NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HYDROGRAPHIC SERVICES REVIEW PANEL MEETING

TRANSCRIPT OF PROCEEDINGS

SAN FRANCISCO, CALIFORNIA

JULY 30, 2008

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HYDROGRAPHIC SERVICES REVIEW PANEL MEETING

TRANSCRIPT OF PROCEEDINGS, taken at 2500 Mason Street, San Francisco, California, commencing at 8:38 a.m., Wednesday, July 30, 2008, before Dawn A. Stark, CSR No. 7847.

HSRP ATTENDEES

SAN FRANCISCO HSRP PANEL MEMBERS:

JONATHAN L. DASLER
ELAINE L. DICKINSON
SHERRI L. HICKMAN
THOMAS JACOBSEN
GARY ALAN JEFFRESS
R. ADAM McBRIDE
TOM SKINNER
EDMUND WELCH
MATTHEW Wells
RICHARD D. WEST
LARRY WHITING

OTHER ATTENDEES/SPEAKERS:

ANDY ARMSTRONG
CAPTAIN STEVEN BARNUM
ASHLEY CHAPPELL
JACK DUNNIGAN
DAVID ENABNIT
AMY HOLMAN
ROGER PARSONS

OTHER ATTENDEES/SPEAKERS (CONTINUED):

MICHAEL SERAFIN
MICHAEL SZABADOS
JULIANNA THOMAS
EDWARD VAN DEN AMEELE
BRUCE VOGT
DAVID ZILKOSKI

HSRP COORDINATION TEAM:
VIRGINIA DENTLER
DANIELLE STUBY
KATHY WATSON

SAN FRANCISCO, CALIFORNIA; WEDNESDAY, JULY 30, 2008;

8:38 A.M.

- - -

MR. SKINNER: Good morning.

We're going to start the Hydrographics Services Review Panel meeting.

I see that everyone is here. Glad to see our reporter back.

I think we had a very full day and productive day yesterday.

There were a number of items as a result of the presentations that I think we want to move forward on, in terms of developing recommendations.

We'll be talking about that a little later.

If you have specific ideas for recommendations, please jot them down, and as I mentioned, we will try and put those together towards the end of the public session, and maybe discuss them further in the session this afternoon.

We're going to jump right in with the panel on the Cosco Busan response.

We have Jordan Stout from the NOAA Office of Response and Restoration here in San Francisco -- no, I'm sorry.

MR. STOUT: I'm here in the Bay Area.

MR. SKINNER: Okay. You are.

MR. STOUT: Yes.

MR. SKINNER: Okay. I have someone here to be announced, but I suppose that's Lieutenant Commander Gus Bannan from the U.S. Coast Guard, and Dave Reynolds from the NOAA National Weather Service.

Welcome to this morning's panel.

We'll lead off -- I don't know if you talked about order or --

MR. STOUT: We have.

I'll just start with the first slide or two.

MR. SKINNER: Great.

MR. STOUT: I don't know what the panel's direct experience is with spill response, so we're going to go through a number of topics here today.

I'm going to have Lieutenant Commander Bannan talk about the Cosco Busan itself and the response activities that the Coast Guard was involved in.

I'm going to talk about NOAA's role in supporting the Coast Guard in spill response in general, as well as this particular incident, focusing specifically on the duties of the Office of Response and Restoration, of which I'm a part.

Then, also, the National Weather Service supports our activities -- and then have National Weather

Service talk about some of their products and how they support incidents.

Then we'll probably open the floor for discussion.

I'll start off with Lieutenant Commander Gus Bannan, who will give you an overview of the incident.

LIEUTENANT COMMANDER BANNAN: Thank you very much.

As noted, my name is Lieutenant Commander Gus Bannan. I work in the sector of San Francisco.

I'm chief of Incident Management, which, for those of you who've worked with us for a while used to be called "Marine Environmental Response."

With some of the changes that have happened in the Coast Guard over the last few years, we've changed to more of an all-hazard kind of society.

Basically, that's the name of it now.

My experience with the Cosco Busan -- I've actually recently been put in San Francisco as the chief of Incident Management, in the last two months.

We're still dealing with the Cosco Busan and the after-effects, not just the ISPR reviews, but we've also still got some oil out there that we still have to be cleaning up now, and I'll try to get into that in a minute.

Prior to that, I was stationed, actually, here in Alameda, working with Jordan over at District 11.

District 11 covers the entire state of California.

I've been working on oil spills for the last two years.

Before that, I was in DC, actually working for (inaudible) and working with the DHS transfer.

Before that, from '98 to 2002, I was back here in San Francisco, working on oil spills from '98 to 2002, mostly the Kate Mohican, which was the last significant oil spill that usually is referenced when one is talking about Cosco Busan.

So, as most of you know, on November 7th, 2007, at approximately 0800, the Cosco Busan actually got underway from Oakland, heading out to sea.

It was heading to Hong Kong.

In the process of heading out -- if you watch the red arrow in the middle of your screen, that's the Cosco Busan.

There was heavy fog that day, a quarter-mile visibility.

The blue arrow right behind it is actually a tug, Revolution, that was tied to the surf.

As you just saw, during the maneuvers, they hit

the Delta span.

After that, they immediately radioed into our vessel traffic service, which is on the top of Yerba Buena Island, which is the island that the bridge goes immediately through.

They said they touched the bridge, and it was directed up to Anchorage for further evaluation.

Later -- and it comes back down here in a second. It comes back down again.

(Remarks outside the record.)

