Is the Red Dog a NWLON station? I actually don't know.

Okay. That's a NWLON. I understand one of these was a VDATUM tide gauge, and this one I believe the Fairweather put in, or maybe both of them were VDATUM tide gauges.

So what we did is we -- VDATUM is another project that's ongoing. We were trying to collect some background water level data to support VDATUM offshore.

So we piggybacked on those gauge installations. We added some more in here to support the hydro for when it was acquired. So we had some contractors putting in the gauges, and we had, like I said, the ship put in on one gauge as far as I know.

So here's another blowup of it. You'll notice that everything's getting really big. This is what they call an overzoom here. So the shoreline was collected by NGS over the time frame of October 2011 to February 2012. I believe I've been informed that that was collected using what's referred to as NTM. Juliana can shake her head on that.

That's National Technical Means, which means the satellites come in or the imagery comes in in a classified form. They do have a classified SCIF in the building. The products are derived, and they take it to a scale that's non-classified. That data is then provided to Coast Survey in a non-classified form, to be added to the product and get it out to the end customer.

So I guess we should thank Department of Defense for quite a bit of the help moving this project along on the shoreline side. So now we've got the tides, the water level end. We've collected the new shoreline, and I might add a couple of notes.

You'll see there's huge differences here, and a lot of this is a scale problem. But some of it is just old. I mean the shoreline does move around quite a bit here.

So if you were to go look in the charting plan, it actually has the chart layouts, the projections, what did we plan to produce. So while all of the tides were being collected and the shoreline was being worked on, we actually laid out the new chart.

Now this is a 1 to 50,000, as Dr. Sullivan mentioned. It's a much, what they refer to as larger scale. It's a much easier to use from a navigation perspective, and once they have the framework and the grids and all the external stuff laid out there, is they applied the shoreline and started to get ready for the hydrography when it comes in. The hydrography, like I said, was collected in 2011.

Now all of this was kind of blue on the 1 to 70,000 with those big shoals offshore. What you've seen here is actually the coverage. These white lines here, this is actually where they collected hydro data. So that wouldn't have been on the chart had we not collected the data.

This is moving forward. So there you go. The hydrography's collected in summer of 2011. So the soundings are now applied, and you can clearly see that there's a navigable channel. It goes up through here. There's still, I think, I don't know. Can anybody read those numbers in there?

I think there's definitely a controlling depth issue here, but it's about six feet. So the four foot draft tugs have to shoot in and out. But they're very cautious, and this is also quite a few miles offshore.

So this is like a three mile run. I'm guessing the three nautical mile line is out here somewhere, and the barge is typically anchored out in this area for the laddering operations.

Maritime boundaries. I don't know how much we've talked about maritime boundaries within the FACA, but one of the uses of a nautical chart is it establishes the maritime boundaries. It goes through a process where they establish the inner limits. They do these closing lines. They'll establish where they are.

Those are all internationally agreed upon rules and regulations that put those into place, and then you put in the -- oh, that's a territorial sea. So there you go. That's the three nautical mile line. So this is actually quite long. This is quite a ways out.

So the maritime boundaries were reviewed. They were shifted slightly, based on the new shoreline, and all the new offshore boundaries were laid in there accordingly. We also created a 1 to 25,000 harbor coverage. So that's a blowup of this area right here. It was dropped up there, I believe the next chart shows you.

So now the barge is coming in. I believe this is where they tie up, right up in this area here. It's slightly out of the weather. I mean it's not really -- it's a bit of an open roadstead type harbor. But you do get some protection compared to other areas.

Now I'm actually going to shoot back here a couple of slides. Well actually this will do it. One of the things we did do when we were up there in 2011, when myself and the head of the charting division visited, is we were actually working further north with a ship.

But based on input from the community there, is they really wanted additional information down south. This is Kate Blossom, and Governor Treadwell just mentioned he's worked with the Army Corps on a potential deep water port for the Arctic area.

This is one of the areas of interest. You'll notice deep water goes right up, very close to the shore here. So by simply shifting our area south slightly, we could easily grab that area, supply that information to the people doing the deep water port studies, and we can make a decision, a more informed decision of this area. Should they decide to go there, the chart's pretty much ready to go.

And of course the goal here was, as I mentioned before, most of these areas are iced during the winter. There's not a lot of navigation. So what we wanted to try to do is get it on the street and available to the end user for ice breakup in June, and this is a series of bullets here I'll just touch on.

When we got the products out, print on demand, it was available the first week of May. The raster nautical chart was also the first week of May. The lithographic chart, which is of course based on a printing schedule over at the FAA, will be out at the end of May, beginning of June, and the electronic nautical chart, which delays slightly the raster, as we do all the primary work on the raster right now, will be out in early June.

Coast pilot update. The new edition is printed, is scheduled to be printed in early August and should there be any fundamental changes there, they'll go out in a local notice to be provided to the mariners for use, if there are any there.

So other products supported by this new charting data. I'll mention ENC direct to GIS. This is a program where we take our ENC data.

Once it's in there, we'll break it apart into different formats, to provide the ENC data in other formats to other users, and typically these are GIS users. I believe there's probably some 20 plus formats that we just simply automatically distribute the product in.

Digital coast. This will be loaded up into the NOAA Digital Coast website, and it will update the benthic, the hydrographic and the maritime boundary files that are in there.

I believe ERMA, we'll have a short talk on ERMA coming up quick, and hopefully this new type information will then serve as a better backdrop for any of the users of the environmental responsive management application such as ERMA. But the data will be available to anybody using any type of front end that they wish to use, and that's the end of that.

So it was a quick little walk-through of what it takes. But obviously, it takes more than just a few people to put a chart out there. It takes a couple of years of effort. It takes a lot of planning and a lot of engagement with the end user. So hopefully, we'll be putting that chart to good use this year, and thank you all very much.

(Applause.)

CHAIR WELLSLAGER: Are there any questions for Captain Lowell? Gary?

MEMBER JEFFRESS: Gary Jeffress. John, when you do the international boundaries, does the Department of State get involved, or do they just accept what you do?

CAPT LOWELL: The Department of State typically doesn't get involved unless there's a border dispute. That whole area, of course, we have an agreed-upon border with Russia, so it's really not a problem. What we're talking about is the inland where the closing lines are, where the territorial seas are.

There is some federal-state issues involved, and I was going to try to talk to the Governor, because he kind of referenced in passing during his talk about navigable waters and some disputes there.

I wasn't sure if he was referring to the boundaries, because typically the people that are affected when boundaries shift, specifically if they go inland, is that ship's fishing oversight and regulatory actions, and that's when the states get a little, or the fishermen actually get involved.

CHAIR WELLSLAGER: Just a second. Joyce.

MEMBER MILLER: Yes. John, what's the magnitude of the charting requests for Alaska, in terms of, you know, how many thousands of nautical miles, and how much is priority one on the Coast Survey list?

CAPT LOWELL: I would say all that is kind of laid out in the Arctic charting plan. We've laid out what we feel is a reasonable first look as to where vessels would go around either through the Bering Straits or the Bering Gate, up around Alaska should they be taking the Northwest Passage.

I believe the graphic has about 44,000 square miles, which is pretty much doubling the amount of work we need to do, and that's just a little thin strip all the way around there. I should mention that the Fairweather this year is schedule to make that run. It will run all the way out to the Canadian border and back as kind of a reconnaissance this year.

Then hopefully when the Rainier and the Fairweather and the contractors are all kind of tooled up the following year, then we'll make a bigger push as to focus in on other areas to collect more navigationally significant data.

CHAIR WELLSLAGER: One more question.

VICE CHAIR PERKINS: Captain, you said it took two years to get through that chart update process. So under the, you know, looking forward, and trying to, you know, build on what was spoken earlier this morning of being strategic and being efficient, can you speak or do you have a prediction for what the chart update cycle could be or should be in the future?

Because the economic drivers in a two-year cycle, it appears that we have a tremendous gap that we need to close on the timing and the efficiency of how we can get these charts produced. So what is our strategy and our strategic look forward to shorten that cycle?

CAPT LOWELL: I would make sure we're talking the right language here. Updates is something we do frequently, and we do about 50 charts a week we do updates for. But what we're talking about here is a new product.

VICE CHAIR PERKINS: Yeah, yeah. I misspoke. Clearly, that wasn't an update chart going from 700 K to 50 K. So a correction.

CAPT LOWELL: Yeah, and when you go to a new chart, is you literally have to go back to -- well, certainly in the Arctic region you start from nothing, or virtually nothing.

You pretty much start over, and that means you have to go back to square one and you go try to find imagery for the shorelines, establish where do you need to put new gauges in to establish the water level controls, things of that nature.

VICE CHAIR PERKINS: So to shorten that cycle, do we have a strategy? I mean when this group writes our report to the Director, and when we go back individually, not collectively to Capitol Hill to work these issues, I guess I'm struggling with what is the weakest link in the chain that helps us shorten that cycle to one season instead of two?

CAPT LOWELL: Well, I also included a lot of this as the customer-stakeholder outreach part, and we did that for a couple of years, even before. Because on the assumption that what you -- in one of these budgetary environments, what we want to do is make sure we're doing the right things.

We can't do everything for everybody; what we can do is focus in on that, and part of that focusing, it takes a lot of time to get that done. Then you kind of look at what are the resources you have, and then aim it in the right direction at that point. So I'm not sure -- it's hard to answer that question.

VICE CHAIR PERKINS: I understand.

CHAIR WELLSLAGER: One more question. Bill.

MEMBER HANSON: Yeah. Captain Lowell, since you used this as an example, it begs a couple of additional questions if we're going to talk about this in more generic terms. But what is the process, you referred to the locals requesting this mapping? What was the process for them to request it, and also, how is this paid for?

CAPT LOWELL: Well, it's paid for pretty much out of hide. In other words, there's no new money. We have a budget and we spend the budget on surveying and mapping, and this area was simply prioritized and it went to the top of the heap.

The customer requirements processes, we have individuals scattered around the region. We refer to them as nav managers. Mr. Matt Forney, who's here somewhere -- Matt over there in the corner is our Alaska regional navigation manager.

He is tasked to go out and talk to the regional stakeholders, attend regional meetings, harbor safety committee meetings, conferences, anything and everything. We do also send other people up from the lower 48 up to this region.

But their whole job is to kind of collect these requirements on a national scale, and then go through some sort of a vetting process, to look at where it is we need to focus our effort.

MEMBER HANSON: So if the question was asked if everybody wants to chart next year, the question becomes what is our capability in order to respond to those types of requests, both budget-wise and staff-wise?

CAPT LOWELL: We're pretty much stretched right now, just maintaining the suite we have. Obviously, when you put a new chart out there, it's simply more work, because Scott asked the question about updates. It now becomes something we maintain long term, so that there's a continual tail on that new chart.

So we do look at the new builds very critically, to make sure that they are duplicative in any way, and we're serving a real requirement and need. At that point, they go in the suite of -- we build it and it goes in the suite, and we have to manage it for the next maybe 100 years, 200 years in the case of New York Harbor.

MEMBER HANSON: So it's part of the discussion about what is the need versus what is our capability. How do we meet those needs?

CAPT LOWELL: I'm not sure I quite get the question.

MEMBER HANSON: It's a bigger question about budgets and responding to the navigational needs.

CAPT LOWELL: No. I hear what you're saying, and I acknowledge it. It is a tight environment we're operating in.

CHAIR WELLSLAGER: Okay. We've got two more questions, and then I'm sorry, I know. Two minutes. David and then Lawson and that's it.

MEMBER JAY: David Jay. I noticed then when you had that inset that, of the harbor itself, that there was no depths on those wetland areas. So I mean this obviously is another area where you didn't have enough resources to get done what's an important job.

I mean what are those wetlands that bears on future development, and evaluating managing ecosystems, and evaluating, you know, long term change in ecosystems.

CAPT LOWELL: You are hitting on one of the questions we're always fighting with internally, is Kotzebue chart was designed and built with one target audience involved, and that was the safe navigation to support the economic needs of the community and inland.

All those other areas that you're talking about, and actually the Fairweather, of course, is not the tool to use in the shallows. So what we want to do is tag additional resources, bringing in the right tools and technologies, to meet those other needs.

MEMBER JAY: It seems like LiDAR could have worked.

CAPT LOWELL: LiDAR could have worked. I don't recall. Actually, I was just talking to Admiral Barbor, and he, the new LiDAR system that the U.S. JVLTX program has is actually punching through some pretty turbid water right now.

MEMBER DIONNE: So you're doing subsurface LiDAR as well as --

CAPT LOWELL: Bathymetric LiDAR, yes. Well, we didn't do any on Kotzebue. We have.

MEMBER DIONNE: Earlier this morning, maybe from Dr. Sullivan?

CHAIR WELLSLAGER: Actually, I think that was terrestrial LiDAR that they were looking at, not bathymetric LiDAR.

MEMBER DIONNE: But even so, we have LiDAR at that level for accuracy for terrestrial?

CHAIR WELLSLAGER: Yes.

MEMBER DIONNE: Oh, okay. That's not what I've been hearing from the EPA.

MEMBER BRIGHAM: Yeah, John. Do you have in your report what would be asked at a Congressional hearing, is how much of the United States Maritime Arctic is in fact charted to international current, international navigation standards?

When we were doing the AMSA, we were asked by the diplomats how much of the Arctic Ocean is in fact charted safely, for safe navigation of international traffic? So do you have a good number from, let's say, the Aleutian chain to the Canadian-U.S. border?

CAPT LOWELL: Well, I would say one chart at least.

(Laughter.)

CAPT LOWELL: Obviously --

MEMBER BRIGHAM: I might not be convinced, but --

CAPT LOWELL: I mean I think the further offshore you are, the safer the transits, that people need to apply, you know, a cautionary approach to navigating in the Arctic. As you are very well aware, offshore there is traffic out there. We haven't seen too many problems. There are some reports of potential issues, but recent data out there is the stuff we've collected recently, and that's -- I think you could almost put a couple of pins on there, and that's would be all the coverage we have.

MEMBER BRIGHAM: Well, I mean the issue is if we're going to have traffic routing, ecological sensitive areas, marine spatial planning, it better be charted and the hydrography better be complete coverage to do that stuff.

Because if you don't, I mean the baseline, I mean I'm preaching to the choir here, but the baseline won't be there to do those kinds of things, to manage safely.

CAPT LOWELL: Obviously, it's a regional problem. We only have so many resources, and they're very, very focused on clear requirements right now. But everything like, you know, safety, port of refuge type work that we're doing down around the Aleutian chain right now, that needed to be done for decades. So we're chipping away at it.

CHAIR WELLSLAGER: Larry, did you have something you want to say? No. Okay, Michele.

MEMBER DIONNE: Is this considered sort of a dynamic area, in terms of sedimentology? I mean do you expect a lot of changes?

CAPT LOWELL: You're talking about the Kotzebue area right now?

MEMBER DIONNE: Yeah.

CAPT LOWELL: I think those shoals move around a bit. My understanding is the barge company goes in and puts buoys in. They have some, you know, small vessel that kind of tracks out where that little channel is. It's known to naturally occur there, and they mark it slightly differently every year. So I'm not sure how long that chart will be useful, but at least one year by God.

MEMBER DIONNE: When you have built a few multimillion dollar houses, there is a little more interest in terms of mapping.

CAPT LOWELL: Well, I think we need to talk to the Governor about that.

MEMBER DIONNE: Yeah. You cannot put them on the wetland but you can put them pretty close for most states.

CAPT LOWELL: All right. Thank you very much.

CHAIR WELLSLAGER: Our next speaker is Michele Jacobi.

MS. JACOBI: Thank you all, and I realize that I'm standing between you and lunch, so I will try to make this quick and cover the topics that you want to hear. I just have to reestablish my Internet connection, but I will get there.

Okay. So I'm here to talk to you today about ERMA, which is the Environmental Response Management Application, and I'm from the Office of Response and Restoration.

My colleagues, Amy Martin, Allison Bailey and Hayley Pickus are all actually in Kotzebue right now, working on gathering data for this project. So they send their regrets and they have sent me instead.

As you heard this morning from Dr. Sullivan, ERMA is a data compilation and visualization tool. It's been built in conjunction with the University of New Hampshire, U.S. EPA and NOAA, and the intent of this tool is to help environmental responders have the information they need in order to prepare for and respond to incidents that may impact our trust resources.

So it's kind of a deal in which you want the full picture, and a picture is worth a thousand words. So if you have all the data together, you're likely to make more informed and proper decisions about how to respond to the incident.

So again, ERMA is intended to provide kind of a centralized information port, and increased communication between the different agencies that are responding, as well as the general public.

We've used ERMA in the past to deal again with preparedness, and so we often attend drills with the Coast Guard and with industry. We look at it for oil exploration; we can deal with it for hurricanes that are coming through, because we have that type of information.

My end of the area is actually with assessment and natural resource damages assessment for the resources, after an event like this has occurred, and then some of you might recognize ERMA from the fact that it was the common operational picture during Deepwater Horizon.

So we could take the information from the command post and share it directly out to the public, to be very transparent in what was going on down in the Gulf.

So real quickly, we have a data center which receives information. Either it could be from the satellites, it could be from ships, it could be from weather buoys, or it can be from a command post, and this data set is unloaded on the fly, put into the data center, and then streamed out over the Internet.

So it doesn't matter if you're in Barrow, Alaska, you're here in Anchorage or in D.C., you can go to a website and pick up this map.

I don't mean to scare you with this diagram here, but this is the basic software infrastructure of ERMA, and the point here is that we have both restricted data that happens during an event, an incident oil spill, that's sensitive, as well as public data sets, things like the bathymetry, land use, the environmental sensitivity index for the shoreline. All these data sets are from the publicly-available.

They go out. We also reach out to our partners, to the Office of Coast Survey for the charts, to the National Weather Service for the weather data. We work with the Coast Guard for the vessel tracking. This information is then fed into ERMA, so we don't have to maintain it and we're going to the true source. Then it goes out to the web, and anyone who has the URL can access the information.

So the benefit, key benefit I find in ERMA is that you don't need special software to install. It's just your web browser that you can go to and get the information. Again, if you have everyone looking off the same picture, you can improve collaboration and coordination among the agencies that are responding, and again, be transparent to the public about what's going on in an area.

So and the best feature I find of it is it's very customizable. So you have different sets of information that you want to show. So you can customize the map to display whatever your particular need or interest is. It could be the charts, it could be the weather, it could be the hill shade or the recent bathymetry. All that can be overlaid with information like habitat and what have you.

So what we're doing for Arctic ERMA, because we've made these ERMAs in other parts of the country, is we're trying to represent significant activities in the Arctic, which is defined form the U.S., Canada-Beaufort, Chukkisee, and down to the Bering Straits.