LIEUTENANT COMMANDER BANNAN: Our response vessels don't show up.

Only certain vessels throughout the Bay actually have the automatic identification system on board, and that's actually what you're looking at here.

It's not a radar picture, but it's an IX picture, basically giving off that transmission and putting that onto a map.

So, after the Cosco Busan touched on the Delta span of the Bay Bridge, it caused an over 100-foot gash along the port side, breaching actually three separate tanks on board the Cosco Busan.

One of those tanks was a ballast tank; two others were fuel. One was only partially full.

We have since figured out that there was an

instantaneous release of over 53,000 gallons of IFO 380, I think it was, or HFO 380 (inaudible).

With the current at the time, basically, that meant that the spill pretty much got everywhere.

Next slide.

(Remarks outside the record.)

LIEUTENANT COMMANDER BANNAN: This video was actually put together -- Jordan was the primary on this.

This is not a forecast, but a high (inaudible).

We basically took the data that was found through SCAT teams, and otherwise, throughout the Bay, both our response teams throughout the water and on the shore, who were able to put this together of what actually happened when the spill occurred.

MR. STOUT: This is in half-hour increments for approximately the first three days.

LIEUTENANT COMMANDER BANNAN: As you can see, we really couldn't have an oil spill happen in a worse location.

Being right in the center of the Bay there, it totally got caught up in the currents coming in and out.

When you have an oil spill with a river system, usually, you can have it get flushed out, and then you need to be dealing with it on the shorelines.

Unfortunately, here, we were dealing with it on

the shore every day, multiple days, and that's why we're still dealing with it today.

So, you can see the most heavily impacted areas that we have were along the North Shore up in Marin.

We also had some heavily impacted sites over in Keel Cove, which is right here between Angel Island and the north point of Tiburon.

We had some heavily impacted area right here in this cove.

We also had extremely heavy impacts all along the East Bay from, basically, Alameda, north up to Richmond.

You saw some of the oil get up here, and that really didn't have -- that was quickly cleaned up.

The areas that we're still dealing with clean-up -- some of the more environmentally sensitive sites are actually out here in the Bolinas Lagoon.

If you watched the news over -- in the last few days, if you were in the Bay Area, you might have noticed we actually just did another booming exercise to try to better evaluate how to keep Bolinas Lagoon from getting further oiled.

In addition, we're also dealing with Angel Island and some of the areas over in the East Bay.

Next slide, please.

So, as you can see, the oil really did get all over the Bay; not only all over the Bay, but actually out into the coastline.

We were dealing with areas up in Marin, as well as down in San Mateo counties.

We have over 250 environmental sites within the DACP for San Francisco Bay Area.

Basically, what we did with this was we divided the areas from the GRPs out of our areas of (inaudible), which is what we do to plan our oil spill clean-ups, and we divided each one of these into segments.

Those segments, we completed -- I think we divided them up into about 250 separate segments to be both reviewed and then cleaned up.

Fifty of those were not touched, but they were reviewed, and 200 more had to be cleaned up.

I'll go into the details of those in a moment.

Next slide.

In the efforts to prevent further damage to the coast, as well as to help with the clean-up, we did a lot of protective booming throughout the AOR.

By the end of -- I believe it was the first week, we had 38,200 feet of boom deployed.

A lot of it was protective booming, just along the coastline, as you can see here.

A lot of was more diversion booming or collection booming, in order to help us with the clean-up.

Next slide, please.

The on-water recovery was by far the most effective out of all of our clean-up efforts. To date, we have over 40 percent clean-up of the oil.

For those of you who don't know much about oil spills, a typical oil spill clean-up and the recovery is more into the area of -- 10 to 15 percent is considered a good clean up.

With over 40 percent, we owe most of that to this on-water recovery. Within the first two days, I believe, we were over 30 percent cleaned up.

All that oil that you saw washing around the Bay, both NRC and MSRC were out in all of their boats, cleaning up as much as possible.

Next slide, please.

Digging for buried oil is still being conducted.

On some of the areas, such as Angel Island, we're actually still looking at buried oil.

Because Cosco Busan happened during November, we had a lot of storms roll in directly afterwards, burying a lot of this oil and making it completely

unreachable, or maybe the spills were just so bad that we couldn't get on those beaches.

Recently, actually, up in Rodeo Beach, which is a Natural Park Service land up in Marin, we actually just found a huge amount of oil just pop up about three, four weeks ago, I think it was.

We had to dig it all out and -- get some diggers out there, and dig it up. We had to do it mostly by hand.

Because of the environmental sensitivity of the site, we don't want to bring in too much big equipment; usually just small -- by hand.

Next slide.

Hot washing of rocks in the East Bay -- we didn't do a huge amount of hot washing.

We did a lot of different testing.

We did a lot of high-pressure washing, as well, in the East Bay.

We tried some approved chemical responses along the East Bay and at other locations.

It didn't prove to be all that effective, given the fact that you had to put so many manhours into getting a very small part of the shoreline cleaned up.

Next slide, please.

As I said, tons of manual labor.

Lots of safety conditions, as you can see here, throughout the Bay Area.

Very, very dangerous areas to clean, but these are the areas that are hardest to clean, as well, because the oil, especially with those storms that washed in, it gets all the oil up into here, and that just takes time to clean that up.

In fact, these are mostly the areas that we're still working on.

Next slide, please.

Some of the shoreline clean-up operations that we got were extreme, and they got a lot of media attention.

This one is actually what we like to call the "Spiderman Op."