We're looking to include not just U.S. data but reaching out to our partners in Canada and the other international communities in the Arctic, to include their data feeds as well. And again, we're not creating much new information. We're leveraging existing programs.

So the new information that we put in is during an actual event, but we leverage in the existing groups like GENA, AOOS, the other feeds in the area. What's really good about building the Arctic platform is we've just come off of Deep Water Horizon. So all the lessons learned from that last two years can be directly applied to this new emerging area for us.

Just quick background. ERMA was initially funded within internal NOAA money. We also got money from OSRI, to set up the site development and work with the response community. And then you may have heard just this past spring, BSEE put another pulse of money into the system, in order to expand our capabilities and take us both online as well as offline.

So sometimes in this area you lose communication, and we can do a stand-alone version of this. So when you're not connected to the WiFi because of infrastructure, you can still access these data sets. And again, we're also reaching out to get new data sets from the local communities, like this workshop that's going on this week in Kotzebue, to help with natural resource damage assessment.

So these are the basic information that's in ERMA, and I will get to a demo. So we have base mapping information, weather and buoys, resources at risk, and we can also look to documentation as well. So we have a Kotzebue chart that we just put in last week, and the interesting thing about ERMA is you can actually zoom in to the particular scale. So it's a cascading charts, and so they change by the zoom scale as you move in.

We also take in the electronic navigational charts, and as soon as the Kotzebue one becomes available, we'll take just as the captain was speaking, we'll take that feed in directly, put it into our system. Again we have the active oil and gas lease areas for the region. We have the shipping routes and we have a compilation of past incidents. The marine life at risk from previous data sets. That's not to say as new data sets come along, we're not going to include them. But we try to get as much of the base data as we can.

And of course, because this is a spatial thing, we're going across borders. We can go from the U.S. into Canada, because you know that your trust resources don't obey the state boundary. We've also put in the area contingency plans for oil spill response, and so you have each of these locations on the map, where if a spill occurred, there would be a certain set of actions that you can take.

So we link directly out to the source file, and you can figure out exactly what booming strategy, what resources are there, what's the most at risk species, and we have hard copy maps as well available.

Again, we're reaching out beyond U.S. borders. We take data feeds directly in from Norway, which is interesting because of course we have a language issue when we get the data sets in. So this has been a lessons learned for us in developing ERMA, when dealing with multiple languages from data feeds.

We're taking in the sea ice, and so you can see over time, the forecasts from the National Ice Center, as well as you can post photos. So when you see that this is 80 percent coverage, what is that photo or what's the picture of that ice information actually mean?

And then we have real-time data feeds that I talked about before. This is an example of the HF radar that we get from the AOOS feed, along with some currents information. We also have put in like the web cams from Barrow, Alaska. So you can see what the conditions might be if you were on the street corner there.

ERMA was used this spring in order to visualize the Nome fuel delivery, in which we were looking and tracking the Healy as it went north, and we could also actually put in images of what they were seeing off their bough. So that was a good test for ERMA as we were just getting it up online.

Now I'm going to jump into the demo and hope that the WiFi is working smoothly.

MEMBER DIONNE: The BSEE is an acronym that I'm not familiar with.

MS. JACOBI: Sure. A part of DOI, the Bureau of Safety Environmental Enforcement, the agency formerly known as MMS.

So this is just a live feed off of my air card, and I've just put on some information. So you have a map window, you have your standard, you know, you can move around the hand. You can zoom in and zoom out. We have a whole mess of data here on our layers tab. But what I'd like to do is make a lot of bookmarks, which zooms directly to information that's of interest.

So here, what I have shown are all the ships from the Coast Guard, as well as the sea surface temperature and then the wind bars. So I can just kind of zoom in an area and it's going to come in and show me the direction of the wind and the information coming from the Weather Service. Yep.

MEMBER DIONNE: Real-time, right now or what?

MS. JACOBI: Yep, so see I have my little time stamp here? Right there, and please people, if you have any questions, just jump right in. So I just pulled up a couple of zooms for you, to show -- I wanted to show the real time buoy feeds.

Again, this is coming from the National Data Buoy Center, from CO-OPS and from AOOS. These are the different data feeds in which I can actually -- if I go to the Identify button, I click on my tide station. I'm going to link back out to the CO-OP site and I'm going to get the data feed there.

The same would go with the buoy, in which I have the information that's conveyed from the stream, and I can also link back over to the source page. So --

VICE CHAIR PERKINS: Ms. Jacobi?

MS. JACOBI: Yep.

VICE CHAIR PERKINS: Is this built on top of open source GIS standards, or is it on commercial off the shelf?

MS. JACOBI: No, it's built on open source standards, because that was the most cost effective way to go, and allowed us to adjust, based on stakeholder needs pretty quickly.

VICE CHAIR PERKINS: So is it a common data standard between ERMA of Alaska and ERMA of Norway?

MS. JACOBI: I'm not sure I'm totally understanding your question. If the Norway feed is OGC or open-source compliant, I can receive the information. I have a language barrier, though.

VICE CHAIR PERKINS: Yeah, but as we open this Arctic shipping lane and the two areas come together, do we have a common data standard already established, so as that as your buoy data becomes of interest to them and their data becomes of interest to us or whoever's stuck in the middle, do we have a common data standard already mapped out, so that this system will work all across?

MS. JACOBI: So the request has been made that we follow the open-source compliant format, which, fortunately, many off the shelf products like ESRI deliver in that mode. So do we have a formal written down contract that says all new data will go this way? No, but we do have a best practice in which, as we meet with the different councils, we say we're using open source standards. We would like you to do the same.

VICE CHAIR PERKINS: Okay. So have the eight Arctic countries all agreed to that data standard?

MS. JACOBI: That I do not know the answer to. I know that I have data from Canada, Norway and we're working on two other countries. Most GIS groups are trying to be proactive and go to that standard.

VICE CHAIR PERKINS: Okay, thank you.

MS. JACOBI: Yep, and then I'll give you just a couple real quick ones. We also have the multibeam data sets that are coming in. So here's an example in which I have the contours. I have the recent multibeam bathymetry data sets.

In addition to showing the area that was surveyed, I can also link out to an actual map of it for the final product. Again, we have the shipping routes, the areas in which vessel traffic would go and let me show you this legend here, in which I can have the ice concentration as well as where BOEMRE is looking, for oil exploration.

I can zoom in here and I can see that these are the areas in which BOEMRE has looked for seismic surveys. Then I have one more for you. To go back to the nautical charts -- oh, I knew it was going to be a demo and something was going to break. Oh, there it is. There's it is. There's the hill shade.

So here in which I have the nautical chart, but let's say I also care about the hill shade. So I can go back over to my layer file and I can bring this to the front and it will overlay. So I have seamlessly put on the hill shade from, you know, the survey, alongside of the chart.

So I thought that was something of interest to this group. So that's kind of my overview for that. Then I was just going to hit with next steps for Arctic ERMA, would be again moving forward to again get more data sets, make sure that we're receiving information from our fellow countries for the Arctic, do outreach to the local communities to define their natural resource data information and information that they find relevant to their communities. Did you have a question?

MEMBER JEFFRESS: Yes. Are you working on any smart phone apps to integrate crowdsourcing data, which apparently is a growing source of really good information, as long as you can get like the latitude and longitude correct, in the right format, et cetera?

MS. JACOBI: So that is a hurdle that we want to go towards. It's a so quickly advancing field, in which we have some efforts going towards smart phone or iPad apps. We're kind of hoping that our base, open-source software, takes the lead in that, so it's not so much on our guys to do that.

But we do have groups investing in that, because I know within six months, that's going to be need. We do have folks who go out and do shoreline assessments, and they use their mobile phone. They take a picture. We can take that feed in. So we can do photo recognition off of, you know, smart phone picture. I think there was another question.

MEMBER KUDRNA: Yes. NOAA also has, through AOOS' regional associations, a principal charge of collecting data from a common place. It looks like you're also asking for similar data. What is the relationship between ERMA and the regional associations, so there's a clear indication of path of data, locally collected, available?

MS. JACOBI: Yes. The best practice, and Molly can speak to this as well, would be that rather than double-asking the community, we go first to AOOS.

Someone from AOOS is actually at the workshop that we're doing this week in Kotzebue, and so that's the way we'd like to go going forward, in which to not duplicate any effort, and to leverage off of the existing compilations that AOOS has done. I know there's a question in the back.

MS. THOMA: Hello. My name is Schawna Thoma and I'm with Senator Begich's office, and there's been a lot of talk about tsunami debris. Does it seem like the ERMA would be an appropriate tool to use for tracking debris as it moves, potentially moves toward Alaska and other regions?

MS. JACOBI: Yes, so the Marine Debris Program for NOAA is actually part of my office as well. So when confirmed data reports for debris are in, we actually put that within the Pacific Islands ERMA, because the source of the debris came from Japan and the Pacific Islands. But as it goes forward, we would then display it in other ERMAs as needed.

MS. THOMA: Thank you.

MS. JACOBI: Yes, sir.

MEMBER BRIGHAM: Yes, I'd just answer what I think our vice chair asked about data. It's the World Meteorological Organization and its subgroup working on Arctic. The Arctic states wouldn't go kind of rogue and independent of the rest of the world.

The same with IHO and the Arctic Regional Commission. We're working on standards together, so there's some consistency. We have a working group in HSRP that's dealing with Arctic issues that I'll report on this afternoon.

But I'll say that one of our points is that the database that you need to run the trajectories and all of that is not here in Alaska, specifically sea ice, tides and currents.

But there's a longer list. So our working group says that, and this is not a criticism of the ramp-up of this; it's a criticism that we don't have the observational network to support some of the output.

If you ran trajectories today of the data I just saw on the maps, they would not be robust, I would say. They would be kind of swags and guesses on where the oil might go, whatever you're trying to model. So the system is tremendous, but for the Arctic, where there's not robust observations, it's --

We're not there yet without the level of observations that we need in high resolution form, I think, to get output from the model. At least that's what our working group will tell us all and report in to the Administrator.

CHAIR WELLSLAGER: Michele.

MEMBER DIONNE: Yes. I'm a member of the New York COOS, which is the Northeast Regional Association of Coastal Ocean Observing Systems, Strategic Planning and Implementation Team. We call it the SPI team. But anyway, you know, they've been struggling since their inception with how to have standardized data templates and formats, and they have been working on that.

But they have a ways to go, and I would think that you'd want to communicate with all the Coastal Ocean Observing Systems of what you're doing, so at least they're aware of it, because they're a good source of data feed, not for the Arctic but maybe it's just the scale that's throwing me off.

When I saw your slide with all the buoys on it, it kind of wowed me. I mean it seemed like a lot of buoys, compared to what we have in the Gulf of Maine. So maybe it's just a scale thing.

But a couple of other questions that came to mind, Dr. Sullivan was talking and related to what you're talking about, of course, is that is this a model that can be transplanted to any other part of our country, you know, is we sort of know what to prioritize, which areas of our coast we ought to map to a better scale or Y unit the maps? Can you do that with what you've set up here?

MS. JACOBI: Sure. We have actually, ERMAs in a variety of regions around the country, that have -- we actually started in New England, because of course we were from the University of New Hampshire, so it would be best to start in your backyard.

MEMBER DIONNE: Right. I'm sure New Hampshire is well-mapped. I'm not worried about New Hampshire.

MS. JACOBI: And so it's a standard framework in which we lay down in a geographic area, dictated usually by the Coast Guard or EPA, and then we put in our national layers, which is the whole buoy feed that you saw for the country.

MEMBER DIONNE: Right, yes.

MS. JACOBI: And so, yes, it can be applied across the country.

MEMBER DIONNE: Yes. So I would just suggest maybe a little bit of dialogue with the Coastal Ocean Observing Systems. I don't know how many there are. There must be 10 or 12 by now.

MS. JACOBI: Yes, absolutely.

MS. RIDGWAY: Thank you. Michelle Ridgway with Oceanus Alaska, and also with the Alaska Deep Ocean Science Institute, and you were speaking about the Gulf spill.

I was wondering to what extent ERMA was involved in tracking and monitoring dispersal of oil at depth, tracking the oil plume underwater, and if you were involved, what do you envision as being your source of data for such tracking of a spill in the Arctic?

MS. JACOBI: So right now, ERMA is not a 3D visualization tool, so we don't go subsurface on that end. It's just not within the 2D scale of this. We have within our office different modelers that do that work, and they do the 3D visualization.

I think in the long run ERMA could get there or a variation thereof to visualize it. But it's more Emergency Response Division modelers that do that sort of subsurface. But there was information collected during the response that did look at those events. I just didn't visualize it in ERMA, because it was subsurface.

So my last points were that we're intending to launch this in June, so it's coming right up, and our next steps would be to take this out to drills and events of opportunity, such as the Shell drill that's going to occur later on this week for the tabletop. So that's my presentation. Yes, sir.

MEMBER JAY: David Jay. I noticed that your web hosting seems to be out of the University of New Hampshire, not out of NOAA, and is that planned to transition to NOAA? We've certainly had a bad experience with other contractor databases going away after a time period if they don't get brought into the --

MS. JACOBI: Right. No, our office is fully committed to ERMA on that end, and I think in the long run, our goal is to go into a cloud environment, within the federal cloud, and that's taken some steps in which to get that IT and infrastructure put forth.

When we go there to the federal cloud, that would be our next step. But right now, we have a very good partnership with UNH, and it's worked very well to this point because of our Cooperative Research Institute there.

CHAIR WELLSLAGER: I've got a question.

MS. JACOBI: Yes, sir.

CHAIR WELLSLAGER: The URL, is this for anyone to be able to use? Is it a secure URL?

MS. JACOBI: Yes. So again, we're not launching it until in June, next month. But yes, you have an address, and then if you were looking at restricted data, emergency responders would have a special login and password.

But information like the charts, the CO-OPS data, the weather, that's all public information that's available. So you wouldn't need a special login for that.

CHAIR WELLSLAGER: So where would I go to find that information?

MS. JACOBI: So when we totally launch out to the general public next month, there's a URL for that, and I have a sheet for the information on that. It's just not quite ready for prime time. That's why I'm hesitant on that, but we'll pass that out for sure.

CHAIR WELLSLAGER: That's fine, okay.

MEMBER DIONNE: You get something for the Gulf of Mexico on Google. Somebody was interested in that a few minutes ago.

MS. JACOBI: Yes, right. Yes, sir.

CAPT LOWELL: Yes. You're talking about these systems as a regional, regionally-implemented and regionally controlled. Is there, you know, like a central point that you can kind of go in and see all of these, and simply go to the region you want, or do you have to actually go to the Arctic region or the Gulf region or the Maine region?

MS. JACOBI: Because of the breadth of data sets that come in, particularly like for the Gulf of Mexico, you know, there's tens of thousands of layers there. So we didn't want a centralized database, because it would slow down the timing.

However, this summer, we're redoing our architecture, in which although we might have data tables that are relevant to that region, you could see them by a single upload and appear in other regions. But that's more work to be done this summer, but I do see that need, to be able to see data across regions. Yes, sir.

MS. WATSON: Excuse me. Please use the microphone so that you can be transcribed.

MR. CUSICK: Joel Cusick, GIS specialist for the National Park Service. Does ERMA currently serve up the best available NOAA vectorized shoreline, or are the data sets that you ingest or the shoreline that that data set was derived from, multiple sources, USGS, et cetera?

MS. JACOBI: I think the goal in the long run is to serve up the best rectified NOAA shoreline. I think that's coming soon, and we would take that feed when it was available. Right now, as of today, we're serving up the current shoreline. I think maybe Juliana can speak more to the shoreline stuff.

Their office does put out a GIS format, and we would ingest that feed directly. It's probably within the next couple of months. That would be the desire.

MS. BLACKWELL: Michele, this is Juliana Blackwell. As far as what ERMA takes in now, I don't know what the plan ‑‑ I don't know what you're currently taking in for shoreline other than what you've already mentioned.

The best available shoreline is being utilized and working through the Coastal Services Center to make that available, and I would expect that, you know, merging those products into your product is something that we'd all want to have happen. I don't have a timeline or an idea of how that is progressing.

MS. JACOBI: And that's exactly where we pull the current shoreline now. We go from the coastal marine spatial planning shoreline and the digital atlas, and we pull those data sets in, along with the raster charts. So --

MEMBER MILLER: Just one comment. I know that there's a University of Hawaii group, the IPRC, I think it's International Pacific Research Center, and they are doing -- just for informational sake -- they are doing modeling of the debris paths and so forth.

So it's, I don't have the URL, but just IPRC is under University of Hawaii and you can find it.

MS. JACOBI: Thank you.

CHAIR WELLSLAGER: Thank you very much, Michele. That was very interesting.

MS. JACOBI: Thank you.

(Applause.)

CHAIR WELLSLAGER: It is now time for lunch. Now please keep in mind too, we are planning to depart for the Port of Anchorage site visit at 1:00, and the idea is to dress down, if you will, a little bit, try to get some more comfortable clothes on, business casual type of thing.

So before we leave at 1:00, it would be good if maybe you could take ten minutes out, 15 if you see the need to, to go back to your room and get some comfortable shoes on, maybe a sweater or lose the tie, whatever you want to do at the time. But try to be back here at one o'clock.

LT FORNEY: Actually, let's shoot for 12:30. Our goal is to be at the port and they're all ready to go, by one o'clock. So let's please shoot for departure around 12:30.

CHAIR WELLSLAGER: The speaker doesn't end at 12:30.

LT FORNEY: I do believe the speaker is supposed to end at 12:30, and then transportation to is going to go from 12:30 to 1:00. So our goal is to be at the port by 1:00.

CHAIR WELLSLAGER: Okay. Change quickly. All right, very good.

MEMBER DIONNE: When are we back here?

CHAIR WELLSLAGER: Well, we'll be eating -- oh, be back here after the thing?

LT FORNEY: After the speaker.

CHAIR WELLSLAGER: After the speaker time, run to your room real quick and then come back.

And there will be breakout sessions on Thursday. If the panel members here and the general public would like to please sign up for participation in one of the four user group breakout sessions, we'd greatly appreciate that, and I guess it's lunch time.

MEMBER BRIGHAM: You want us back here at 3:30, though, to have our briefings of the working groups?

CHAIR WELLSLAGER: Yes, yes.

MEMBER BRIGHAM: That's for everybody, right?

CHAIR WELLSLAGER: That's correct.

(Whereupon, at 11:32 a.m., the above-entitled matter went off the record and resumed at 12:03 p.m.)

A F T E R N O O N S E S S I O N

12:03 p.m.