We actually worked with the National Park Services Rescue Team.

What happened was we actually did some collection down here earlier in the spill, and there were a few bags of full of oil that had to be left because of the dangerous tides and the dangerous seas that were washing up.

With the tides and the currents in the area that can change seasonally, as well as on a day-to-day basis, we couldn't get back in there by boat or by land.

These rappellers actually went down and picked up bags -- I want to say it was over 400 pounds of oil -- out of the area.

This also shows how much we worked with our partners.

We did have National Park Services involved throughout the spill. A lot of the land that was contaminated -- a lot of their land in the area was contaminated.

In fact, four of our sensitive sites still belong to the National Park Services, but they helped out in operations, as well.

Next slide, please.

Finally, we used a lot of sorbent material to prevent re-oiling. Once again, this is still being used. We used this out on Rodeo Beach in the last few weeks.

Next slide, please.

OWCN was activated from the start.

OWCN is the Oiled Wildlife Care Network. They work with UC Davis and the State of California and the Bay Area. They are an internationally known society.

Typically, I'm sure, if anybody has heard of Cosco Busan, you've heard some of the issues that we've dealt with.

Post-response, or actually during response, one

of those issues was volunteers.

California and the Coast Guard has always depended on the OWCN to, basically, take the influx of volunteers that want to help out.

They have a great volunteer program. They have a huge amount of people that pretrain, and then they usually set up a training program that they'll activate.

They not only clean the birds, but they collect the birds and they will rehabilitate the birds, as well.

I have numbers on both birds and Naval collection in a few slides.

Next slide, please.

So, the amount of oiled shoreline we're talking about is 371 total miles throughout the Bay Area.

That should be noted on the fact that -- or I should say: 371 miles were scattered throughout the Bay Area, so that was that entire shoreline area that you saw.

Some of the oil came ashore, maybe came back off. We had to do everything from Point Reyes down to Monterey.

This was not a huge amount of oil, but in the case of something like the one that happened out in Louisiana more than a week-and-a-half ago or a week ago -- 400,000 gallons of oil.

If that happened in the same location, or worse, if it happened up in the Carquinez Straits, where you're just looking at a cannon shooting it through everywhere, we would have easily doubled this number, and it would have been completely oiled.

Next slide, please.

The Unified Command -- we used ICS as part of our -- in our response, and Unified Command approved a four-phase clean-up process.

Basically, that contains an initial gross oil removal, basically cleaning up everything we could find immediately.

Then going into more of the scrubbing.

Then constant review, picking everything up.

Then, finally, going into a maintence/monitoring, where we're checking on it maybe once a week, twice a month, maybe once a month.

That's the state we're in now with our remaining segments. The majority of our segments are actually at the final sign-off.

I signed off, I think, six more last week.

We do have an endpoint plan that was created by our Environmental Unit. I will let Jordan talk about that more in a little bit.

Basically, our Environmental crews developed it

and it was approved by our commander, and that's what we're using for our sign-off procedures.

Those sign-off procedures do include public landowners/managers; NPS is one of those; East Bay Regional Park; anybody who owns land, not just, you know, your neighbor.

Next slide.

A quick set of pictures for you, as far as different areas around the Bay.

This is Marin County. As you can see, we've got a variety of different types of beaches.

I think if you looked at every style of beach that you could think of or every style of shoreline that you could think, San Francisco has got it in the perimeter of 371 miles that was surveyed.

This is what we looked like before, and this is what we looked like afterwards.

A huge amount of oil in here. It took a long time to clean it up with this type of habitat.

Next slide.

Angel Island is actually one of our remaining segments that remains to be cleaned up. We have two standing segments that we believe have buried oil in them.

The problem with buried oil is you don't know

how far they've been buried.

The storms came in, and how far that oil seeps down is depending on how light or how heavy that sand is.

That was one of the things we ended up with, with Rodeo, and a similar situation has happened with Angel. Basically, the oil has seeped through some of the coarser sand and landed on a very fine layer.

The oil that we see coming up in Rodeo and some of the other locations, like Angel, looks like it's fresh oil; it looks like it's two days old.

Every time somebody sees it, they respond, "It can't be Cosco Busan. It's too fresh, too fresh," and it matches every time.

Next slide, please.

Contra Costa County is basically the East Bay that I was speaking of before.

You can see some of the heavier oil patches, especially in the rocks. This is our biggest area. Even now, we're having -- it's tough, because you can only scrape up so much oil.

You get stains, and we're seeing stains throughout the East Bay.

However, the majority of everything that was in the sand, that was in the midst of the rocks, the stuff that was really sticky, that you get on your hands or

your dog or your kid can get into, that's all been cleaned up.

Next slide, please.

There's 226 segments, total. Fifty had no observed oil.

This was actually, I think, two weeks ago.

Two require more work.

This is Angel Island, and there is some submerged.

Fourteen are continuing to be monitored -- actually, we've done six now. This about two weeks ago, and we've summed up quite a few areas.

Seven are environmental holds. An "environmental hold" means there's something going on in the area that we can't get in there to observe it.

We don't necessarily believe there's oil in there, but there might be seals pupping or there might be hatcheries going on.

Of the seven that we're talking about, one is still on Bolinas Lagoon, and we need to get tide experts in there and actually get into the marshland.

Four others -- two were signed off on last week.

Four others are all on Alcatraz, which is a large hatchery. We're working with NPS on getting in

there as soon as possible, but they won't even let their own people actually survey the island until approximately August 15th.

It's basically closed to everybody for about five months.