CHAIR WELLSLAGER: I would like to take the opportunity to welcome the Honorable Reggie Joule to address the HSRP panel.

REP. JOULE: Good afternoon, everybody. My name is Reggie Joule. I serve in the State House of Representatives here in Alaska, and this afternoon, I'd like to, first of all, welcome to our state.

My district is just a little bit north of Anchorage. It runs from the Canadian border to the northern coast of Alaska, almost to the Russian border and the western coast of Alaska.

It has an area roughly of about 120,000 square miles, just a small piece of real estate that includes ANWAR, Prudhoe Bay, NPRA, vast coal reserves over by Point Lake. The largest lead and zinc mine in the area, which is the Red Dog mine, which the Lieutenant Governor talked about a little earlier.

So that's -- the two largest communities are Barrow and Kotzebue. I am an Inupiaq person. Translated, I guess that would mean I am Eskimo. We created the Northern Waters Task Force by resolution in 2010. Mead Treadwell, our Lieutenant Governor, as somebody very involved in the Arctic, had a much better sense of what was happening nationally and internationally with conversations about the Arctic.

He made a phone call, and one of the other things that I do is I chair a group of legislators called the Bush Caucus, and we are a group of legislators who are mostly rural. So and not generally speaking, not connected by road except maybe in one or two cases.

But we are not Anchorage, not Fairbanks representatives, but almost the rest of the state. They contacted the Bush Caucus, to see if there would be an interest in putting a task force together to take a look at some of the issues with regards to the conversations of the Arctic. So we dubbed it the Northern Waters Task Force.

Because of our ice and its melting all of that you're familiar with, what does that mean for the state? What does it mean for industry? From my perspective and the people that I represent, what does it mean for the local people, those who call that area home?

There's opportunities and challenges for the groups that you see there, and at this point and at this juncture, because this becomes a little bit more important later, the United States is a member of the Arctic Council because of the location of the state of Alaska.

And so we are seated. Our geography plays a very important factor, present and looking forward to what's going to happen in the Arctic, and how data-gathering, research and all of that plays important, in addition to the fact that here we are in 2012 and 2013. Canada will take over the chair of the Arctic Council.

Two years later, in 2015, that will be the United States. Do we have a plan on how we use that chair essentially in North America for the next four years? These are the members. Our task force was made up of people from the legislature, both the House and the Senate; also from the administration, with our Commissioner of Environmental Conservation, North Slope Borough Mayor Edward Itta, Unalaska City Manager Chris Hladick, Nome Mayor Denise Michels, NANA Corporation Vice President Chuck Greene. We had Alaska Marine Conservation Council, Dave Kubiak. So we had a broad representation on that group.

We were to find a way to create a state-federal commission, responsible for overseeing development. I don't know that we got all there, but at least you'll see from the recommendations we started down that trail. Facilitate regional coordination, cooperation and outreach, to keep the local stakeholders informed, and finding a way for them to be engaged in the activities of their homeland; identifying coordinated efforts of mutual concern for federal, state, local and international agencies, and to conduct hearings around the state.

I'm not used to one of these things. I keep craning my neck to look back and the screen's right in front of me.

These are the places that we met. You can see that we met in some of the bigger cities. We toured the Red Dog mine.

We went to the small community of Wales, which is in the Bering Straits just north of Nome, where you can see Little Diomede Island, which belongs to the United States, and just beyond it, you can really see Big Diomede Island, which belongs to Russia, and you can see the Russian mainland. Sarah Palin should have been there.

I can't believe I just said that. Having said that, you could see Russia from Wales, and you could see Russia from Alaska. But more importantly, that community is the community that's going to see probably more than anyone else the marine traffic.

Whether it's support marine traffic for the North Slope, for the Red Dog mine, fuel barges, groceries, heavy equipment for construction, all of those things, and the summer, the beginning of the drilling season for Shell, and all of the traffic that's going to be associated with it.

Their concern in the community of Wales is pretty simple. You can wrap it up in two words: food security. So we heard public testimony from them.

We heard also from Wainwright, which is just south of Barrow. Wainwright is a little bit different community.

Most of us, as indigenous people, have some real concerns about all of activity, the offshore. But it's not our decision. It's a federal government decision, and the community recognized that, and they didn't want to play politics with it on who was for it, who was against it.

Their attitude was: if it's going to happen, how can we position our community to mitigate and to benefit, which was pretty astounding for me to see. Very forward-thinking, and so we are able to just hear experts from universities, the military.

Oh, I might mention, because in the make-up of our membership, while Rear Admiral Tom Ostebo could not be an official member, he was a liaison and attended pretty close to every single meeting that we had, and the Coast Guard was present when we went to Wales and some of these other communities, and it was great to have people there.

This is the area, these are the areas that we chose to focus on. Arctic governance; oil and gas and mineral development; Arctic fisheries; marine transportation; Arctic research; and infrastructure.

These are in our executive summary. These were our top three recommendations coming out. We recommended that the state of Alaska and the federal government provide Alaskans with meaningful opportunities to participate in Arctic policy and Outer Continental Shelf development decisions, particularly with those Alaskans likely to most be impacted by changing conditions.

Meaningful local input, utilizing local and traditional knowledge with our data collection, with your research. Oftentimes, that age-old knowledge is the reason to conduct some of the science and research that needs to be done, as we're looking forward, while that information is still there.

We recommended that the Alaska state legislature create a commission to develop a comprehensive state strategy for the Arctic. That was coming out as we wrapped up our recommendations in December, and came out with this report in January.

Since that time, the Alaska legislature passed a resolution creating the Arctic Policy Commission. Those members will be named by the president of the Senate and the speaker of the House, and it will consist of 20 members. It kind of morphed into something a little bit bigger than we had anticipated.

One of the things that we found with the Northern Waters Task Force was that with 11 members, we were missing stakeholders, and so as the legislation went through the process, the legislature expanded the membership to 20 members, and they will be appointed, if not later this summer by early fall.

We also recommended that the Alaska state legislature continue to urge the United States Senate to ratify the United Nations Convention on the Law of the Sea. Now I'm sure most of you are aware that a lot of the action to address that issue is just getting underway in the United States Senate as we speak.

There's going to be a huge push, with I think conservatives, environmentalists both, coming to the table, making their pitch to the United States Senate, to ratify this treaty and climb on board. That would be in the best interest of everybody from Hillary Clinton to -- if you look at all of the surviving presidents, former presidents of the United States are all on board.

This is something this country needs to do, and that is something that the legislature sent a resolution back to Congress, to support the Senate in making that change.

Changes in the Arctic make it necessary to evaluate the adequacy of existing Arctic governance structures, and to consider adjusting these systems and creating new ones to better suit developing needs. The evolving Arctic will require unprecedented cooperation among Arctic nations to sustain communities and environments. That's just -- it's kind of the obvious, stating the obvious.

In Alaska as we developed our resources, we've had the luxury of being able to develop those resources on state lands, primarily oil and gas. That's where we get our revenue. Looking forward, we're just not in our backyard anymore.

When we get into those waters, oil spills don't know boundaries, fish don't know boundaries, and the marine transportation that we're going to see, that we are seeing evolve will be using both the Northwest and soon the Northeast Passage, or the Northeast Passage and soon the Northwest. So there will be a lot of tarns-boundary issues.

We support the development and implementation of a comprehensive Arctic strategy. We know we have one, what we don't see is the implementation for that strategy coming from our Congress. You've heard it today; we're a little bit behind the eight ball. There's a lot going on, and I don't think we're ready.

For you all, I know to some degree your hands are tied. But we have to continue to make the case on behalf of you and the things that you're trying to do in terms of data collection, in terms of the research that needs to happen.

If you're not able to do it all, is it not so much in your best interest but the interest of the country and the state, maybe to consider contracting some of that stuff out, so that gets done maybe not on all of us just your shoulders, but sharing that load with other competent businesses, that can accommodate those same issues.

And we have another recommendation here with regards to Arctic governance, that the state of Alaska and the state legislature support greater international cooperation and engagement with the Arctic Council and with the Inuit Circumpolar Council.

Russia, United States, Canada, Greenland are members of the Inuit Circumpolar Council, and they're very active. ICC Alaska is very active, and part of our message was to self, because we need to utilize local entities that have a relationship with international bodies, and use that resource.

Oil and gas, mineral exploration. The U.S. Geological Survey estimates 13 percent of the earth's undiscovered oil reserves and 30 percent of the undiscovered gas reserves are in the Arctic. The majority of oil is likely to be offshore, and we will find out here in the next few years, as drilling, to find out what quantities.

Drilling has been done. We know it's there. It's how much is there, and then how do we get it to market? In perspective, this may equate to 90 billion barrels of oil, 1700 trillion cubic feet of gas, or 44 billion barrels of gas liquids.

We have a 40-year history and experience in Alaska oil and gas exploration, production and transportation. Now there's, as I just briefly mentioned, that we have 70 wells have been drilled off of Alaska's north coast.

The Trans-Alaska Pipeline, which has transported over 15 million barrels of oil in the Arctic over the years, and we need to build on this experience and extend infrastructure and transportation systems to accommodate new exploration and continued production.

As the Lieutenant Governor mentioned, we are less than 600,000 barrels a day in the Trans-Alaska Pipeline. The Northern Waters Task Force recommends that the state of Alaska and the U.S. develop a framework for the identification, acquisition and sharing of data to support leasing, permitting and other agency decisions.

We recommend that the state of Alaska and the U.S. support continued improvement in the ability of industry and government to prevent, contain, control and remediate spills in the Arctic.

This bullet, I think, highlights how inadequately prepared we are. We currently don't have very much of this, but we have people who are working on it, and I think more resources need to be committed, both from the public and the private sector, and that we also recommend that our University here in Alaska be established as an oil spill research center.

Arctic fisheries. Some years ago, the North Pacific Fisheries Management Council closed the Arctic waters from the point of Bering Straits all the north to the Canadian border, for the purpose of trying to see whether or not, and gathering data to see whether or not there would be a sustainable harvest of different species there.

So it's currently closed for the purpose of seeing whether or not at some point it could be opened. As some of you are, I'm sure, aware, we contain some of the world's largest, most valuable fisheries. Scientists are discovering that a number of sub-Arctic species, such as cod, herring and pollock, are expanding their habitat further north and creating commercial fishing opportunities.

This is the kind of assessment and data collection and research that needs to get done, before we make the decision to jump in there and get our feet wet. The third bullet is one I just mentioned at the opening. We recommend increasing fisheries research and monitoring in the area.

We encourage the state of Alaska and the United States government to continue actively negotiating fisheries accords with other nations. We recommend that the state of Alaska and the federal authorities prepare strategies to maximize the degree to which local communities and resident Alaskans can benefit from the development of commercial fisheries in waters north of the Bering Straits.

You know, whether it's oil and gas, resource development, fisheries, we have other nations who want to develop these resources. We also have communities that have very, very little economy.

When you have to go, and I smile with somewhat envy here, when I go and pay $4 and I think it's 42 cents a gallon for gasoline now here in Anchorage, and when I was home this spring, I filled up 12, 15 gallons.

Two six-gallon jerry jugs and a three gallon tank in my four-wheeler, $102. And yet this is how we provide for our food security, whether it's the utilization motorized transportation. We've kind of evolved. Dogs are only for sport these days, or mostly, and so we've evolved as technology has evolved, and it comes with a very steep price.

Marine transportation. We spent a lot of time on this, and this part we had, as you can well imagine, relied quite heavily on the Coast Guard to put this part of the recommendations together.

Diminished sea ice has led to increasing commercial shipping and two trans-Arctic sea routes. An estimated 6,000 individual vessels operated in the Arctic in 2009.

Tourism and passenger vessels are increasing, and I kid you not. You know, my family originates from Point Hope. If you look on the map, it's north of Kotzebue, south and west of Barrow. It's one of the oldest continuously inhabited places in Alaska.

But they're starting to see cruise ships. Cruise ships are popping up around Barrow, and sometimes, you know, we overreact to the wrong thing. Alaskans and especially folks in my area kind of reacted, as one could expect, in opposition or with very much concern to drilling in the Arctic for oil and gas.

I think marine transportation is the thing that we need to be watching. I talked, I listened to briefly, when I wasn't on a teleconference with the assembly at home, but as I listened and I glanced at the map and I'm grateful for that, and I listened to the questions of how does this get paid for, how are we going to do all of this, and the thoughts that go through my head is, you know, the people that I represent don't care who pays for it.

Let's make this information available, so when it comes to marine transportation, we have safe routes, charted routes for that transportation to occur in. Because at the end of the day, if anything happens with boats running aground -- we had a fuel barge last year get free from its tow, and we were very concerned. How is that going to impact our food security?

A lot of this for us, I'm switching hats between being chairman of the Northern Waters Task Force for Alaska, a representative of a district, and a person in Alaska who personally but also represents people who use much of this area for food security.

Tourism. You can see there's great reason to be concerned. This is a traffic pattern during the summer of 2010. It doesn't quite look like I-5, maybe more like I-10, depending on which part of the country you're from. But there's lots and probably going to get bigger or even more complex.

The Bering Strait is a unique international waterway, gateway to Arctic shipping. The Bering Straits is a unique link between the Arctic and the Bering Sea fisheries, which account for over half of the commercial harvest in the nation.

Safe shipping through this area is critical for the protection of the region, world class commercial and food security resources. Subsistence sometimes is hard to explain from an indigenous point of view. But when we use the words "food security," it kind of cuts through the mustard. And so I'm using that a little bit.

So here's the recommendations. We recommend that the United States, the state of Alaska and the international community work to finalize the Polar Code. We recommend that the United States, the state of Alaska and the international community examine whether to establish an offshore vessel routing scheme for circumpolar marine traffic, including through the Aleutians.

You heard a little bit earlier about some of the concerns with that and why. We support the increasing short- and long-range navigational aids in the North America Arctic, and extending automatic identification system vessel tracking across the North Slope waters, to Tuktoyaktuk, which is in Canada, northern Canada.

I'll just take this opportunity to give you what I thought was feet on the ground example, of why this is so important. Wales, Alaska a year ago, actually it was almost a year ago. It was in the summer, ice-free. The community is saying well, we see a lot of traffic but we also see some dumping. How do we report the dumping?

I said, well, there's the Commissioner of DEC there, and the Commissioner of DEC, Department of Environmental Conservation, said, actually, that's not our jurisdiction. That belongs to the Coast Guard.

And they said, well, we need the numbers. We need the numbers of those vessels. They're kind of like the identifying numbers on an airplane if they're flying below 500 feet. So I thought of this place down in Juneau. Bob, what's the name of it that tracks all these vessels? The Marine Exchange, thank you, and I said, actually, here's what you do. If you can get the date, time and direction, that's all you need. You can call the Marine Exchange and you can have an identified boat right there, because they'll know when it was there, date and time and which way it was moving, north or south.

So between the Coast Guard and the community, it was like "Oh, wow. This is pretty cool." So it was great. Arctic infrastructure, you've heard a little bit about ports and harbors, the need for marine vessels. You heard a little bit about the Renda and the Healy this winter, trying to bring fuel to Nome.

When I saw this, I thought to myself, wow, is this a peephole to the future? Oh, the slide on the left, that's my home community. Just thought I'd bring that up. Oh, I'm sorry. The slide on the left, oh, this one. This is the front street of Kotzebue. That's sheet piling and that protects us from erosion.

So our recommendations are there. I've got about three minutes, but as you can see, we need to make sure that the people that fund budgets understand that we need icebreakers for our people to do the jobs that we task them with.

If we're going to see more of this, are we going to continuously have to look to foreign fleets to take care of our business?

The mapping issue. Important recommendation. It's going to be very important as we talk about harbors. This is just polar icebreakers of the world, you can see where we fall. It's kind of like our education statistics, not quite at the top.

Research. Rather than talk to each one of these, what I will say is we understand there's a need for research. You are responsible for much of it, as are other federal agencies, and I guess what we recognize is the need to synthesize that information so that there's integrated and accessible.

So with that, that's the Northern Waters Task Force, and I will tell you that a full report of the Northern Waters Task Force report can be found on, let me see if I can get the right acronyms. It's ANWTF.org. A full report can be found there.

I thank you for the opportunity for allowing me some time to come in and make this short presentation. I will just go on to say that I do look forward to the Arctic Policy Commission being put together. Many of the other countries have these, and our state doesn't.

Our nation has one, sorta kinda, but really no plan of implementation. So we look forward to the continued work. Good day and thank you very much.

(Applause.)

MEMBER DIONNE: Can I ask a quick question about the state and federal policy? Would you folks be vulnerable at all to the sort of thing that happened to the Cree during the development of HydroQuebec, being displaced, moved out of the way if you're in the way, that kind of thing?

REP. JOULE: I'm sorry. I'm not able to hear.

MEMBER DIONNE: Okay. Well, in Quebec, the Province of Quebec, there was a hydro project. There is a hydro project, but it involved, even in this late day and age, where we're always saying we're so sorry with what we did to the indigenous peoples, they were removed out of their subsistence way of life, because they were in the way.

REP. JOULE: We have shown, I think, over time, we've got about 40 years of oil and gas development. There's about 30 years or 25 years of the Red Dog Mine, that at least on the onshore areas, they've been able to coexist. But it's taken some work on both sides.

Now we're moving to the offshore, actually the action has been in the offshore more recently, and that's where the concern is with, and that's why I bring up the issue of food security. I think that with the data collection, with the utilizing and maintaining open communications and more than just communications, but dialogue with local people, will go a long ways to reducing some of those conflicts and finding a way forward.

CHAIR WELLSLAGER: Captain Lowell, could you --

CAPT LOWELL: Yes. I just wanted to thank Reggie for his time, for coming out. We really appreciate it and the views on the Northern Task Force, and I believe we'll go ahead and check that URL and send it out to all the panel members, the complete report.

There's a number of good recommendations in there. Actually, I noted the one on data-sharing, so --

REP. JOULE: Well, you know, I'm going home this afternoon. My community's 30 miles above the Arctic Circle. We still have ice and we're waiting for breakup.

But it's a wonderful time of the year, and it's too bad -- and I understand you went down to south central Alaska, and got to see some of the areas around Homer and some of the things going on down there.

But we're a very diverse place, and it's unfortunate you're not able to see all of it. But it would take some time.

CHAIR WELLSLAGER: Here's a coaster for you.

REP. JOULE: Oh, thank you.

CHAIR WELLSLAGER: Thank you very much.

(Applause.)

CAPT LOWELL: Just a quick one on logistics. Will all the panel members, I hope everybody's in fairly reasonable attire at this point, head on down to the lobby and we'll go ahead. I believe there's a number of vans.

We'll all get in the vans. We'll head over. There will be two groups going, and I guess we'll just handle that off the cuff once we get to the port. So let's keep on moving here, and we'll all come back, reconvene at three o'clock for continued discussions, for anybody who wishes to come back.

MS. WATSON: And the room will be locked.

CHAIR WELLSLAGER: Oh yes. The room will be locked. If you want to leave your gear in here, we'll go ahead and secure it up.

(Whereupon, at 12:42 p.m., the above-entitled matter went off the record, and resumed at 3:34 p.m.)

CHAIR WELLSLAGER: Okay. For those of you that aren't familiar with what we've got going on right now, in the Norfolk meeting, we had a facilitator come in on Thursday before the meeting ended, and we as a panel did some brainstorming and came up with a need to see what's going on, make some changes, track some things, create working groups.

Of the three working groups that were created, one was Legislative Policies and Initiatives. The second was Strategic Mission-Centered Effectiveness, and then the third was Emerging Arctic Priorities.

During the course of the six to eight months since the meeting, we've had conference calls; we've worked internally, tried to come up with ideas, and the ideas now are what we're going to present to the committee as a whole, to see basically where things are.

There is also going to be a need for the new panel members, to see what we've done and to sign up to join some of the, one of these three groups, because what's going to be said here is still a work in process. So nothing's going to change. It's just going to be this is where we are at this point in time.

All right. The chair of our Legislative Policy Initiatives is Susan Shingledecker, who was or probably still may be pregnant and unable to make this meeting. So Scott Perkins, the vice chair, was kind enough to say he would take the ball and run with this, and Scott's the first up. So Scott, if you could please?

VICE CHAIR PERKINS: Great. Thank you, Chairman. As Matt said, Susan is the chair of this working group, and I want to thank Joyce and Jeff and Matt for their contributions on it. So we've been working this issue since Norfolk, a variety of -- not a variety, a series of conference calls, and we've broken this down into four bullet areas, you know, from a legislative affairs and policy standpoint.

So looking at the Hydrographic Services Review Panel and possible opportunities for cost savings in this. David Kennedy presented at a conference, I heard in D.C. earlier this year, you know. The net result is about a 17 percent reduction, you know, in the budget, for the nav services, for the tri-services.

So being cognizant of that, what can we do as a panel to save costs, you know, so that we can preserve dollars for the programs, because it's the programs that are important, not us as a panel. Looking at the Hydrographic Services Improvement Act that's up for re-authorization, you know, 113th Congress, you know, there will be an opportunity.

There are things there from a legislative standpoint that the members of this committee individually may have an interest in working that legislation, you know, on the Hill, in trying to get some beneficial language changes in the existing HSIA Act.

The topic of user fees, which another working group has been tasked with, crosses over to obviously this one, and then we were looking at if we went forward with another ten most wanted report, what could we do differently in that report that would better support, you know, our initiatives here, you know, from that point of view.

So looking at the cost reductions, you know, geographic locations of the meeting. So some of the industry feedback that we received is that we have become an exclusive organization, and it's difficult to attend an HSRP meeting is one point of view.

So meeting locations in Hawaii, meeting locations in Anchorage for those of our east coast peers, there's a little bit of a school of thought that geez, you know, it's just very difficult to get to an HSRP meeting. They've been in Duluth, they've been in Hawaii. Now they're in Anchorage.

I would say, my observation, you know, if direct observation is worth anything, our attendance and our participation this morning at this meeting, you know, exceeded what we've probably had at any of those other locations. Definitely trumped the attendance we had in Norfolk, Virginia.

So geography does matter. So I think there's a pro and a con to that argument, but it is something we could be aware of and consider from a cost standpoint. The meeting logistics, you know. What possibly could we save if the HSRP meetings were hosted by panel members at their place of business or by their resident university or government agency?

You know, there's a certain cost point of entry to have a meeting at a public forum like this. Could we accomplish the same thing, preserve some funding that could be put back to the Nav Services line offices? So that's part of the school of thought and the discussion that's been going on in the working group.

The other issue is the panel member compensation, the stipend. We are in a unique class of FACAs, HSRP. It is not common for FACAs to be compensated for their time. So that's another issue that as a panel, and as our working group, that we identified.

You know, it's a significant portion of the overall budget for the FACA, you know, for HSRP is the compensation that we receive. So you know, open kimono. Everything's on the table, no holds barred, right? That's our task, is to look at these things and review them.

So that's what this working group has identified and we kept it to four. I mean there's no point in having a long laundry list. So that's what the working group has been engaged in.

The HSIA re-authorization in 112th Congress, you know, call it a lame duck Congress, call it an inept Congress. I don't care what you call it. HSIA is not going to go forward, right? But fortunately, before Paul Bradley's reassignment and now with Craig Woolcott, unfortunately who couldn't be here with us, NOAA staff has been engaged with Congressional staffers. There has been advance work on draft wording, draft legislation.

So when the 113th Congress convenes, you know, it's our understanding from the working group that NOAA is prepared, and that there have been some draft legislation already prototyped, so that we can go to the 113th Congress with the HSIA re-authorization, hopefully favorable, you know, to both our industry partners, to our academic partners and to the tri-services.

Another issue is if we're going to release the most wanted report in 2013, how could we develop a stronger tie, you know, in that most wanted report in the HSIA legislation? You know, the most wanted report was kind of a stand-alone thing that prior FACAs did.

For the new members, if you haven't seen or received a copy of it, I'm sure that we can facilitate you getting that. It's a good reference document, but it's not necessarily the way we want to go forward, you know, and report out our activities from this particular panel, you know, that's engaged now through our terms.

You know, inside HSIA there are recommended levels of authorization. One of the things that, you know, we look at one simple program, the mapping and charting base, and then inside that, the shoreline mapping program that I'm familiar with from my prior work as a contractor.

You know, the funding on it is woefully insufficient to meet the need. So the discussion came to user fees. How could we generate more revenue for these programs, more funding for these programs, and could it be done through user fees?

Could a GPS user fee be put in place? Could a user fee, similar to what sportsmen pay when they buy motor oil and fishing lures and, you know, and I forget the name of the legislation that funds that for Fish and Wildlife. But could a similar user fee for geospatial possibly be something that we could take to the 113th Congress, as a way to generate mechanism.

I like the idea of a tollgate up here at the Bering Gate. I thought it was a good idea this morning. You know, and so looking at language specifically, you know, to the Arctic region in that regard. There's a lot of commerce that's going to take place here.

There may be an opportunity where user fees could help self-fund, you know, some of the efforts, and could also be used as a funding mechanism potentially for ports. Both of those items are assigned to different working groups.

Looking at the level appropriations, and I know the chart's hard to see, but it's a woeful story, right? We had ARRA funding in 2008. Things spiked up and, you know, adjusted for inflation. We're not getting any more money, so we have to be better stewards of the money we have, and make it go farther and try to find that strategic way to be more efficient with it, and be better stewards of the taxpayers' money to meet the needs of safety of navigation.

You know, there is current legislation that prohibits the use of user fees for the acquisition of nautical data. So that may be legislative wording that we need to work, or our associations, peer groups, other people of shared interest could work that issue, and try to get, you know. Maybe we can get different wording in there that opens that door up for us with the HSIA re-authorization.

You know, if we go forward with the ten most wanted, one of the things in the working groups said that we definitely should do is develop a one-page summary about HSIA. At the end of that working group, trying to tie that legislation back to the most wanted list, to make that connection, you know.

Maybe there's a way to use that type of a report to help gain some traction for re-authorization of HSIA, you know, in the next Congress.

Obviously, any way we can tie it together to the private sector, creation of jobs, economic benefit, create that casual and beneficial relationship between that legislation and the broader economy will probably help us with the sell and the delivery on Capitol Hill.

MEMBER DIONNE: Can you just put Wal-Mart on the bottom of that list?

VICE CHAIR PERKINS: So that's what the working group has been focused on, you know, for our working group. You know, there are two other working groups that came out of the meeting in Norfolk that had been created, so you'll hear, you know, briefings from each of them.

I think, you know, entertaining some questions from each working group at the conclusion and then a further discussion at the end. So this is where you push the button and a red light comes on.

CHAIR WELLSLAGER: Okay. So do we have any discussion questions for Scott? Yeah, Frank.

MEMBER KUDRNA: On the first topic of cost savings, I guess when I first saw your list, I would have -- I think those are good items you listed. I would have assumed they would have been broader, looking at the function of NOAA and not just the FACA committee.

VICE CHAIR PERKINS: Yeah. When we talked about it at the working group, you know, fix our own house first, right, live in a glass house. The concept was kind of that leadership by example, you know. If we can demonstrate that as a working group, as a FACA that we're willing to preserve funds for the programs, you know, take that step first and then look.

I guess it's not our job to be an audit agency, you know, as a panel, you know, for these programs. It's our job to review and make recommendations for improvement, efficiency, you know. So we were trying to avoid getting into that being an audit or making an analysis of the financial performance of any one of the three branches.

MEMBER KUDRNA: So the working group definition, is it -- it's both or it's just the FACA?

VICE CHAIR PERKINS: Well, I don't want to misstate this, but the HSRP panel's job is comment and review, not audit. So we were trying to balance that line.

But we said we can look at our piece of that budget that is spent on us as a panel, that would be within our domain, you know, for our consideration, and it goes into the HSIA re-authorization.

So I believe it was Admiral West that got the wording, got the funding put in place that pays the stipends to this particular FACA. Somewhere around between 1,300 and 1,600 other FACAs exist. I'm not 100 percent certain on this answer, but we may be in an extreme minority as FACA members receiving this compensation.

So in this particular economic climate, we said that was an area that we could touch, that had to do with the finances, without getting into their business and trying to look into the tri-services branches, into their finances.

MEMBER KUDRNA: I think those are fine recommendations. In just all the other FACAs I've served on, have taken that efficient license much larger. If you're talking about a 17 percent reduction in a portion of the agency, I think there's a need to look at a broader swath than just the FACA committee.

MEMBER MILLER: But one of the things that we are looking at is what was -- the authorization bill has numbers in it, and so that budget we looked at, we are looking at what were the preceding authorized numbers, and taking recommendations from like Paul, who was advising us, to look forward to the re-authorization, to make recommendations on what the overall budget, you know, what the HSIA should recommend.

So we are looking at a broader sense. Scott, I would say that we were looking at that little piece of the HSRP expenses as sort of a first step perhaps.

VICE CHAIR PERKINS: Uh-huh, yeah. You know, the working groups were formed in Norfolk. This is our first meeting since then, you know, and as a new panel member, I'm going to say I welcome you, Frank, to join, get in the working group and to bring that to the table, because we're creating from scratch here, so there's nothing off the table.

So don't let my response -- I don't mean to be stonewalling you. Maybe we should look deeper at the finances, you know, of the operations of the tri-services, without overstepping the authorized role and responsibility of the HSRP. Yes Chairman.

CHAIR WELLSLAGER: One other thing, Frank. In looking at the meetings and such, we are to hold two a year. Well, all right. That being said, it doesn't necessarily say how the meetings have to be held or where they have to be held, and discussion has been within the working group itself, to instead of having both of the meetings at locations of somewhere other than say Capitol Hill or the D.C. area, if we were to have one of those meetings there, we could accomplish a few things actually, probably a bit more readily.

One, we would have a greater possibility of having more administration people be able to attend those meetings and provide input. Secondly, we would not have to worry about travel costs for NOAA administration, and thirdly, as Scott indicated, there is a chance that we might be able to have the meetings facilitated at some of the committee members' locations themselves. Like USBoat would be a possibility.

So a significant amount of money might be able to be saved in something like that. Now, you know, it might be a small drop in the bucket, but it's at least us showing the tri-office directors that we're trying to help save money for them, because you know in essence, they're the ones footing the bill for this whole thing.

VICE CHAIR PERKINS: Great. Well, we have two other --

MEMBER BRIGHAM: Well, I'd just comment that --

VICE CHAIR PERKINS: Certainly Lawson.

MEMBER BRIGHAM: The Arctic Research Commission is a FACA, and routinely we fund, we pay for the time of the commissioners. In fact, we have commissioners go out to various meetings and are on boards, on working groups. Whenever they do that, those actions, their time is at least somewhat reimbursed.

All senior level people like all of us, I mean it's a routine thing. I don't think this is an anomaly. I think if we look at all the FACAs, I'll bet, I think we looked at it in a commission, 20 percent had some funding arrangements. Depending upon the level of the commission or the working group, and if it was fairly high level, experienced executives kind of people, that it's just -- it was just a routine thing.

VICE CHAIR PERKINS: Yeah. Like I said, that wasn't a GAO report, that it -- the National Geospatial Advisory Committee is a FACA, and that one is, you know, run by Interior. The members of that FACA are not compensated. My prior service to the Small Business Administration in a similar capacity wasn't.

But yeah. But we wanted to put it on the table, you know, just and you're all here. You know, if nothing else, it ought to get a reaction, right?

MEMBER KUDRNA: And in answer to your question, I'll volunteer.

VICE CHAIR PERKINS: Great. Well, I will turn it over to Dr. David Jay, who's going to report next on their working group activities. Thank you.

CHAIR WELLSLAGER: Okay. Real quick before we do that, having seen or heard what Scott had to show for a presentation of what we've actually done as the working group for the re-authorization, is it a feeling of the panel that we're moving down the right -- we're moving in the right direction?

Is there changes that you think should possibly be considered or made, or I'll open the floor up for discussion, as to the general consensus as to what progress we've made to date within this group.

MEMBER JAY: If I might, Matt. I think I suggested to you earlier that it might be a good idea if each of these groups took what input we could get here, and then had a dinner meeting of the group, you know, got together over dinner and as a preparatory thing to the next stage of trying to take this a little bit further.

CHAIR WELLSLAGER: Okay. If we were going to do something of that sort, that probably won't work in this meeting. But it would be something to consider because we have --

CAPT LOWELL: Yeah, John Lowell here. I was going to say it's probably a reasonable idea, and I was just noting that on the last day here, there is a, looks like an hour set aside to kind of consolidate the views on the progress of the working groups and the direction that the working group is going.

So I think you're right. I think we can take some input until the all the working group members here have listened to it. Maybe refine that a little bit, informally, off the record, and then try to consolidate the opinion of the panel as to that's the direction you want these working groups to go.

I think where we want to get at the end of this meeting, is some affirmation that the working groups are doing the work that you want them to do and they're headed in the right direction, barring any slight tweaks of the activities within the working group. So I think that's reasonable.

CHAIR WELLSLAGER: Okay, good. Thank you. Bill?

MEMBER HANSON: Matt, if I can just ask, what is the next step with this, the next --

CHAIR WELLSLAGER: Lawson.

MEMBER BRIGHAM: Well, I think that in our letter to the Administrator, that we should have one page for each of the working groups, bulletized list or something of issues that all of, that we could get consensus on from the whole of the HSRP, and attach it to the Administrator.

We might not get agreement with all the NOAA staff, on the issues or consensus there, but we might get consensus among the HSRP on some headway on some of these issues. I think it should be reported out, because we have the working groups.

CHAIR WELLSLAGER: We do that, and I think if we were to build on what Captain Lowell had suggested on Thursday, we could kind of put our minds together and see where things are going, and if we want to modify the direction, change the direction or do something at that point in time, we'll come up with that idea then.

Right now, it's more of a this is where we are in the grand scheme of things, and we're reporting out.

MEMBER HANSON: That's great. This is a great start. I think it's all good stuff. Just we'll make sure when we draft a letter, that we give something that is actionable, something they can actually do something with, not just make us feel better about having done our jobs.

CHAIR WELLSLAGER: Right. Michele.

MEMBER DIONNE: Another point to make would be that, thank you, is that, you know, you're going to have these working groups doing homework in between meetings, and that's another sort of value-added element to it, what the FACA does.

CHAIR WELLSLAGER: Joyce.

MEMBER MILLER: It would be -- I think it would be very useful. For instance, I worked on the user fees issues, trying to figure out what the legislation was and so forth, and got some good feedback from NOAA staff. But from those of you in the Coast Survey that have been there for a long time, you know, know how these things run.

You know, to say well, I don't think you have a snowball's chance in wherever of getting user fees in or yeah, that's a good thing to consider, you know. It might be practical. It's just that would be the feedback that I'd be looking for, before we go any further in trying to figure out what to recommend, just from the experienced people that have run these gauntlets.

CHAIR WELLSLAGER: Right. Okay. Dr. Jay.

MEMBER JAY: Thank you. Well, as you can see, the first place that I did somewhat rename the committee, I called it the or we called it the HSRP Strategic Effectiveness Committee, a subcommittee. The wording that was suggested to us seemed rather long and cumbersome.

So we decided we would rename ourselves, and also these are our committee members, and we will need one item of business, of course, is probably going to be to replace Sherri, since she's no longer with us, and we probably do need someone else to work on this.

So like the previous group that Scott was -- whose work Scott was describing, we also picked four areas or worked on four different areas that were chosen at the previous meeting, the first of which was improving and supporting the port system. The second one was responding to changing water levels and inundation threats. The third was improving NOAA's products and services and we, to a large extent, did take our inspiration in that area from the ten most wanted list of 2007, was that put out?

MS. WATSON: The first one, and then the update was 2010.

MEMBER JAY: Yeah, okay, and since I don't think most of those have happened, those aren't necessarily outdated. So we went back to those. Then Gary's idea of improving outreach and branding, that seemed like a real important topic where we could maybe do something original.

So PORTS. Well, I don't think I have to tell most of you that PORTS is critical for safe navigation and important to many management activities and agencies. The PORTS systems now exist in 21 major U.S. harbors out of, I think it's about 175 places where there's considerable, some level of commercial navigation. That's not a particularly high percentage.

They are inconsistently funded. They tend to be a lot of the local arrangements and funding is uncertain from year to year. This is a real problem. I haven't talked to anyone who said they have all the instrumentation that they'd like.

There might be a port somewhere that's perfectly happy with what they've got, but our local people are not, and I know several other groups would like more sensors, and there's no way to by and large -

Well, there's no systematic way to come up with funds for upgrading a system or even deciding what system ought to be upgraded, other than just a local group taking initiative and deciding they want their own system upgraded and paying for it themselves.

Models are woefully chosen. I understand there is an effort to stabilize with FVCOM as a universal model. But I think it's probably fair to say that -- well, there are pros and cons to that, and I'll talk about that a little bit later.

So we thought that we had the following suggestions, and we phrase these at this point as suggestions, and they're very much for the group and comment, public comment to discuss.

We should clarify funding mechanism or mechanisms. Does that mean user fees, and it's not obvious if you don't use user fees where money is going to come from in the present environment.