153 are complete, and that number is more like 165 now.

Next slide, please.

Here's some more statistics for you regarding the equipment that we had out there.

Thirteen skimming vessels. That actually accomplished that 30 percent recovery that I mentioned.

Twenty fishing vessels actually carrying sorbent boom throughout the Bay, trying to catch the remaining sheens.

38,200 feet of boom deployed.

If you're interested in more of the statistics, I did bring the official ISPR report that was put together by a variety of agencies.

Our commandant requested an ISPR, which is an incident-specific group, to prepare this review -- basically, a full review of all the procedures.

It covers more about the response and less about the actual accident. The accident is still under review by several different agencies.

Also, I'm sure you've seen that there are major legal proceedings going on, as well.

Next slide, please.

Oil recovered, as I stated, we're actually over 40 percent now. I believe we were at 42 percent before we got to Rodeo, and now we're even higher.

Concerning birds and mammals, 1,084 were captured alive; 1,851 were collected dead; 432 have been rehabilitated.

The one thing I would like to note, and our remarkable scientist might want to point this out: We did capture these and they were oiled, but concerning the ones that have died in captivity and the ones that were collected dead, both birds and mammals, there is no, necessarily, evidence that they died because of the oil.

In fact, the mammals, they believe, died for other reasons. They were oiled, but they would have died in those situations, anyway.

Next slide.

I'll pass this on to you.

If there's any more questions, I, of course, will be available afterwards, but I will pass this on to Jordan at this point.

MR. STOUT: Thanks, Gus.

So, when the incident happens, NOAA gets

involved in supporting us in two major ways.

One is through the National Resource Trustee.

We provide a lot of natural resource expertise. Sometimes natural marine sanctuaries get involved, and there are particular policy and management mandates that are associated with that.

Also, we get involved in the Natural Resource Damage Assessment & Restoration process, and I'll talk about that in a little bit in just a second.

The other major role that NOAA plays is to offer scientific and technical support to, primarily, the Coast Guard, and also to the response team in coordinating a lot of technical information; coordinating with the Weather Service to provide operationally specific weather reports; chemistry, fate, and movement for the oil or the hazardous material that might have been spilled; what effects those products might be on natural resources; shoreline assessment, which I touched on earlier; and also get into the clean-up recommendations and develop those with our partners.

When a spill happens, there's usually three separate things going on.

One is the accident investigation, which the Coast Guard heads up.

Then you have the oil spill response, which is

charged with essentially trying to contain and clean up the oil and help minimize impacts to natural resources.

That's led by the Coast Guard, and we feed into that process. They provide a lot of scientific and technical support to help make those decisions and prioritize those assets.

The third operation, which is separate from the other two, typically, is the Natural Resource Damage Assessment & Restoration process.

They're charged with trying to assess the injured resources -- figure out which resources are injured, and then try to figure how best to restore those injured resources.

So, there's three separate activities going on.

NOAA's Office of Response and Restoration is organized to support the latter of those two.

I'm with the Emergency Response Division, so my primary role is to support the Coast Guard in helping to contain and clean up oil spills, and then the Assessment & Restoration Division is responsible for following through the Natural Resource Damage Assessment process.

Next slide, please.

So, I'm not going to get into all the different types of services that we might provide -- that the Emergency Response Division might provide the Coast

Guard.

There is a 33-page guidebook you can download from the Web. I have an example here, which you can pass around, if you want to flip through it.

I don't know what your background is on emergency response and spill response, but that will give you a better idea of what types of services we provide to the Coast Guard.

They are essentially my primary client.

Next slide.

In a nutshell, what we try to do is help them wrap their brains around five basic questions:

What got spilled? What kind of oil or chemical?

Where is it going to go? How is it going to behave in the environment? Is it going to stay on the surface or submerge? Where is it going to move over time?

How is it going to react over time?

What's it going to hit? What might happen when it hits it?

What can be done about it? How are you going to try to mitigate the impacts?

Next slide.

There's a variety of different ways that that

might occur.

As far as technical support, the Coast Guard -- when an incident happens like the Cosco Busan, I'll try to pull together a variety of different scientists from my group and have an incident-specific scientific team come down and try to work a bunch of different issues.

Those variety of issues change, depending on what the incident is.

They might be coordinating with the Weather Service for forecasting seismic currents; modeling trajectory forecasts; pollution chemistry; shoreline clean-up; Natural Resource Damage Assessment.

The list goes on and on and on.

Of course, issues pop up that you're not expecting that you have to deal with, as well. It's an exercise in being flexible and applying science to real-world situations, trying to problem solve.

Next slide.

We provided the support for a number of -- pretty much any major incident since the mid to late '70s.

We provide support to the Coast Guard all over the country (inaudible).

Next slide.

We've provided a number of technical

representatives for international responses, as well. Some major ones include in the Galapagos, the Philippines, the first Gulf War, the Prestige spill off Spain.

Next slide.

Of course, other nontraditional support, you might call it.

We don't necessarily just deal with oil and hazmat spills, but sometimes we deal with plane crashes and body recoveries and drug-interdiction issues and whales that have a tendency to swim up the Sacramento River.

So, we proudly provide a lot of different types of support.

Next slide.

The overlap with my job, and probably one of the things that you folks are interested in, is probably going to be more in the trajectory realm -- the computer models that we provide in trying to help answer questions.

In the emergency response phase, and the mission that I'm supporting, a lot of these are forecasts or estimates of where the oil is going to go, for instance.