One approach to the instrumentation problem would be to establish a minimum set of sensors. Navigation is not the only user. There are important management activities, and even if one conceives of management as the primary user, that may suggest sensors that are, in addition to those that might be used by a captain needing to nav -- or a pilot needing to navigate a ship.

For example, in our situation, relating specifically to the modeling, dredging is a big issue, and modeling, you know, sediment transport would in our system be a highly desired modeling component. That might not be a typical issue. Maybe nobody, you know, other systems might not care about that at all.

So there will, I think, my thought on this anyway is there will need -- there will continue to be a tension between localization of models, you know, we need this model because it does this, and the desire, necessary desire from the NOAA side of things, to for heaven's sakes we've got to standardize on one model. That's just a tension that we're probably stuck with.

We also felt that it would be useful to possibly expand PORTS to other seaports, where a cost-benefit analysis suggests this makes sense. However, in the present funding climate, that will not happen unless there is some user fee arrangement.

The first problem, the clarified funding mechanism, has to be dealt with, in order to even consider doing that. Finally, there are a lot of observing system efforts out there now. PORTS is not the only one. Better exchange of data and an ability to see all of the instruments in an area might be very helpful to some, at least some users.

And in terms of innovation, looking internationally to see what are they doing in Hamburg; what are they doing on the Danube River. We're not the only place in the world, or what are they doing in Melbourne. The Dynamic Under Keel Clearance stuff came to the Columbia River from Melbourne, Australia.

So there is interesting innovation going on in various parts of the world that we need to learn about.

Okay. So water levels and inundation issues. We tend to think of the water level spectrum as roughly having four parts: mean sea level, tides, waves and surge, and due to climate change and of course there are tsunamis on top of that, and then but due to climate change and varying other factors, in different parts -- along different parts of our coastline, different parts of the spectrum are changing.

So because partly of subsidence, sea level rise is quite rapid on the U.S. Gulf Coast. Sea level rise, tectonically, the U.S. West Coast is broken up into a lot of little bits, and in some places sea level rise is important, some places it's not.

On the other hand, there's a broad stretch of the U.S. West Coast where even despite minimal sea level rise in the last 20 years, there's been increased coastal erosion due to increased wave action, bigger waves and more severe storms.

So no one needs to be able to respond flexibly with better information for users, and one of the challenges here is the sheer length of diversity of the U.S. coast, and then also the issue of the historic NOAA data are poorly known, inaccessible and not really catalogued anywhere, and for issues like sea level rise, where long records are extremely important, this is a big issue.

This is when I kind of got stuck here, because I wasn't quite sure where else to put it, the coupling diverse models that deal with different aspects of coastal change is really important, and yet pretty hard to do, and involves cooperation with people outside of NOAA.

In terms of suggestions, we need to improve data delivery and model coupling for planning, management and mapping, and for crisis response. The ERMA stuff was very informative today. I was not aware of that, and so that, we may need to put that into our thinking here.

One thought that we had was that given the overwhelming amount of -- the overwhelming need relative to the financing, let's put it that way, that we needed to prioritize coastal areas. I gather from what I heard today that there is some of that going on already, with what -- Captain Lowell told us something about that, and we'd like to know more.

Geodetic information. GPS units, we thought, should routinely be installed on tide gauges wherever possible. I was talking to someone from Australia yesterday, who told me that a significant fraction of their 14, count them 14 federally funded tide gauges by his agency had GPS units installed. It's not a very big place in population, but they've been working on that.

And then a thought that occurred to me was the taking into account the various factors, changing elevations in PORTS. Could we update this more continuously, rather than every 20 years, roughly, which is when the epoch changes now?

Historic data recovery. Well, as expensive as data recovery may be, it's cheaper than new data collection, and if we make the comparison to meteorology, a very large amount of effort has been done, gone into re-analysis of the historic record, which of course implies, the whole subset of that implies a very large data recovery effort and QA associated with that.

So products and services. We've got a rising demand, larger ships and more traffic, more coastal planning for more people, as more than half of our population lives in these coastal counties.

There's a problem with coordination of data levels. Katrina made that particularly apparent, that in New Orleans at least, various agencies simply didn't know how high their dykes were relative to other dykes.

Coastal erosion, in some parts of the country anyway, is certainly a very serious problem that threatens public safety, ecosystems and infrastructure. We just saw with the tsunami, the tragic Japanese tsunami, even though it was not along our coast, there was a substantial amount of damage along the U.S. West Coast.

Then there are specific needs. All right. Only one more. Specific needs in remote areas like the Arctic and Pacific Islands. So, all right. So I will go through those very quickly, I guess, is the answer. We need to better use the NOAA fleet, the public-private partnerships, something the first group also mentioned. We needed to do something about that.

Improve dissemination of data levels, integrate real-time GPS into surveys, improve coordination. This is something we took straight off of the ten most wanted list; improve coordination with other agencies that also have tide data. So in our local situation, we have USGS gauges in the river that are not visible to PORTS users.

We need to improve mapping outside of navigation channels for other managers, and prioritize specific apps and services that will bring broader recognition.

Outreach. NOAA is not very well-known. We aren't doing a good job of getting people to recognize how much NOAA does for the public. Sometimes NOAA-funded products aren't very user friendly, and many people use NOAA products and services without knowing that they are. We had that exact discussion at our last meeting in Norfolk.

So we need to think, define what are our users, hopefully some new ones and what do they want. Gary's idea that each tide gauge should have a Facebook page. Are there perhaps apps for Google and iPhone that can be defined, that would be, you know, bring recognition?

Can the logo, can NOAA, the legislation be changed such that the NOAA logo goes along with the use of NOAA data? Are there opportunities for more, you know, TV weather clips, that they use NOAA spokespeople or NOAA spokesmen, you know. NOAA puts out clips that get used.

Is there a NOAA mascot? That was Michele's idea. I thought it was a great idea.

Well not Smokey, but I mean you know, is there -- and then user fees, which is a perpetual topic there.

MEMBER DIONNE: I just thinking about when we took our daughters to see the Lion King in Times Square. Is that where they have those things? No, Broadway. Anyway, how about a nice big sign, you know, a big neon sign for NOAA there? Just joking.

MEMBER JAY: So those were our preliminary thoughts, subject to your further input.

CHAIR WELLSLAGER: Gerd, Captain Glang.

CAPT GLANG: Gary Glang. Thanks, David. Was the working, or is the working group aware or made aware of NOAA's storm surge road map? It's a recent effort in the last half year, I think. It's cross-NOAA, to look at better developing a strategy to holistically address NOAA's surge modeling activities across the different line offices?

MEMBER JAY: We were not aware of that. If you could forward us --

CAPT GLANG: Yeah. We can get you a point of contact on that. It's --

MEMBER JAY: That sounds like a great --

CAPT GLANG: And it looked at a range of things, very similar to what you looked at, including all the way through to the social sciences and understanding how communities respond to things like surge warnings and storm warnings. So you guys should, would probably learn something there as well, and be able to incorporate that.

MEMBER JAY: Your key word was "we should learn something." That was one thing I felt when I was doing this, that I just simply didn't know enough and we need more communication about this, because we have diverse skills here, and we need input from all of these.

CAPT GLANG: That didn't come out totally right. I wasn't trying to denigrate the working group. I meant would eliminate you on an activity ongoing within NOAA, and we're not good about sharing that externally all the time.

MEMBER JAY: Yeah.

MEMBER DIONNE: You know, if you want to use, I guess the thought was out there to use FVCOM as a universal model. But 10, 12 years ago, the Reserve system developed a graduate research fellowship program, and it seems like you could offer up fellowships to students who want to take an FVCOM and customize it for specific, you know, PORT systems or other, you know, non-PORT systems.

But that has worked quite well for us. Of course, we just cut that budget in half, because we don't have enough money to pay for toilet paper at the Reserves right now, so we'll get it back.

CHAIR WELLSLAGER: Okay. For the sake of time, thank you, Dr. Jay. Lawson, if you could come up right now, and then we could kind of tie in any questions or discussion we wanted to have after this last presentation.

MEMBER BRIGHAM: When we established this working group, it wasn't quite clear exactly what the focus is. I mean, Arctic is a huge topic today. There's a lot of hype associated with the topic of Arctic within the government and within the media, et cetera, and trying to sort through all of that is a challenge for just the three of us.

Matt was a member, but kind of ex-officio, so he will be blamed for some of our recommendations. But we need, in this working group, and I'll say at the beginning, because my last point is this really does need to be a standing working group, if we're really serious about looking at Arctic.

Because it's hugely complex. It's very broad, and we need some more talent within this working group. But nonetheless, Steve from the commercial world, Andy, of course, a retired NOAA captain, hydrographer extraordinnaire, myself as a Coast Guard officer and all three of us go to a lot of Arctic meetings around the world, and so we think we have at least some feel.

We could have taken the tact of looking at NOAA's strategy and picking away at your nice strategy and implementation plan. But as was said already, we're not an audit team, and we considered it, but threw it out quickly.

That's not an approach this should be, partly this working group from HSRP, be educational and be informative to the NOAA staff and to NOAA itself, in some avenues where you might not hear the messages that we have to say.

So the first thing we decided to talk about was well, what do we believe, in our expertise, are the driving forces in the United States Maritime Arctic? We should kind of start at that level, and here they are. You don't necessarily see trans-Arctic navigation, which you heard a lot about this morning.

And offshore oil and gas around the circumpolar world, and particularly in the United States Maritime Arctic, is driving green traffic levels, like this summer's Armada of ships with Shell. Onshore in the future, coal, maybe a ramp-up of the largest zinc mine in the world at Red Dog, etcetera, will drive marine transport systems to take Arctic natural resources out of the Arctic to global markets.

We do see, of course, expanding traffic along the northern sea route. It's not necessarily, a very low percentage of it, will ever be trans-Arctic navigation. Most of it will begin carrying natural resources from northern Norway, western Siberia to China, maybe to Japan, Korea, et cetera.

But mostly, summertime operation, vast natural resources carried by mostly Russian flag ships, but a few international flag ships to China.

Then we all believe that through the next couple of decades, probably make Larry happy, that we need to explore this Outer Continental Shelf. Whether we ratify it or not, we need to continue our important surveying of this region of our, presumably our Arctic.

So it's a huge issue. It's not a traffic issue, but it's a funding issue. It's a national strategy. It is part of the Arctic, and NOAA is a player in all of that. Our notions of what drives our team, what drives Arctic marine transport is very consistent with what is said in the Arctic Marine Shipping Assessment, probably no surprise since I chaired this thing.

But Steve played in it and others. It's very clear, from 100 people working for a year looking at future scenarios, that it's not sea ice retreat; it's global economics, it's natural resources.

So the global trade route message is a bit extrapolated, a bit promoted and isn't the real message. It's the tie of Alaska's natural resources and the circumpolar world to the rest of the globe. You see that word "governance."

There isn't a lot of governance in the United States Maritime Arctic. We have no special regulations for shipping or for operations of ships in our Arctic, no different than around the rest of the country. So that's an anomaly with the International Polar Code, with proactiveness in IMO on the part of the Coast Guard and NOAA and other agencies.

Hopefully, there will be a Polar Code which we will -- with a mandatory polar code of navigation. We will pass domestic legislation presumably implemented into national law. I show these images, because NOAA and the world promotes this new ice-free Arctic, and this is from the least extent sea ice, at least in the satellite record if not human record.

But when we look at the real messages, and in our message to you from our working group, the practical issue is the place is ice-covered nine to ten months out of the year, either partially or fully, throughout the century and beyond.

It may be thinner. The character of the ice is changing, but just the fact that it's ice-covered has huge implications obviously for regulation, the economics of shipping. But all we hear, even from NOAA, is the reverse. Place is ice-free. Everybody here in this room would understand it's not ice-free in the middle of the winter.

But nonetheless the message is twisted, we believe. It's the reverse of what it is. The place is still ice-covered, dangerous, complicated place, hard to make money, you name the issue. So the promotion and the use of only observations, and the messages out of that about the Arctic and all the use of the passive microwave and all the satellite imagery is, has been misinterpreted, I think.

Here are some of our key issues. So in our first meeting, we kind of discussed the whole of the issue. What are some primary messages to our group here? But here are some very specific issues that we will try to address in the next couple of slides, but also in the future.

It's the availability of new hydrographic surveying assets. In other words, either commercial, Coast Guard, Sikuliaq, et cetera, and I'll get to that. The issue of new monitoring and surveillance systems, and the information that comes out of all of that, all the traffic maps that you'll see. I'll show one, but you'll see with Ed

Page and the Marine Exchange, we saw one already.

All of that data and information is being used today, and we expect even more and will influence the strategy of hydrography, and the planning and the infrastructure needs. We have all this data. We must use it for decision-making, and that will be a period of transition to do that.

We note and report that the importance of integrated observations. We do have a lack of sea ice, in our opinion, tides and current observations in the United States Maritime Arctic today. I don't know how you work, run the ERMA without those observations. We can't, at least to get the trajectories and all the information.

So the lack of observations will have impact on the federal response, and the capability to monitor spills and whatever and respond appropriately, without the observation. So that's music to your ears. But nonetheless, our group, a bunch of mariners say hugely important the observations to the federal response.

And then it's just the notion, as you would suspect, the huge complexity and the need for data is increasing every day. We have efforts on marine spatial planning, lots of indigenous issues. This international maritime regulations and designations. There may be traffic routes, etcetera, all need robust information and data, which we don't have in the United States Maritime Arctic today.

And then finally this issue, of course, of adequate funding. There's no way in the decades ahead that the federal government will be able to fund all of our needs for infrastructure, and it has to be future novel public-private partnerships.

Just to show the complexity, the Russian Arctic and this flow of traffic, and of course all this flow of traffic goes from the Russian Arctic through Bering Strait and down to China or other countries. The complexity of indigenous use and its meshing with all of the other new uses that we may have in the Arctic, and here's just this example, a well-known and complicated situation with indigenous whaling.

Of course, one of Ed Page's Marine Exchange maps. We looked at the maps for the last couple of years and think that the most sensitive area for the United States Maritime Arctic is the west coast of St. Lawrence Island. That's because it's a merger of lots of traffic from the northern sea route, both Russian traffic and whatever.

If that area is not well-sounded and surveyed, et cetera, we're likely to have -- there will be a high probability of some sort of accident in that region, without proper observations and surveying.

Calls by the Arctic Council to have a seamless integrated comprehensive monitoring and surveillance system, based on AIS, real-time data and data fusion, passing the data between countries. A big issue, and it's a complex issue, it's ongoing.

Then we've had some recent studies. I played in these, although I wasn't the driver. It was out of the Arctic Marine Shipping Assessment, we had an effort in the Arctic Council and in NRDC and IUCN to identify what are the biologically, ecological sensitive areas and significant areas in the whole of the Arctic.

I picked out this out of the report, and the whole of the Bering Strait region, as you might guess, is among the most sensitive, significant bio-eco regions on the entire planet. You can see all the yellow represents the regions, which covers the whole of the region. So that amplifies, I think, the complexity that we have the whole thing.

One notion is, of course, that you can't close off this and even regionally close off this strait, this international strait for freedom of navigation, and the notion of even closing it off in certain seasons is anathema to international law.

So some of our actions, and then I'll summarize with a couple of comments. We think that the new Sikuliaq, which will be operated by our university is a national investment. It's a couple of hundred million dollars, operated by UNOLS and by our university, should be par, should have multibeam and operate and survey wherever we can with this ship, just as one.

Maybe you've talked to UNOLS already. We weren't quite sure, and Andy was going to follow up. We think that the nation's buoy tenders should maybe have the shallow draft icebreaking ships could have multibeam, could survey coastal areas. The investment could come from somewhere.

But if we're not going to have new NOAA survey vessels, we must look for other options, and commercial assets, we actually think that the Aiviq, the Walrus, the new ship, has no oceanographic gear, right, Mike? No multibeam.

Well, it's one of the most modern icebreakers and largest commercial icebreakers on the planet. It happens to be one of the sole U.S. commercial icebreakers. So what kind of partnership could we have with Chouest and Shell to operate that ship in maybe some different ways in surveying the United States Maritime Arctic.

There will be other offshore players, and we want to have -- we would recommend the same partnership that NOAA has with Shell, with those other partners in the future, and one of the partners is Norwegian, I think. One of the developers is Norwegian, I should say.

In this new upcoming GAO study that's been called for by the Congress, we think we should input somehow either HSRP or individuals talking to the GAO program folks that are doing, that will conduct this study, some notes and thoughts about the Arctic, because I think the study is driven by some notion that there's duplicative systems, right, and that we can eliminate systems.

Well, there's hardly much duplication in the Arctic. There's no observations or no collection system robust. So we should note that. Now who the "we" is, whether it's HSRP directly talking to the GAO folks, I don't know. But we think we should have a say in that.

We, our working group thought that the U.S. delegation to IHO, the International Hydrographic Organization, and its Arctic Regional Hydrographic Commission, newly-formed in 2010, should press, as one of our national efforts or issues, for coordinated, collaborative surveying, like we've done with Canada in the Louis St-Laurent and the Healy.

Then finally, as I mentioned already, we think that this is a hot topic, a complex one, probably should have a standing committee in HSRP.

We talked about maybe doing surveys, but we don't know the legalities and you know, having a FACA do a survey of stakeholders. It might not be appropriate. So we need some legal advice on that. So those are some actions.

If you don't mind, I want to just run through something on the AMSA, and I'll come to it. This Arctic Marine Shipping Assessment was negotiated in part by the United States and all the eight Arctic states. So when State approves it, it approves it on behalf of the United States, and hopefully passes it to the federal agencies.

So we believe, our working group and of course all of us in AMSA, believe this is a framework for each of the Arctic states, for attacking the issues of environmental protection and marine safety, and all of the recommendations we have, 17 of them, are around this rubric of safety, people and environment, and then the important infrastructure.

I wanted to just run this through for two minutes here. This is where we are in the Arctic states. This is where we are in the United States too, in orchestrating elements of these recommendations. A lot of Arctic state engagement now in WMO, IHO, IMO, et cetera, all the acronyms, with Arctic issues.

We have a SAR agreement, signed by the Secretary of State two years ago in New Greenland, the first negotiated holistic Arctic agreement in the history of the eight Arctic states. But you see in black a number of other measures and recommendations that we haven't made a lot of progress on.

For protecting people, a whole range of issues. Been good progress by all eight Arctic states, reporting that community engagement with indigenous communities is quite good and robust now, and we've identified these eco-significant areas. But you can see a lot of other issues haven't been addressed yet, mostly by IMO.