Natural Resource Damage Assessment is typically

looking at more of a retroactive view, trying to figure out where it has gone over time.

So, it's a little bit different spin on how we use information out there and what kinds of technical resources we provide.

Next slide.

For the Cosco Busan, we provided -- NOAA provided a number of -- had a number of roles in this specific incident: Scientific support, which I've been talking about; resource expertise; sanctuary management.

There were three of them that were involved in this directly. They were heavily involved.

Natural Resource Damage Assessment is something that's ongoing and will continue for the next, probably, couple years, anyway.

The Regional Response Team provides input to the Coast Guard, policy level, with a regional prospective.

Gus had mentioned an ISPR report.

NOAA has also had a representative on that panel to get sort of an outside, independent peer review of the process.

Next slide.

So, I'm going to focus on the scientific support.

I don't want to bore you with an ITF diagram for too long, but I just want to show you that NOAA was heavily involved throughout the management of this incident.

You can see all the little blue lines and circles.

The red areas are the scientific support, which is my role.

The trajectory analysis, and to some extent, the NRDAR activities, are probably the key areas within spill response, at least for the Cosco Busan, where some of the issues under your purview might have some overlap.

Next slide.

In my role, one of the key issues -- key questions that comes up early on is: Where is the oil going to go, particularly in a situation like the Cosco Busan, where you had limited visibility.

That was a key question to try to answer.

I turn to my trajectory modeling folks in Seattle, and they will pull out the charts and start looking at models and hydrographic information.

They may look at HF radar.

They may try to wrap their brains around the problem and figure out where we need to start sending out (inaudible) and where we need to be part of issues and

evaluating resources at risk.

This particular incident we're involved in, this involves San Francisco Bay, which is a tidal-dominated system, and it's fairly well modeled.

So, their immediate need was to basically kind of validate what our tidal prediction models were saying, and they did that, using quartz data.

Unfortunately, at the time of the incident, the current meter at the Bay Bridge was not putting out data, so they weren't able to use the PORTS station or the tide station at the Golden Gate, which would be able to help them validate their tidal models and pick out a written trajectory estimate of where the oil was going to go.

Then, also, to come up with prioritized search area for the next morning, when we felt we might be able to get an overflight up, to help sort of focus their searches for oil on the water and along beaches.

Next slide, please.

We did send aircraft up early the next morning and did an overflight, which then feeds into a more graphic representation of our trajectory estimates.

Once a lot of that oil gets stranded on the shoreline, the trajectory estimates -- the graphic representation is really kind of -- looses its usefulness.

So, my trajectory folks were able come up with a long-term estimate, talking about where the oil is going to go over the long term.

So, that's tied into discussions about how far down the coast oil might travel, how far it might be seen, to help manage people's expectations.

Then at the request of unified command, we did do sort of a hind-cast animation, which you saw earlier, where, instead of using forecasted information, wind forecasts and tidal predictions, we actually used real-world information, observations from overflights, SCAT shoreline assessment information, on-water observation, and things like that, to try and piece that animation together that we saw earlier.

So, that's probably a fairly good estimate of how it actually unfolded.

I was talking to my modeling folks in the last few days, trying to get an idea of what types of things -- sort of their wish list of items that came out of Cosco Busan.

Certainly, PORTS is an important thing for them and an important tool for them to use in the San Francisco Bay Area.

I realize it has some maintenance issues over time.

Certainly, the -- ideally, if we'd had an operational current meter at the Bay Bridge, that would have been helpful, but we were able to use other information to help map or frame out the problem.

When it comes to other types of incidents, not just Cosco Busan, but things -- like some other recent incidents that have happened in the United States -- like the DBL 152 barge spill off Texas a couple years ago.

The potential issue here for this barge spill down in New Orleans that happened last week is the issue of nonfloating oil or sinking oil, and also, some of your hazmat -- hazardous materials may not stay on the surface.

So, how to get a better understanding of not just what the tide's doing, but also what the density of that water column is, what the salinity readings and density ratings are.

There's some key water quality parameters that would be helpful for us to help predict or estimate where you're likely to see oil or hazardous chemicals if they're released in the environment.

HF radar is a tool that's -- it's a really good monitoring tool in the Bay Area.

We did look at it periodically, but it wasn't drawn into our model for the Bay itself. It was more

useful, from our standpoint, for looking at the current systems along the coastline.

So, if more oil had gotten out of the Bay, that's when we really would have started pulling in data from the HF radar arrangement here in Central Northern California.

One of the -- I'll talk about that a little bit more.

Some of the things that are helpful for our folks is to be able to draw in data that's out there already.

HF radar is one of them.

Based on some exercises and some other activities that have happened since then, the CeNCOOS folks and the Coastal Response Research Center out of New Hampshire -- University of New Hampshire and our modeling staff have been working together to try to standardize the data formats and the quality control issues for HF radar in the Bay Area along the coast so that we can fold that in almost automatically into our trajectory estimates.

Once those standardization processes are finalized, then that information can be provided to other HF radar communities so that our folks can then draw in HF radar almost immediately from anywhere in the country

where there's HF radar.

So, that's an ongoing development.

I think it's about ready to be available throughout the country.

I think they have to kind of upgrade some of the server information, the hardware, but I think in the process, the standardization for the data formats and quality controls has evolved pretty far in the last few years.

USGS has had a model for the San Francisco Bay Area for quite a while.

Ralph Chang, I think, is the person who developed it. He may have retired by now.

That would be a useful product for our folks to be able to draw on, but, unfortunately, outputs of that are not to the standard formats that are useful to our folks, so they can't actually pull that into our models.

Berkeley and Stanford are currently working on a three-dimensional model of San Francisco Bay, which is focused more on sediment transport and nutrients issues.

If we're talking about, potentially, non-floating oil, Hazmat does chemical releases. That could be a key element for us to be able to use in an emergency situation in response to the Coast Guard needs.

So, trying to have some standard outputs for

that sort of thing, that might be helpful, as well.

That's about all I have for scientific support at this point for Cosco Busan.

I'm going to hand it over to Dave Reynolds from the Weather Service to talk about some of the support that they provide.

MR. REYNOLDS: Thanks very much.

Dave Reynolds with the National Weather Service down in Monterey. We actually cover the San Francisco Bay Area.

Let me just quickly go through a little bit of a timeline of how we participated in the incident.

Let's go to the next slide.

Basically, the National Weather Service is here to provide protection for life and property, and we're sort of a first responder.

When something like this happens, we get a call from Response and Restoration for a now-cast and forecast for the next several hours to next several days.

It's important that we try to coordinate and maintain some situational awareness, in case there's a big storm coming in, or something like that, so we can warn the people out there trying to collect this stuff that something may be coming.

This is sort of our mission statement.

Let's go to the next slide.

So, in this particular incident, we were notified the following day as to the magnitude of the spill.

We submitted what we call a "Significant Event Report" to our regional headquarters, because this is probably getting to the national media.

We were contacted by NOAA Hazmat for a spot forecast starting on the 8th.

There were basically two calls per a day until about the 15th of November, and then we started issuing written forecasts twice a day, starting November 16th.

These continued all the way out to January 18th, as they were doing the recovery.

Something you may or may not know, but there was a major storm on the 4th and 5th of January, one of the second or third largest windstorms we've had in the Bay Area, to complicate matters during this incident.

Next slide.

So, here's sort of the format.

They wanted conditions both inside the Bay and outside the Bay, and they wanted winds and seas and temperatures.

We had a lot of personnel out there, trying to recover the oil, so we're trying to give them a three-day

head's up as to what might be coming.

This is sort of an e-mail response that -- we forecast and put together an e-mail and sent it to a long list of people that needed this information.

Next slide.

So, this particular day, when we put one of these Significant Event Reports together, we tried to include some of the observations that were going on at the time, and any watches, warnings, or advisories that the National Weather Service had out.

There had been a dense fog advisory for the San Francisco Bay Area for that morning. Visibility at that time was a quarter mile or less visibility.

So, we had -- as you can see, there's definitely -- the only two visibility centers that we have access to are at San Francisco Airport and Oakland Airport.

There really is no actual observation of visibility, in terms of instrumentation, inside the Bay, other than those two observations.

Next slide.

Here's just a map of the PORTS data.

You can see the PORTS observations are basically to water temperature, air temperature, currents, water level, things like that.

The actual visibility stuff, as you can see there, where those are located, San Francisco Airport and Oakland Airport.

So, for a vessel that's leaving, going out the Bay, we really don't have -- other than visuals from observations from the mariners or from Webcams that we can look at, but -- basically, you see nothing during dense fog.

It's just a gray haze that you see, but you don't know what the extent of it is.

Next slide.

We have some other special instrumentation that we've been using for many years now to forecast the clearing of the stratus at San Francisco International Airport.

This is just a picture of the Web site, and what you're looking at is real-time, five-minute observations from the airports.

In this upper left-hand corner, you see that visibility is at 00. So, the visibility, at San Francisco Airport, at about the time of the incident, was zero.

The curves you see right here are from what's called a "sodar," which gives us the height of the marine layer. Usually when that marine layer is down under

1,000 feet or less, that's when we tend to get the dense fog.

We look at that to see when it's going to break up so we can get twice as many aircraft into San Francisco Airport during the daytime operations.

(Inaudible) what you see flies out of here gives you an idea.

This blue line is the percent of possible radiation.

So, there's some instrumentation out there that are kind of specialized and don't exist at other locations, to give us a better idea of when it's going to clear up.

Next slide.

One thing we started a couple years ago, that the mariners were very interested in having, was a Bar forecast for the San Francisco Bar.

We also want to thank Scripps for putting a wave buoy out at the San Francisco Bar. That provides us information on what's going on at the Bar.

That's a very dangerous area. Probably most of the incidents and accidents that occur in and out of San Francisco are because of the Bar.

So, we started putting out, four times a day, forecasts for that Bar area, because that's right outside

where the strong currents are coming out, the waves are coming in.

The interaction of the two, with the shallows and current on either side of these water channels, can create some significant wave action and can be very dangerous.

That's something we started a few years and have found it to be very popular.

The next slide, please.

Here's the picture of the HF radar currents -- surface currents that you get from the HF radar inside the Bay now.

I just pulled this up from the 23rd of July.

We can monitor this, as well, to see what's going on, ourselves, to give us some situational awareness, to be aware of what's happening inside the Bay, in case there's an incident.

Next slide, please.

So, another thing we're just starting -- on the 5th of August, this will go operational. It's called "Marine Weather Warning Product."

It's actually typical for what we have for other types of weather phenomenon, like winter storms, and things like that.

It's a separate product, and it will be very

site specific.

It has something called a "VTEC" code that can be parsed out for specific geographic regions. This will include dense fog advisories for marine areas for the San Francisco Bay zone, because we do have a specific zone for the San Francisco Bay and the Delta region.