Then finally, it's the marine infrastructure issues. There's been some headway on Arctic marine traffic systems, because the AIS is robust. We have now satellite coverage, and then as an ongoing environmental response capacity agreement, I am part of this, and we're negotiating an agreement that will relate to response and preparedness for oil spills in the Arctic.

Three other images. I'll just let you look at them and won't comment. I have to comment about this one. That's a pretty searing image of the 21st century for the maritime world. All of us, many of us are part of that world, and to have this happen a century after the Titanic is quite extraordinary.

These same ships, of course, operate on the west coast of Greenland, and we're just going to wait to have one of these. Of course, in the west coast of Greenland, whether it's in the summer or whatever season you operate, there probably will be five, six thousand people lost, because people can't swim ashore. They'll freeze in the life boats, et cetera.

We ran some scenarios in the AMSA just like this, and for the coast of Greenland, and the temperatures are pretty low in the water. So the questions are for not us, the insurance industry, IMO, investors, operators, a long list of people.

So this is kind of what we'd like to prevent at least from happening throughout the circumpolar world. I'll stop there.

CHAIR WELLSLAGER: Okay, Lawson. Thank you very much. I guess now we could look at addressing the panel that we've got there presently for questions and answers. Larry?

MR. MAYER: Yes, a question for Lawson. Lawson, you've highlighted the increasing focus on the Arctic and outlined a number of drivers that put tremendous pressure on NOAA to deliver a range of services.

But those same drivers put pressure on many other agencies, the Department of Interior, the Coast Guard, the Department of Defense.

You also outline how the logistical difficulties of the Arctic have led to some amazing collaborations and cooperations. Is there an emerging opportunity here to actually look inward; not think about these international collaborations and cooperations, but inter-agency, within our own government, to use the logistical difficulties of working the Arctic, to truly collectively address some of the issues --

MEMBER BRIGHAM: Well, I think that the first thing you'd look at is the federal fleet and how you define it, and who should play. I mean I, of course, have some bias, because I was a Coast Guard officer. But I always believed that the Coast Guard cutters that I commanded were a floating observation platform, and that should be even surveying or having multibeam aboard, and wherever we went, we'd take data for the nation.

There are relationships. I know you have them with the Coast Guard, but I'm not sure at the level that might -- that we should have here early in the 21st century. I mean I -- it's not just the Coast Guard.

MR. MAYER: I just wonder if this is an opportunity.

MEMBER BRIGHAM: Well, we recognize -- I mean yes. As a working group of HSRP, we just don't think there's economizing being done, recognizing that probably there are not going to be a lot of new hydrographic survey ships, like there won't be many icebreakers.

So what have we got now? What's the capability to the ships, how could they be reconfigured. But we do have this UNOLS vessel, which is a very capable icebreaking ship, scientific vessel, we think could be used not only by NSF and by university research, but again for the national good.

CHAIR WELLSLAGER: Joyce.

MEMBER MILLER: Yes. There's a related thing that your last slide of recommendations, it was all about coordination, and this is sort of a -- have you considered or is there any Arctic representation on the IOCM group, which is unfortunately another relatively poorly funded inter-agency group, I believe.

I don't even know what the status of it hardly is anymore. But it was something I was a member of a few years ago, and I haven't really heard much about it. But in terms of the Arctic, this would be one group that should be doing the kinds of things that you're looking at, in terms of integrated mapping.

MEMBER BRIGHAM: Yes. We tried to stay to the subject of infrastructure, which is a complicated one, and not go too broadly into some of the policies and things. But you're right.

But there's a lot of coordination supposedly going on in the government today on ocean issues at the highest level. Whether it's completely effective or not, who knows. I don't think that some efforts really touch some of the practical infrastructure issues as they maybe should.

Tough issues need maritime expertise, and evaluating how much infrastructure or not is a tricky thing to discuss, all expensive too. Well, we have CMTS, but I have yet to see something that commented on some of these issues.

CHAIR WELLSLAGER: I have a gentleman here that would like to address something with you, Lawson.

MR. LAKOSH: Yes. Thanks, Captain Brigham.

CHAIR WELLSLAGER: I think you need to turn the mic on.

MR. LAKOSH: Yes. I think it's on, yes. With regard to the international agreements, there would necessarily have to be a premise as to what regulatory standard is applied for response in any of these waters, and one would like to think that it was OPA `90.

But as you know, we have quite a problem here getting full compliance from regulated shipping as it is now, and I was wondering, you know, if the requested GAO might address particularly what was questioned here, is whether there is going to be cooperation, inter-agency cooperation to bring the standard of response up to OPA `90 levels, in order to set a standard for what should be contributed to by the Coast Guard through its OSLTF funding, to contribute to the OSROs for their response to international or innocent passage shipping.

Because part of what you're addressing here is international shipping, which is not regulated by OPA `90, but is necessarily -- but spills from that shipping, must necessarily still be responded to, to OPA `90 standards by the Coast Guard.

I could get into some other issues here that I was hoping would be addressed with regard to the contingency planning methodology, which is quite different between the NOAA spill tools analysis and the Coast Guard EDRC analysis.

But beyond that is the basic question of whether the regulated vessel traffic will be required to fully fund the OSROs in cooperation with the Coast Guard, which must also contribute, due to the percentage of traffic that is truly an innocent passage.

MS. WATSON: Excuse me. Could you please identify your name and your company?

MR. LAKOSH: Yes. My name is Tom Lakosh, L-A-K-O-S-H. I'm a long-standing stakeholder and critic of oil spill technology, and in particular the Costa Concordia.

I just put in a request to the captain, to the sector commander, to deny entry to the Carnival Spirit, which also owns the Costa Concordia and the two other ships that lost power due to fires in their engine rooms.

That vessel is contracting Chadux Corporation, which is not qualified to -- as their OSRO, which is not qualified to respond in open ocean but only in inland waters and canals. So you have that ship, sister ship of the one on its rail, transiting waters with no salvage laddering and firefighting capability, no effective ocean spill response capability, in areas where there are qualified oil spill response organizations, namely OSRV in Prince William Sound, CISPRI in Cook Inlet.

How we can ever hope to obtain the necessary inventories to both prevent and respond to spills, when the Coast Guard is not regulating the vessels that it can? And how do we not only get it to regulate the vessels that are subject to OPA `90, but then contribute the extra quantities necessary to respond for that innocent passage traffic as well?

MEMBER BRIGHAM: Well, lots of wide-ranging issues there, Tom. I think, one, I should dispel the notion that this GAO study is fairly broad. It's actually very narrow, I think. It's looking at data collection systems.

I think their look is to economize, was my gut feel for it, and so it wouldn't cover the response systems in place or anything like that. It's really data collection. You know, I mean for the Arctic at least, the effort needs to go in for this International Polar Code on addressing ship standards, structural standards, marine safety equipment, but primarily pilot house competency.

So if we're really going to look at prevention rather than talk about response all the time, which most of us do, we must have some international standards, and I think that's a representation of incompetency in the pilot house directly, for whatever reason. It's very clear.

But when you extrapolate kind of this system up to the Arctic, where we have no standards, it's in the prevention business, I know the response is very complicated in the Arctic because all the eight Arctic states have different systems and regulatory systems to respond.

We're dealing with it in this agreement ongoing in the Arctic Council, or facilitated by the Arctic Council, the eight Arctic states, to harmonize in a way some of our response mechanisms. So there's a future, at least internationally, harmonizing some of this.

I know you're addressing and interested in internal U.S. inconsistencies, but --

MR. LAKOSH: Well, the question is whether it is actually contradictory to what you're saying, that there are no standards in the Arctic, that all U.S. waters are subject to OPA `90.

If that's going to be the standard for response, how do (a) we get the regulated vessels to contribute their necessary OSRO fees, and (b), how do we get the Coast Guard to supplement those regulated vessels with OSLTF funds, so that we could fully fund the OSROs to provide the level of prevention and response required by law.

MEMBER BRIGHAM: Yes, no. Yes, I hear you. I misspoke. There are no Arctic-specific regulations today --

MR. LAKOSH: No.

MEMBER BRIGHAM: -- for the United States Maritime Arctic, none. There are many in Canada and Russia, with both their two different regulatory systems. So I can only say that we in our little working group didn't address the array of issues here.

We may get to them, as we get more expertise on our working group, but we didn't look to kind of analyze the inconsistencies of how the United States approaches some of these environmental protection strategies.

We weren't really looking for that because the subject is so vast. But it is, and we note your concern on this one --

MR. LAKOSH: Well, I'd be happy to lend some expertise to that effort. If I give you a ring, maybe we can --

MEMBER BRIGHAM: Sure. We want stakeholder input. In fact, tomorrow, we're having a discussion on emerging issues and trends, and you might want to participate in that tomorrow.

MR. LAKOSH: Yes, because there is in fact a need to establish the quality standards for Arctic salvage tugs and Arctic spill response equipment, et cetera.

MEMBER BRIGHAM: Bring it up -- bring it up tomorrow too, and I'll note it here. Thank you, Tom.

CHAIR WELLSLAGER: There will be one for Arctic Emerging Priorities, and there's a sign-up sheet over here. So if you would like to, please, by all means, sign up for that and be part of the panel discussion tomorrow, that would be spot-on.

Very good. Okay. Thank you very much. That's actually quite interesting, and for the new panel members, we have heard the three different breakout groups that have put forth some work, have done some work as together, trying to come up with ideas, working on issues.

The strategic mission, if you look at things, that's nuts and bolts. That's how things are working right now within the Nav Services branch. The legislative policy initiatives which we were working with are something that's going to be addressed next year, and hopefully we can get the HSIA passed.

Then that group will look to moving into something else. Then the Arctic priorities, as we've seen here, is going to be an issue that will have a lot of stuff that we need to deal with, and it seems to me at least, having heard what we've heard today and what I think we'll be hearing in the working groups and the stakeholder breakout, not stakeholder, but the panel discussions tomorrow, quite a bit more interesting input.

So what I guess I'm going around to in a round-about way is with the new panel members, please think about these, and we would like very much for you to join -- I would like very much for you to join one or two, if you would feel so inclined, but at least one.

And there's a desperate need to fill in Sherri Hickman's spot, so that David has a fourth. If one pilot, one can be replaced by a second pilot.

We're not going to, you know, actually ask right now, but please think about that, and before the end of this meeting on Thursday, provide to us what you would like to do for the panel discussion. I greatly appreciate it.

I would also like to thank Matt Forney for coordinating an excellent site visit for the Port of Anchorage today. That was actually quite interesting. There was interesting input in our group with the captain of the Midnight Star -- Sun. My bad, and I am not familiar with how the turnout was on the other ship.

But it was interesting in the fact that there's some shoaling taking place and there's some other issues in the navigation channel that kind of cause one to scratch their heads, especially when they're requiring three feet of water between the keel and the bottom of the channel, and that doesn't necessarily seem to be in place.

I would like any input from the group that went onto the container ship as to what their captain or master may have mentioned as the concerns, and let's open this up for a little bit of input about the site visit. Kathy.

MS. WATSON: Chair, excuse me. I have one question. We have on here the agenda for the new panel members. I need for them to finish their HR paperwork with Melissa.

Now whether or not you want to wait and do it in 30 minutes. She's going to be here, but we've got to get that completed today, and she's right outside the room.

CHAIR WELLSLAGER: Okay. I wasn't sure when I saw the orientation, what we were --

MS. WATSON: That's what that meant, for them to finish their paperwork.

CHAIR WELLSLAGER: Okay, my bad. Melissa's out there. Okay. For those of you that have not had a chance to finish that, that would be very helpful. But getting back to the input and the site visits. Ken.

MEMBER BARBOR: I think one thing we found on the Kodiak Horizon, it was interesting. Again, the same idea there, that shoaling, and highly variable. That was offered up by John and embraced by the captain.

But when we went to the chart, it did not have a tabulated box on there that would give you, you know, a Notice to Mariners update cycle on when the Corps had surveyed that are, and all you were left with was, you know, controlling depth established at such and such a year.

So they're, the captain clearly had some concern over the variability and its maintenance, and the chart didn't offer him any good feeling about when it was maintained or otherwise.

So I think that might be a quick fix, if you entered a tabulated box there on, you know, controlling depths and the Army provided you that information.

CHAIR WELLSLAGER: Lawson, please.

MEMBER BRIGHAM: Yes. The state of Alaska and Anchorage has been encouraging 1,000 foot cruise ships to come into this place that we saw today.

CHAIR WELLSLAGER: Really.

MEMBER BRIGHAM: It is hard to believe that there's enough space and depth, and that we might be asking for a problem with one of those ships coming in. I know that's, you know, for the tourism, for the -- very rarely. But recently, there have been pretty large cruise ships, you know, 5,000 passengers come in here and sit there at the pier.

But you know, looking out just as a mariner and seeing the shoals, I mean I don't know. It just seems like may be some issues to think about.

CHAIR WELLSLAGER: Right, right. Matt Forney, is the Corps of Engineers getting ready to do a survey of such that -- are we getting ready to do something? I'm sorry.

LT FORNEY: Yes. So this is Matt Forney, Manager of Alaska. We currently there's two shoal areas that are actually of concern, and actually the reason I was walking that way was I was going to actually pull up a nautical chart.

CHAIR WELLSLAGER: By all means.

LT FORNEY: So if you give me one moment, I can definitely pull that up and probably explain this a little better.

CHAIR WELLSLAGER: Please. Yes. It was interesting as I was looking at this, and I think Matt will point it out as well. You've got a couple of aids to navigation showing a range for incoming that oh yes, I just so happened to go over a shoaling area that is interesting.

And with the dredging that was taking place next to the ship that we were on, they were taking the spoil area and pumping it out into the middle of the channel, just to keep the flow of stuff going. I can't help but think that's going to do nothing more than deposit on the shoals, unless the currents are strong enough to just keep that glacial silt moving off into other locations.

LT FORNEY: So, just to kind of define this, the two areas that are of real concern is there's this area right here. It's called Point MacKenzie Shoal. The other area that I do believe the admiral was referring to is this channel over here, which is the Knik Arm Shoal.

The Knik Arm Shoal is currently, as you can see, 35 feet as of August of 2008. This is the area that the Army Corps of Engineers is going to be surveying this summer. Right now, we are getting reports from the Southwest Pilot Association that they're seeing depths of around 27 feet.

Using tide, they can calculate that down to a mean low or low water. So the Corps is going to go in, conduct a survey. Of course, they have to know how much money they need to go and get to be able to go and pull those, that sediment out of there. So that is their first goal.

Also, starting this summer, there's another effort by the Army Corps of Engineers to further understand and figure out what's going on with this Point MacKenzie Shoal. So this Point MacKenzie Shoal is actually, over the last few years, actually growing outwards. I'm not sure if you've heard from some of the captains on the Horizon, but they definitely need to use tugs when they're bringing vessels into this area, whereas historically they never have.

All of a sudden you throw in a large amount of current as well as ice, tugs are definitely necessary. So one of the things that is -- that they want to do is to define this shoal. Is it shrinking, is it growing? So it's going to be a five year study. Actually, last year it did shrink a little.

So if it's shrinking, nature's taking care of it for Army Corps, and if it is growing, do they dredge a channel right through the center of it.

As you can see, this line right here is the range line that actually marks this channel, but they also want to see if they could possibly dredge right straight through the center of that thing, and make it so that they can come in.

Because most ships come in, and then come in and go portside too. Especially on the roll-on/roll-off vessel, their door is on the port side of the vessel. So they have to go portside too. With this shoal, they're actually required to come in here, come and then swing around.

So one of the ideas is to either what do you do with this shoal? Shave it, go right through it, or do nothing to it? So that's kind of the idea of this five-year study.

And that's actually one of the things that Army Corps, as well as NOAA is working together, to try and understand and model currents in this area, to actually figure out what is happening to all the sediment.

Very, very good question, and it's a huge undertaking, especially with at the head of this, there's a large river that just continually dumps glacial silt into this, into the Cook Inlet as well.

LT FORNEY: Yes, yes, and that actually, the modeling is occurring now, I do believe. I think they have the data. It's just a matter of them throwing it into the system to create those models.

MS. WATSON: Could you please use the microphone?

CHAIR WELLSLAGER: Could you speak into the mic please? He projects. I should have said something anyway. My bad.

MR. MILES: Steve Miles with David Evans. So I guess that begs a couple of questions is, from the Army Corps's perspective. So they're acknowledging that the depth is not maintained to its federally authorized depth. Is that an accurate statement?

LT FORNEY: Yes.

MR. MILES: It sounds like is what we're hearing.

LT FORNEY: Yes, and it's --

MR. MILES: -- which is not too many --

LT FORNEY: They are acknowledging that, and also this area, I know that I did hear from another group that was on the Kodiak Horizon, that they were concerned about this being a resurvey area, and yes, this indeed, from the Forelands all the way up to past the port, up to Point MacKenzie, it is a resurvey area of NOAA and we usually resurvey that about every five years.

This is the fifth year that we have gone without a survey, and it's definitely one of our priorities next summer.

MR. MILES: What's the depth in this area?

LT FORNEY: The depth in this area is --

MR. MILES: -- channel.

LT FORNEY: The channel itself right here, which is the shoal that is currently, the pilots are reporting 27 feet.

MR. MILES: No, its federally authorized depth?

LT FORNEY: Yes. It's 35.

MR. MILES: Thirty-five, and the width of the channel?

LT FORNEY: It is, I do believe it's 1,008. Nope, 1,017 feet.

MR. MILES: Okay, thank you.

LT FORNEY: You're very welcome.

MEMBER DIONNE: So was there a plan to put a PORTS infrastructure in here at all, or --

LT FORNEY: I'm going to let Rich comment on the possibility of PORTS.

MR. EDWING: So the water level station you saw at Anchorage today --

CHAIR WELLSLAGER: Rich, on the mic.

MR. EDWING: Sorry. So the water level station you saw today, as well as the water level station down Cook Inlet a bit in Nikiski is a PORTS system for the Port of Anchorage. But it sounds to me like they needed a real-time current meter on the other side, Port MacKenzie, given the currents issues we heard about.

MEMBER DIONNE: But that's not ready to rock and roll yet --

MR. EDWING: Yes, using the NWLON station. When we establish a PORTS system, it automatically incorporates any NWLON stations that are in the area.

MEMBER DIONNE: Would there be in the planning process for covering water levels along the U.S. coast, where it makes sense to think about kind of, I don't know, like interweaving PORTS systems and NWLON systems, you know, not duplicating.

Not having them just always for the same places. You just told me you have two right now, so that's --

MR. EDWING: Well, I'd say they are interweaved, because when we're, you know, the NWLON is the foundational system, and whenever we're looking at doing a PORTS, we're really adding on to that existing infrastructure, observing infrastructure.

You may want to add additional water level stations to address some of the local needs, or current meters or air gap systems or whatever, you know, whatever the local needs are. But we're really starting with the NWLON as the foundational system.

MEMBER DIONNE: And a really good bathymetric map of some kind?

MR. EDWING: Right, although that's not part of the PORTS system, but you know, it is part of the overall information infrastructure that NOAA tries to provide.

MEMBER DIONNE: Right. So the ships are actually measuring the bathymetry themselves and relating it to the NWLON data? Is that the idea?

MR. EDWING: Well, the ships are taking depth soundings to make sure they have enough under keel clearance, but it's all referenced to mean level low water, which is what the channels are dredged to and the charts are referenced to. So it's all to that common reference plane.

LT FORNEY: And also, just for the panel, just so you can actually see where Nikiski is in relation to Anchorage. I know we throw out a lot of names in Alaska that a lot of you, I'm sure, are not familiar with. So if we do, please stop us and have us point them out to you.

CHAIR WELLSLAGER: I'm sorry. Did you have something you'd like to say?

MR. DASLER: Yes. I've got another two bits on this stuff as well.

CHAIR WELLSLAGER: Okay. First off, could we wait until the public session for that because this was something that we were actually seeing about a port visit that we just did, and the public comment period will be in about 20 minutes, 25 minutes.

MR. DASLER: That's fine. If everybody's available to answer questions, that's fine.

CHAIR WELLSLAGER: We won't be going anywhere. Fair enough. Thank you. Anything else about the visit that we seem to need to address?

MEMBER MILLER: I just wanted to say, the captain on the, now I can't remember the ship's name, the Kodiak was -- he said that when they transit those areas, he has the depth sounder on all the time, and he was just extremely uncomfortable with -- he said he had left three months ago and it was 30 feet clearance, and he came back three months later and it was 27. So that's sort of the --

CHAIR WELLSLAGER: A loss of three feet in three months?

MEMBER MILLER: Yes.

CHAIR WELLSLAGER: Wow. Anything else? Ken.

MEMBER BARBOR: I'm not sure whether this is reflected on the chart there, but he also commented on the port facility on the far shore there, and that that appeared to have changed a lot of the dynamics in the area, and it surely -- it looked like a nice groin for sediment transport management to me, but yes, it could play a role in that.

CHAIR WELLSLAGER: Something new at this meeting that we're looking at doing was outlined here is deliberations and recommendations for NOAA, and what, the thing, the idea was for this is, okay, based on what we've seen today, based on the input that we've received from talking to, say, the captains of the ships or things that we've actually heard, do we know of any or have any thoughts as to what we could put forth as possible recommendations from what we've done today that will go into the letter of recommendations to NOAA administration? Ken.

MEMBER BARBOR: I'll reiterate my one comment, is that I think that chart should have a tabulated block on there with the latest surveys, or at least something where that captain could have gone to and said aha, this is really old data or it's current.

CAPT LOWELL: If I may?

CHAIR WELLSLAGER: Sure.

CAPT LOWELL: Just one comment to Admiral Barbor there, is as I'm looking at it now, they don't have a tab on this because they have the actual channel information labeled on the chart itself. If you were to zoom in -- where did Matt go? Could you just zoom in again?

It actually has that information right in there. Now what we typically don't know is, and maybe this is more local knowledge and we could have had a note in there, but what this is saying is there's 35 feet for a width of a thousand foot, and the survey was done August 0, what was that, 8? I guess I can't see from here.

So that's the actual tab, and for those of you who don't know what tab is, is typically on an authorized channel, we might actually halve it or quarter it if it's wide enough up the entire length. So you would have reaches of channels with four quarters in it.

Each quarter would have a controlling depth, and that's what the admiral was referring to. In this case, because it's one channel, one width, they just laid it right on the chart. So I think the information is all there to the mariner. Just didn't recognize it at the time.

MEMBER KUDRNA: Just an observation. Of all the parts of NOAA which is part of the Department of Commerce, what we've talked about today really should light up the Department of Commerce because it's jobs, economy, future growth and those type of things.

I haven't seen mention of the Department of Commerce in anything we've talked about, and we ought to find a way of getting this communicated to the Department in some way because this is substance to the principle missions of Commerce.

MEMBER DIONNE: So, Matt, I think what we just heard about the changes that weren't noted on the charts was from the visit to the other ship than the one we went to? Yes, that's all right.

Anyway, one point was that the captain of the ship that we visited basically said that he prefers the paper charts. So updates of the sort that Captain Lowell is always reminding us are sort of made on, you know, continuously, wouldn't necessarily show up on a paper chart that was older than the last update.

So but I think the comment was made from the captain of the other ship, right?

CHAIR WELLSLAGER: Well, the captain and the second mate that we were working with both indicated they did use the ENC. I mean they had the facility there on the deck, I mean in the bridge of the ship itself.

MEMBER DIONNE: Right.

CHAIR WELLSLAGER: Old habits are hard to break, and the captain, who obviously keeps up with the coast pilot, made the changes as they were published to the nautical charts that they have to work with, but they like having a piece of paper in their hands and looking at things when they're doing that.

Joyce, did the captain on the other ship, was there any discussion about the ENC versus paper charts or --

MEMBER BARBOR: Yes. He did have an ENC on the bridge, brought it up. I noted there was some knobology lacking there, so I'm not sure, you know, whether it's a strictly a situational awareness tool or, you know. But he also needs a backup, so his paper charts were easily at hand. So I would say he's probably a paper chart guy.

CHAIR WELLSLAGER: There was a common kind of statement that, you know, when electricity fails, it's kind of hard not to replace something like that as well.

CAPT LOWELL: Just to add a little bit to Admiral Barbor's comments. John Lowell. The system we saw on the bridge was actually a software package, but it was not installed in what they refer to as a tight, certified way.

It wasn't an ECDIS system and it wasn't installed. Well, we don't know if it had the proper, you know, multiple master-slave relationships, electrical backups on the emergency generator, could it run 12 hours on a battery. All of that's the IMO side of the house.

Now I'm kicking myself now, because we didn't ask him those questions, because his ship would fall under the carriage requirements that are starting to be implemented in 2012. So ECDISes will be fully implemented on all SOLAS vessels in five years, and his vessel will need to have a fully type-certified installed ECDIS system, of a much more robust nature than that.

So he can't use it to navigate on it. In fact, when I did dive a little bit into the info on the thing, it clearly labeled that, those charts, they were TRANSAS charts as not for navigation, although they are based on NOAA data. So making a long story out of a short question. Sorry.

CHAIR WELLSLAGER: David.

MEMBER JAY: David Jay. I was wondering what with the many situations more frequent Corps of Engineers survey, and the electronic charting capabilities, why are the Corps surveys not just merged right into the electronic charting, so that you get detailed soundings in the channel and nearby areas.

CAPT LOWELL: Well, for a variety of reasons. I would say there are some areas where the pilots specifically, Deborah's not here, have actually started working directly with, they refer to them as portable pilot units, but small, portable versions of a system that they can then overlay at a higher resolution point data that the Army Corps may provide for them.

And then they can integrate that, from a pilot's view, for navigating the vessel. What NOAA typically does is we try to accelerate the application of that, the tabulated information that we were just talking about, onto the chart quickly, and that goes through a Notice to Mariner process.

In other words, we try to get it out within a week or two weeks of receipt from the Army Corps, and we just get out, in this case, it would be whatever the depth is, whatever the survey data is. That's what punches out through the system very quickly via the local notice. The Coast Guard does the NGA Notice to Mariner and of course our updated products. It would be simply reflected on that.

But the high resolution point data, or the higher resolution point data is not typically put on a NOAA chart, mostly because it would obliterate the, you know, it would just be a big blob and it would be unuseable at the scale of the paper chart.

MEMBER JAY: Right, but like the world is going electronic, to a large extent. So you think it would be useful to have it available in that format.

CAPT LOWELL: And like I said, is sometimes the pilots working with other manufacturers would take that Army Corps data, decimate it to some level so that it is useable at the scale of the product. But NOAA has not gotten into that realm yet.

We do have some data transfer issues with the Army Corps. They are very district-oriented. Each district deals with a slightly different flavor of what we deal with, and there's no one-size-fit-all yet. But we are actively trying to engage on a national level to see if we could put some national standards in place. But we're not there yet. We have a ways to go.

MEMBER HANSON: And from a navigation -- this is Bill Hanson -- navigation standpoint, David, that most Corps districts do post their after-dredge surveys on their website. So they are available to the pilots for navigation purposes. Whether or not Anchorage does that, I'm not sure.

But there's obviously some coordination that could be had. But for navigation safety purposes, I think the Corps does as good as they can with the pilots.

MEMBER JEFFRESS: This is a question for Matt. Matt, are you informed if a vessel actually does scrape the bottom, and how often does that happen?

LT FORNEY: I would definitely be informed. As far as I know, it has not happened, due to the fact that we do have a 30 foot tide range here within Cook Inlet, and the pilots actually require a ten foot under keel clearance when transiting that channel as well.

MEMBER JEFFRESS: So what we're talking about here is highly unlikely to happen anyway, right?

LT FORNEY: Well, if shoaling does continue, your tide window shrinks of when you actually have that under-keel clearance, and that's a tough one to say. So, yes, dredging is going to be necessary to avoid that situation.

MEMBER MILLER: This is a question for Matt too. It seemed like from what we heard from the captains, that you know, they have concerns, and I'm sure they give them to their companies. Do you meet with the captains, ever to kind of update them on, okay the Army Corps has a survey coming now.

It just seemed like it might be a good outreach thing, you know, to talk directly to the captains when they're in so that they, you know, they know something's going to happen if nothing else.

LT FORNEY: And actually, unfortunately, I don't get a chance to talk with the captains all that often. Today was actually a pretty special day. Generally, when the captains are in port, it's their -- it's generally their rest time. It's a time that the boat's not moving around. It's not underway, and they don't have to be awake, and it's actually a pretty quick turnaround. Those vessels come in around 7:00 to 8:00 a.m., and then they usually head out, depending on the tide, today was actually, they like to get out by generally three o'clock, but due to tide today they were out at 4:30.

So it's one of those things where I actually generally hear from the in-port gentlemen like Brad Brown and George Lowery, with each of the two individual companies, and then I do keep in touch with the pilots very regularly.

MEMBER MILLER: I was thinking, though, that it might be -- you know, I don't know, a web page or something that could tell about this is what's expected to happen in the port in the next six months, you know, Army Corps survey expected, just something that, you know, they could get a feeling that they're tied in.

Because I mean the captain didn't know the difference between an Army Corps channel and maintain channel and a NOAA channel. He just said, you know, when's the next survey? And it just, it might be a good outreach tool to give them a little bit more confidence that yeah, something is going to happen soon.

LT FORNEY: That's a great recommendation, and I'll definitely look into that outreach.

CAPT LOWELL: Yeah. Just to add a little bit on that. Number one is in a perfect world, the end user wouldn't care, and he wouldn't even have to ask. It would simply occur, and you know, the surveys would get on the products that they need at the right time and it would be delivered in the appropriate way.

But jumping back to your opportunities to meet with the captains, that actually came up to me today. We actually reached out to one of our other HSRP panel members here, Steven Carmel of Maersk, and he actually offered up.

You know, big companies typically will bring in the captains all together in a room, to do some sort of a, you know, indoc -- maybe not indoctrination, but updates on whatever the corporate policy changes might be.

He did offer up an opportunity for us this year. Unfortunately, it was at the very last minute, but we've worked with him to get more notification so we can get a representative to attend the Maersk meetings, and I'm thinking there might be an opportunity to work with one of our divisions, to actively engage the major carriers within any region, to see if we can get a similar opportunity.

Not necessarily talk about every captain individually, but when you have vessel captains coming together for other reasons, to simply have an hour to sit down and talk with them, and we would certainly have our navigation managers attend those. So it's a great idea. Thank you.

MEMBER MILLER: Yeah. It might just be one of the suggestions from today's meeting, you know.

CHAIR WELLSLAGER: Okay, John.

MR. DASLER: I guess to follow up on Admiral Barbor's comment on the channel. So if the Corps isn't regularly dredging it, so the Alaska district doesn't really have or the Anchorage district doesn't really have active dredges, they have to come up either from Portland district or they have to contract it out.

So having that tabulation. Obviously, they're not maintaining it to 35 feet. I mean I think the recommendation of really tabulating that. So when they do, at least are doing surveys but they can't dredge it and maintain it to that, at least it would be easier to update that.

Even with the -- so even if you had that shoal you wanted to put it on there now, that takes down the channel, you really can't add a sounding in there as it stands. So that tabulation might be a good way to approach that issue. If they're going to just, even if they just survey it and are not dredging, at least it could be made --

I mean hopefully they would put out a local Notice to Mariners, like you said. So at least they should be looking at that on the way in. And then just one more comment on the ship observations. I mean that is somewhat subjective. I mean you don't really know what the tide. You have a 30 foot range tide.

So even if they're getting real-time tides and you've taken that and correcting it as you cross it, you don't know what that tide is doing, if it's really coming in. You know, the gauge is going to be easily three feet different than where the ship is at the time.

CAPT LOWELL: Yeah. I think you're talking about really a navigational support system, because when you look at all the moving parts here, it gets to be very complicated and it is sometimes a bit of a bear to manage.

But our policy within NOAA, from a charting perspective, is as channels become a certain size, they either become halved or quartered, and of course every time we have an Army Corps survey delivered to us, we have a very rapid turnaround on that.

There is a little bit of quality review, but once that's done, it typically goes out as tabulation updates. In this case, it would simply be erase 35, install your 27. It would go out as a local Notice to Mariner, and it would then become the controlling depth of the channel.

Now sometimes we do get a request that although our policy would say, based on the scale, you know, we can't really quarter that, but we might be able to do that anyway. I think there's some wiggle room in there.

MR. DASLER: You don't really quarter that on the charts. So that channel -

CAPT LOWELL: Actually, we physically quarter it on the ENCs, and we'll do an analysis of the quartering on the paper chart, and then in the tabulation show, you know, outside, left center, right center, right outside, and there will be a physical controlling depth of that quarter channel, in a tabulated form.

The whole idea, and sometimes we actually put spot soundings that are shallower than the tabulation, because we simply want to give the most depth for the channel, but highlight a specific safety issue that might be right on the edge of the channel. But we don't want to shoal the channel for something right on the edge, and people would simply go around.

The pilot, she's still not here, would simply deal with it by giving it a wider berth. So we do have a couple of tricks up our sleeves there, but we do take the channels as a very high priority activity for us.

CHAIR WELLSLAGER: Anybody else? Going once, twice. Well, okay. We'll be about ten minutes ahead of schedule right now. Oh, I'm sorry. Yes. That's what I was getting ready to do. Wow, all right. Public comment. I think we have a gentleman here who would like to address us.

MR. LAKOSH: Yeah, well in particular --

CHAIR WELLSLAGER: I'm sorry. Could you give your name please?

MR. LAKOSH: My name is Tom Lakosh, L-A-K-O-S-H. I provided it to the transcriber.

MS. WATSON: Please speak in the microphone.

MR. LAKOSH: Yes, I will. As previously provided to the court reporter. With respect to dredging, since you folks last did that, there's been a classification of the beluga as endangered. Has there been an EIS to evaluate or any data collection or analysis to determine whether the dredging action or spoil would adversely impact the beluga, its prey species or the capture thereof?

LT FORNEY: So actually I'd like to clarify that, that NOAA does not do the dredging operations. That is actually Army Corps of Engineers, and they are going to be here tomorrow. They're going to have one of their chief engineers here to discuss that, and honestly, I cannot speak to how Army Corps of Engineers handles that.

So I really do encourage you, Tom, to come back tomorrow, to talk directly with Coast Guard.

MR. LAKOSH: Okay. But you guys do all of the hydrographic surveys. You measure the currents, the depth, turbidity and all of that stuff.

Well, the other part of why I wanted to talk to you folks is the collection of that type of data for very specific oil spill response purposes. The new salvage emergency towing requirement requires that the towing vessel, the emergency towing tug, be capable of executing a rescue in 40 knot winds, but then that has to be commensurate with the ambient waterway conditions, including wave action and currents.

So I'm hoping that you'll, you know, all of the current data that you collect to depth, which is more than the CODAR surface recordings that have been done in Cook Inlet, that those be transmitted to the Coast Guard, so that they can evaluate the types of tugs that they need to rescue the vessels that OPA 90 mandates they be capable of rescuing.

And so that we can get, you know, currents to depth, because a three knot current to depth is equivalent to a 70 knot wind force against the hull of a vessel. So you know, not only do we have, you know, blazing winds through the Inlet, but you know, eight knot currents up here.

So I'm hoping that that information will be transmitted to the Coast Guard, both the captain of the port, the sector commander and the sector, Coast Guard Sector 5431 that issues permits for OSROs and so forth for this area, and you know, that there be comprehensive data sufficient to not only calculate the towing forces that are required, but to also calculate the dispersal of oil, using ASTM F-1780 and the commensurate programming that NOAA has created, and spill tools to evaluate oil spill response requirements, to be effective as required by OPA 90 and the Fair Water Pollution Control Act. Thank you.

MEMBER MILLER: I've got a question.

CHAIR WELLSLAGER: Joyce.

MEMBER MILLER: What current meter assets do we have here? I mean are their current meters available or --

Rich?

MR. EDWING: Well there's no permanent real-time current meters. I mean we offer those through the PORTS system. But we do around the country each year do a couple of tidal current surveys, to update tidal current predictions for use by, you know, for safe navigation as well as Coast Guard and others for oil spill response.

We actually did a fairly comprehensive survey of Cook Inlet back in, I'm going to say, 2004-2005 time frame. It was over a couple of years.

I think it was something in the order of 50 different locations, where we put in current meters and took measurements at different, you know, profiles and all that information's available through updated tidal current predictions for those locations, which are widely --

You know, before we come up and do a survey, we do some community outreach, to make sure we know if there's any, you know, first of all to inform people we're coming up to do this, to make sure we're aware of any new requirements there may be for new locations, and then afterwards, we also advertise that we've done this and here's when the new information's coming out.

CHAIR WELLSLAGER: Our ex-panel member would, I think, like to address us in a public forum.

MR. DASLER: Sorry. I'll have to learn to start sitting on my hands more.

CHAIR WELLSLAGER: Name please?

MR. DASLER: Jon Dasler with David Evans and Associates and a ex-member of the Hydrographic Services Review Panel. I just wanted to extend my gratitude to the panel. I mean I was pretty impressed with the work that's going on and things that are happening through the working groups, and just had a few comments that I wanted to address.