The criteria for a dense fog advisory will be a half a mile instead of a quarter of a mile, like we have for other locations.

These sorts of things will no longer be in our typical marine forecast, what we call our "Coastal Waters Forecast." These will be moved into this new Marine Weather Warning Product.

Next slide, please.

So, just looking at your service improvements -- I looked at that myself, and thought, you know, of some of the recommendations in there, how that would benefit other types of operations.

The coastal mapping is very important, for several reasons.

One is there's a lot of tsunami studies going on along the coast of tsunami inundation, and we're doing something called "Tsunami Ready" for the coastal counties, Marin, San Mateo, Santa Cruz, Monterey.

We now have San Mateo County Tsunami Ready.

Part of that Tsunami Ready activity is getting to know where that wave is going to inundate and where our safe zone is along the coastline.

So, this mapping operation would be very significant to that study.

Storm surges, where we get these big winter storms with big waves and strong currents, knowing what sort of coastal flooding might occur.

As well, we're trying to develop a very high-resolution San Francisco Barcast using the wave buoy and the SWAN model, which is a wave model that we have running on normal force resolution, and now we want to make a high-resolution model.

That does require good bathymetry within the Bar.

The fourth project -- I think one thing that might be useful is to have a visibility sensor on several of those PORTS stations, because right now, none of the buoys are seamanned stations.

These coastal stations don't have any buoy sensors, but we've been asked to provide visibility forecasts.

It's like trying to provide a weather forecast for fire and weather when you don't have any weather information at the fire.

So, it's important that we get better visibility sensors out there so that we're reporting 24 hours a day, seven days a week, and we're actually able to see what the visibility actually is.

We have something called an "All-Hazards Incident Meteorologist," or I-Met.

We use these on the fires.

There are two of them in my office, and they have been out since late May, out on fires, providing detailed forecasts for the incident commander running the fires.

You have the same sort of thing -- and we provided one during the Safe Seas exercise a couple years ago that was outside the Golden Gate area.

That's something that these individuals have been trained to deal with.

They can go out on the vessel.

They have little safety things that they need to have done to be out there to provide very site-specific forecasts for the marine community.

One thing that we've developed over the last five years is a Marine Users Group.

This is made up of a whole spectrum of the marine community, providing us with feedback for what they really need to be safe out on the ocean.

From this, we've developed the Barcasts.

We've worked with Scripps to get a Bar buoy. We appreciate their work with us on that.

We've changed our marine zones to be more specific to the areas in which they feel we needed more specific information.

We've started producing these printed marine forecasts.

These are digital forecasts that are available out through seven days, and that we can actually produce spot forecasts by a point-and-click on the Web site.

Next slide, please.

Here's, quickly, the Bar information.

This is sort of a visual of the deepwater channel and the south shoal and the four patterned banks on the north side.

Having a good visual of this, and having it up to date, we can now get a much better forecast of what's going on way back in the wintertime.

So, if there was an incident -- as you know, anything in the Bay comes out of the Bay and back into the Bar, and you see that is a nice visual graphic of what goes on.

This is a very critical area that we really need to have good information of what the wave action is,

because that's going to spread this stuff out all over the place.

If we don't know what's going on, it's going to be difficult to, one, protect the people trying to recover the oil out here, and, two, to know exactly where it's going.

Next slide, please.

Here's what's called "CDIP," the Coastal Data Information Program, which provides us with these waves -- using these buoys that have wave spectrum.

You can actually look at these waves that occur on the north and south shoal, going into the deepwater channel.

This is what we use to make the Bar forecast right now. It's fairly crude compared to what could be done.

In the upper right-hand corner, something that is being developed or has been developed for the Humboldt Bar -- that's a very high-resolution Bar forecast, using a SWAN model and one of these spectrum buoys.

We're in the process of developing that very same thing for the San Francisco Bar right now. We hope that by a year from now, we have that information.

One of the critical pieces to doing an accurate Bar forecast is the currents coming in and out of

San Francisco Bay.

This is the outlook from the PORTS project and (inaudible).

Unfortunately, we've been trying to negotiate with USGS to support this model.

Ralph did retire. It's running on a PC in the back room, and nobody is watching it. If it crashes, it's done. Nobody is going to support it.

So, we do not have accurate currents coming in and out of the Bay, which really hurts the Bar forecasts.

So, we're trying to get that supported in a way that would be useful for the Hazmat people, in the form that they can use, and then a form that I could use in my Bar forecast would be very useful.

Next slide.

Here's this sort of a experimental point-and-click page. This map over here, you can click anywhere on the map to get a specific forecast.

This is updated four times a day.

It will give you any watches or advisories that would be up in your area.

It will give you specific -- very site-specific information on winds and seas at that location, which could be used by anyone, since it's a Web site, or a private developer.

Right now, it's experimental, but it could very easily replace the kind of forecast we're putting out in written mode.

Anyone could just come to this Web site and get a very site-specific forecast, and as I say, it's updated four times a day instead of the two times a day like the written forecast we're producing via e-mail.

That's it.

MR. SKINNER: Thank you all very much for those presentations.

I think that was eye opening, to see some of the information you provided, particularly with the maps showing the extent of the spill and how it moved around the Bay.

I think that sort of popped it and got everyone's attention, and also, some of the information on the clean-up.

Panel members, any questions and comments?

We'll just start going right around.

Admiral West?

ADMIRAL WEST: I've got a couple.

This is Dick West.

What was the status of PORTS? There was some reference to it, but -- up? Down? All sensors up, working?