One I guess was with the Arctic working group. I think that's great that they're thinking outside the box, you know, how can they get other ships out collecting data and getting that. But I just also wanted to raise some of the other issues, that it's, you know, it's the tide support and the systematic survey coverage of an area that's going to make the best benefit, as opposed to the GEBCO data for the general ocean bathymetric charting.

And then having qualified hydrographers to making sure all that data is being collected to standards. But you know, certainly something like that could happen, but there's those other pieces that need to be integrated into that, and meshed to make products that really is going to benefit the hydrographic branches.

You know, one of the main missions is trying to get that kind of data that's going to minimize the effort for the hydrographic branches, so they can get it on a chart, so they have the standards that they're following in all of that.

Another one was on the water levels. I think you really don't want to confuse subsidence with sea level rise, any more than you would want to consider glacial rebound with sea level lowering. I mean they're really different things, and you need to address them separately.

Rich, maybe you can speak to this, but I think in the Gulf, they are updating tides every five years, as opposed to the 19 year epic and because of those issues.

MR. EDWING: Yes, down in the Gulf, and I think even some areas of Alaska, where you've got fairly extreme land subsidence or glacial rebound, we are updating the tidal datums more oftenly, you know, more frequently than normal because of that rapid change. So it's on a five year scale.

MR. DASLER: And then I think one more thing I would add to the, you know, what's happening at the NWLON stations, is you know it's not just the water levels and the currents and meteorological data. But there's also that link that I think is too often overlooked, is that geodetic tying.

So tying to the National Spatial Reference System and ellipsoid heights, because really you want to go, you know, it's relative to what. So even if you do you have glacial rebound or subsidence, and then how that can support the datum. But that should be as important as water level, as making that geodetic tie to that.

CHAIR WELLSLAGER: So in essence you're saying we should have co-located cores with an NWLON station?

MR. DASLER: Yeah. I mean it doesn't necessarily have to be cores, but at least get the observations and make the ties and do a long observation to a core site, and not just -- and I guess I was referencing ellipsoid heights, because a lot of times it's just level to benchmarks. But you also want to get that tie to the ellipsoid as well, because as we all know, there's differences there with geoid models and everything else.

CHAIR WELLSLAGER: Juliana.

MS. BLACKWELL: Just to follow on with that Jon, we do realize that there is a lot of work to be done, to make sure that the water level stations are connected to geodetic control, and one thing that maybe not all panel members are aware of, but putting a GPS or GMSS receiver on a tide gauge is going to show you exactly that motion right there.

But it's not a, certainly wouldn't be necessarily a stable platform. So it's really important whether or not there's a GPS unit right on the tide gauge platform or not, is to have that connection to something stable inland.

And so the network of core stations that we collect data 24-7 for, having that repeated data day after day, month after month, year after year, really provides the National Geodetic Survey that, you're saying like a 20 year tide record.

It shows us what's happening at those locations over time, so that we can assess where stable areas are. But it's also important to monitor those changes at those tide stations, and those connections to benchmarks in the ground.

So there's a number of ways to make those connections, and systematically being able to tie each NWLON station into something that's known is the important thing, so that you can bring that control and have it be consistent across the nation, not localized in such a way where you cannot bring things together to do your modeling.

So we realize that this is an ongoing continuous effort that we want to make better, and working with CO-OPS to try to collate cores and NWLON stations, and to make the correct connections, so that we can monitor what change is happening on land.

CHAIR WELLSLAGER: Rich.

MR. EDWING: So just to follow up on that, I agree with Juliana, and indeed this has been addressed or taken up at the international level through the GOOS, the Global Ocean Observing System, where they're also recommending, you know, any station that's a GOOS station should have some sort of co-location.

There's not quite agreement on what co-location means just yet. Is it within a kilometer or five kilometers? They're still kind of grappling with that issue. But I think that issue is getting attention, is the bottom line.

CHAIR WELLSLAGER: Dr. Jeffress.

MEMBER JEFFRESS: Just to follow up on what Juliana says, in Texas, following Hurricane Ike in 2008, the U.S. Army Corps of Engineers came up with some funding to put in the two big Sentinel tide gauges in Texas. For those who don't know, a Sentinel tide gauge is a massive steel structure, four foot diameter, one inch thick steel pipe going into the mud 100 feet, then tapering down to a three foot diameter section that comes out of the water above mean sea level, about 30 feet, massive supposedly hurricane-resistant structure.

So the Corps funded the two of those for Texas following this hurricane, and they also funded core stations to be co-located with these massive tide gauges. For all the reasons that Juliana just said, but another reason that they want to use in the future is to use these core stations for the control for dredging.

This is actually using automated machine control using the precise GPS real-time positioning from a core station, to actually control the elevation of the dredging, so that they can dredge exactly to the depth that is required, without over-dredging.

A lot of the dredging that occurs in the United States because of old datums, and the fact that they're still using tide staffs rather than tide gauges is creating a lot of over-dredging, which is costing the Corps a lot of money.

So they think moving forward using these core systems, machine-controlled, they'll be able to get much more accurate finished design elevations, closer to what they're supposed to be.

CHAIR WELLSLAGER: Joyce.

MEMBER MILLER: Yeah. I wanted to go back to your first point, Jon. I think Coast Survey has done a really excellent job of doing some coordinated mapping. In the Pacific and in the Caribbean with the Coral Program, and the other panel members heard about this when we were in Hawaii, there was a 2002 survey in the Northwestern Hawaiian Islands with two qualified hydrographers from NOAA aboard, using the University systems, and charts were updated from that.

In the Caribbean, there have been several surveys jointly with Tim Battista of the Coral Program, where Coast Survey was a close cooperation. And then in the mapping that the Coral Program did in the Pacific, where we mapped, for benthic habitat mapping purposes strictly, the 50 islands in the Pacific, Gerd and Rick Brennan and a couple of other people have been very instrumental in where they can, pulling that data in, if nothing else to update contours, not necessarily for soundings on charts.

But there has been a very concerted effort by Coast Survey to do the type of things that Lawson was talking about, in terms of coordinating mapping, using University systems, using you know, other NOAA systems that are not necessarily for hydrography.

And you know, I think back to my comment about OSC or IOCM earlier, you know, I think we want to encourage that type of thing, and actively look for those possibilities. You know, maybe having the -‑ Larry's center has a group called the Multibeam Advisory Committee.

They are now going out to the UNOLS ships to help the University set up the systems correctly, so that they could be used for that type of thing. We had the first visit and that worked very well on the UH ship.

But you know, there are those opportunities, and we just need to keep looking at them, you know, and I don't know what the HSRP can necessarily do. I mean I would suggest that if there are IOCM meetings, somebody from HSRP should go to them.

But you know, that type -- you can get not necessarily, you know, the highest quality IHO standard data, but especially in incredibly remote areas like the Northern Mariana Islands, the closest tide gauge was in Guam, 500 miles away.

I mean you're not -- but is it multibeam data better than data the Japanese took during World War II? I mean maybe.

MR. DASLER: And I guess I would just say, and I acknowledge, I mean, a lot of that, you know, having those NOAA people on the boat and people with the expertise.

But we've also seen, I mean traveling around, when we were doing our meetings and would go to Providence and we would see the regional ocean partnerships, and there's not always that care that's being put on that data.

It's quite, I mean it's a shame that it's a waste of taxpayers' money. They're not following standards. I mean there are many cases where they are, but there are also very many cases where they're not. And, you know, we teamed with NOAA on the West Coast Governors Agreement, and in part where they had like a $20 million grant to fund some of the regional ocean partnerships.

It was trying to establish and identify standards and work with Pacific Hydrographic Branch. So if you're going to go out and collect this data, there should be some review ahead of time on what's your program, what equipment are you using, what's your quality control procedures.

It doesn't have to be the full hydrographic specs and deliverables, but there needs to be a standard, and you know, it needs to be followed. If people are going to spend the money.

It costs a lot of money to go out there with these ships, I mean fuel costs going up. You want to make sure they're collecting it, you know, to where we get the most benefit.

IOCM, you know, that's coming along. You know, that's started back up again, you know. With Roger's passing, that kind of lagged a little bit. But I think that's coming back online now.

CHAIR WELLSLAGER: David.

MEMBER JAY: David Jay. In addition to the navigation, sea level rise studies are an important use of the NOAA tide data.

I was at a meeting in California last week, and three National Academy of Science people on one of the climate panels identified lack of knowledge of what the vertical motion of our tide gauges is as, you know, just a really major issue in climate science.

So we need to also keep -- so I'm encouraged that the gauges are, or GPS units are being in use in association with gauges. But we really need to -- that's a high priority issue for a number of reasons.

CHAIR WELLSLAGER: Thank you. Larry, do you have something you wanted to say?

MR. MAYER: Well, I just wanted to follow up on Jon and Joyce's comments. I think, I'm surprised as a newcomer to this committee that there isn't a closer connection with the IOCM effort, and because everything that Jon described and Joyce described, there's authorization. It's basically there are statutes now that say these kinds of things have to be done.

How it's implemented is another story, but if this panel would give its authority to that process, I think that could help rejuvenate that effort.

CHAIR WELLSLAGER: Go ahead.

CAPT LOWELL: Yeah, just to follow up. The panel, the old panel I suppose, I should refer this to, was briefed several times on IOCM. I believe Roger briefed it out maybe as long as two years ago. Many of the panels here are new since then.

So I think it's probably a reasonable idea that one of the outcomes should be an update on the IOCM, and I can give you the 30 second update right now, is we do have a new IOCM lead to replace Roger, who we're very excited about, Ms. Ashley Chappell, who most of you may know or some of you may know, and we do have the new IOCM mapping standards are available. I do believe they're past the draft stage at this point.

So they're available for use on any platform who's out there and collecting data on basically a vessel of opportunity type of an approach.

It sets those minimum standards. It touches on all the things that you just referred to, and it acknowledges that based on, you know, the project, things may be not exact, but we just want to know where it is we're, you know, what pieces are we missing, and then how can we mitigate to deal with those.

So there has been progress on IOCM. In fact, I thought you were on the review panel of the IOCM mapping standards.

MEMBER MILLER: I was, and somehow with Roger's going and so forth, I sort of dropped off the face of the earth, and that has always been a problem. That was always a problem being out in the Pacific. Sorry, but NOAA is very Silver Spring-oriented, and if you're out in Honolulu, you almost don't exist.

I'm sure it's worse here in Alaska, you know. It's just like oh, they're there. And so we sort of ran our own IOCM program mostly because I knew Gerd or Rick or all these guys I'd worked with and, you know, it was -- you just hooked up and did it.

CAPT LOWELL: Right. What we're trying to do is go past that ad hoc approach to mapping, and establish some sort of a standard operating procedure that we can get on many different platforms, and so far we're working certainly on the broader NOAA suite of acquisition groups.

We're engaging heavily with fisheries. I believe UNH was involved in some of the offset measurements that we were doing on the, I believe it was the Dyson, and we've collected some really interesting data from them, and we're trying to extract bathymetry from their water column systems that they have for fisheries mapping.

So I think we're making progress on many of these fronts. There's another project called a Rolling Deck to Repository that has been implemented in UNOLS to collect data in the capacity of vessel of opportunity, and we're applying that on NOAA vessels.

So that we have the standard, we have the vessels that may or may not be configured properly, but we know where the gaps are. We can address them piece by piece, and slowly start that data flow coming in, and then once we go past the UNOLS vessels and NOAA vessels, we roll it out to the Coast Guard vessels or to other vessels of opportunity such as tugs, etcetera, etcetera.

CHAIR WELLSLAGER: Larry.

MR. MAYER: To follow up on a point of Joyce's, would it not make sense for the HSRP to have an official liaison to the IOCM working group? I mean it seems to me that they're so intimately tied, and they could help each other. That could make a lot of sense.

CAPT LOWELL: No. That's absolutely no problem at all. Like I said, I was very surprised Joyce wasn't already on that list, and should anybody else wish to get it, there's a large number of emails there. So be careful what you ask for.

Anybody else that wishes to get on that list, we'll certainly get a list of people and we'll talk to the IOCM coordinators and get them on that list. Now whether the HSRP wishes to establish a coordinator, somebody, a belly button, that would be a different thing that can be done. That's up to the panel.

MR. DASLER: So John, will any of that funding, will any of the, I guess those requirements and standards be tied to funding then? I mean that's what really needs to happen to make it, give it any teeth, right? Anyway, make that a recommendation.

You know, as Miles mentioned too, it would probably be good, you know, on the Hydrographic Services Review Panel, to have somebody active in the Coast Guard and the Corps of Engineers involvement, because I mean the real navigation issue which really that whole triangle between NOAA, the Coast Guard and the U.S. Army Corps of Engineers, in getting that whole picture in the whole navigation scheme.

One great thing that we participate in a lot in Portland, they started a maritime industry breakfast, where they invite all the agents and Crescent has started coming down as the nav manager to some of those meetings, but a lot of good information comes out of that, and it might be a good way, you know, for Matt to interface with a lot of the community.

I don't know if you meet regularly with the shipping agents and that kind of thing. But typically the whole maritime community comes in for a breakfast once a month, and they raise the issues and concerns.

My last point is I guess related to U.S. nautical charts. So Kotzebue may be the only U.S. nautical chart that's fully up to date. I know in the 2010 report, and maybe you can address this, but we pointed out that 50 percent of the data on U.S. nautical charts predates 1940, most of it antiquated, lead lines, partial-coverage surveys.

The recommendation was to actually be setting the target of mapping 10,000 square nautical miles a year. During the ARRA funding years, we were probably up to close to 5,000 square nautical miles, and we said, I think, last year was more like 2,500.

I think that should continue to be a push, for making that, to update U.S. nautical charts.

CHAIR WELLSLAGER: Lawson.

MEMBER BRIGHAM: I'd just get back to this new couple of hundred million dollars icebreaking ship for UNOLS. I mean I just cannot believe that it won't be part of the federal survey fleet in some way. But we talked to the program manager, and there's no --

We mentioned hey, what kind of hydrography, what kind of charting, what are you going to be doing with this new ship, and it wasn't much communication among UNOLS and NOAA. So look, I agree wholeheartedly with what you're saying, but for the Arctic, where we have this vast area that hasn't been surveyed anyway, I don't know. I think these kinds of special ships with no new NOAA icebreaking ships or Coast Guard icebreaking ships coming, here's one and it's whole soul is research, exploration.

It just seems like a given that people would be detailed from NOAA on board the ship with the right equipment. The investment would be made, and for 300 days a year, wherever that thing goes, it will take some reasonable data and information for hydrography and charting.

But I don't know. It just seems like an opportunity not to be missed.

MR. DASLER: And I guess I would just follow up on that by saying I wasn't advocating against that. I think it's a great idea. It's just, it's the standards and everything else that goes with it as a whole package that you need to consider.

MEMBER BRIGHAM: The uniqueness of this ship, just one more point, is of course it's shallow draft, and most of the area around the coast of Alaska is shallow shoal waters, and so this kind of ship could in fact go places where other ships could not go, including deep draft NOAA ships, etcetera. So I don't know. Opportunity, that's all.

MR. MAYER: Yeah, and to follow up again on something Joyce mentioned, the Sikuliaq will be a primary target for this Multibeam Advisory Committee, and the idea is to ensure that the data they collect is as close as we get to hydrographic standards as possible. So I think the vision you have is certainly feasible.

CHAIR WELLSLAGER: Okay. I think this has been a very productive first meeting, first day meeting, and I'm sorry. Did you have another comment?

MR. LAKOSH: Yeah. Tom Lakosh again. I just wanted to follow up, since there was this inquiry about the availability of current profilers, to make an official request from a public stakeholder that there be made available current profilers to accurately gauge the currents between the surface and 62 feet, at least, as the depth of the largest oil tankers, as the draft of the largest oil tankers, in very specific areas.

Clearly, Upper Cook Inlet, the Forelands, Kennedy entrance, Hinchinbrook entrance, Rocky Bay, Zakov Point areas, Buoy 9 in Prince William Sound and the Valdez Narrows, Unimak Pass, the pass next to Shemya and I'd say probably the Bering Strait as well, should necessarily -- these higher current areas should necessarily have the current profilers either positioned on the weather buoys immediately adjacent or more likely like the science center did have a towed array, but modified to take the upper bin of water rather than the lower bin, you know, flip it upside down to get 62 feet to the surface rather than -- typically it's 20 feet and down.

MEMBER CAROTHERS: This is Jeff Carothers. Are the NOAA vessels equipped with ADCP units at all? Or I don't know even if John's boats do NOAA work. Are they equipped with any of these ADCP devices?

MR. DASLER: No, we have them, but we don't use them.

MEMBER CAROTHERS: Okay. I mean that may solve the issue he was talking about.

MR. LAKOSH: And the point being is that this data has to be used to calculate the hydrodynamic forces on the largest ships transiting these areas, so we can get an accurate gauge of the types of tugs we need to conduct salvage operations.

I mean NOAA has gone out of its way to do the science with regard to spill response. NOAA now should be doing the scientific analysis, data collection and hydrodynamic calculations to assess exactly what we need as tugs, because not only have the Coast Guard not done it anywhere in the lower 48; they're allowing salvage operators from the lower 48 to claim response capability in Alaska, and we need Alaskan response capability that's capable of operating in the waters up here.

You know, Lawson will tell you about, you know, Arctic conditions. But they range to, you know, vicious tides and vicious winds and sea states, in addition to the ice that we have to cope with up here, and we need to be able to tell the Coast Guard with scientific certainty exactly what they need to prevent catastrophic spills, you know, mainly in these high traffic passages that I've just mentioned. Thank you.

CHAIR WELLSLAGER: Okay. I would like to wrap things up. Thank you very much everybody. Very productive public comment session. Kathy, did you want to tell us about dinner tonight and how we're going to do that?

MS. WATSON: Dinner plans, everyone who wants to join for HSRP group dinner, meet in the lobby at 6:35. It's about a 10, 15 minute walk to Simons and Seaforts, refreshing walk, and Gary, I need to see you or the HR person, please. And that's it.

LT FORNEY: And just so in case there's any folks who don't make the meeting down in the lobby, the address of the restaurant is 420 L Street.

MEMBER MILLER: We're on F?

LT FORNEY: We are currently on the corner of E and 4th. So the best way to get there is once you leave the lobby on Third Avenue, hang a left and just follow the road all the way around, and it will actually turn into L Street. The restaurant's right there on the right.

CHAIR WELLSLAGER: The meeting is adjourned. See you tonight or tomorrow morning at eight o'clock.

(Whereupon, at 5:52 p.m., the meeting was recessed, to reconvene on Wednesday, May 23, 2012 at 8:00 a.m.)