Was the current meter on the bridge part of the PORT system?

MR. STOUT: Can you hear me okay?

The PORTS sensors on the Bay Bridge -- I wasn't the one actually looking at all the different PORT sensors in the Bay; my modeling folks up in Seattle were.

I do know that the -- I think it's an ADCPM that's on the Bay Bridge. I don't think that was operational at the time.

ADMIRAL WEST: But it was up by PORTS?

MR. STOUT: Yeah.

It was a PORTS station, but they ended up having to rely on a tide station out at Golden Gate.

MR. SKINNER: Mike, do you have something?

MR. SZABADOS: It currently was not working because of a shortage in funding.

ADMIRAL WEST: That's what we'll get to eventually here.

Dave, I think you mentioned that one of your weather stations was not fully funded for.

What do you mean by that?

MR. REYNOLDS: Over the last several years, as we all know, the maintenance has fallen off on some of those sensors.

Some of those are the only sites where we can

get wind information inside the Bay, especially when we get those howling winds when you go through the Carquinez Strait.

Those are very critical weather observations that we need.

So, I think just maintaining that facility so it's reliable and we know it's there when you need it, I think is one of the things I'm saying.

ADMIRAL WEST: Who funds the O&M now?

MR. SZABADOS: An organization called "OSPR." It's a state --

MR. STOUT: California Office of Spill Prevention and Response, but I don't know how long that funding is for.

MR. SZABADOS: And the Marine Exchange is a local partner who we've coordinated with in the State of California.

ADMIRAL WEST: So, it varies how much O&M they put into it, depending on the -- I mean, is there any consistency?

How do we figure out how it's funded to operate?

MR. SZABADOS: Again, the funding has come from OSPR, and that has fluctuated over the past several years.

ADMIRAL WEST: So, we have to talk to somebody about that out in California.

You probably can't answer this, because you're not the pilots, but do the pilots use -- would that have been a critical input for a pilot taking that ship out of that Bay, a current reader on the Bridge?

How about some of my colleagues here?

MR. JACOBSEN: I mean, the pilots knew the predicted tides. They know the tides, but it would have helped.

Any information would have helped -- any real-time information will help.

ADMIRAL WEST: And obviously, if it's not working, you're not -- you've got to work?

MR. JACOBSEN: That's right, and I think it was out for a while.

Mike, wasn't it?

MR. SZABADOS: That's correct. It's been out for a long time; about a year.

MR. JACOBSEN: So, if it's gone, the pilots just didn't use it at all, the current meter, and sure, it would have helped.

Back to the funding part, the State of California sometimes funds it; sometimes doesn't.

The Marine Exchange up here will have to fight

for the money and try to find it somewhere, and it's an ongoing issue.

It changes and fluctuates.

ADMIRAL WEST: Okay. Who's responsible for the model of the Bay as it affects emergency response? Is there a special agency that's responsible for a model of the Bay?

MR. STOUT: My modeling folks up in Seattle build models for trajectories for --

ADMIRAL WEST: So, NOAA is responsible for the model of the San Francisco Bay?

MR. STOUT: For the purpose of trajectory, yes.

ADMIRAL WEST: Okay. Is that true in most ports, that NOAA is responsible for the model to be used for emergency response?

MR. STOUT: We developed -- we can adapt that -- we can use that model, and have used that model, in a number of stations around the country to --

ADMIRAL WEST: I'm just trying to figure out who's responsible.

I think I've heard that there's lots of inputs that are not being used to make this model better. One of them is HF.

So, who's supposed to pull all that together to make it better?

I'm trying to figure out who's responsible. There's -- a lot of federal money has gone into pieces of it, so who's responsible for pulling those pieces together to make this model better?

Who owns it?

MR. STOUT: That role that NOAA provides to the Coast Guard is based on NOAA's Office of Response and --

ADMIRAL WEST: So, is the Coast Guard responsible?

LIEUTENANT COMMANDER BANNAN: Not to my knowledge.

ADMIRAL WEST: So, it's a local responsibility, you think?

MR. DUNNIGAN: If you're talking about the oil and hazardous materials response, that's our people in Seattle, and that's what Jordan is referring to.

They do that for the whole country.

They'll use their modeling capabilities to be able to do that, but all he's doing is to be able to do trajectory.

This is not an operational hydrologic model of San Francisco Bay, or any other bay, and whether those get done in one office or -- it will be different in every place you go.

ADMIRAL WEST: So, it's a local responsibility?

MR. DUNNIGAN: Local or state, or whoever.

ADMIRAL WEST: Okay. That's fair.

Thank you.

MR. McBRIDE: The trajectory analysis done in Seattle, that was for the whole country?

Do I understand that, Jordan?

MR. STOUT: Yes.

MR. McBRIDE: Okay. Was the model accurate and predictive -- I mean, was it accurate?

MR. STOUT: It was quite accurate.

Even the (inaudible) forecast that was provided, which was done without the benefit of overflight observation -- when the modeling staff was interviewed by the HSPR panel to look into those issues, they did a comparison between their trajectory analysis from the first text version onto the more graphic products that were provided, and compared that to actual oil observed on the shoreline and from air observations.

There was a couple of small portions that were not absolutely correct, but it's a model. It's supposed to simulate reality.

So, it was actually very close.

MR. McBRIDE: What was the source of the data that Seattle uses in these forecast models -- trajectory models?

MR. STOUT: It's going to depend on the location and what data is available for that area.

The San Francisco Bay, as I said, is a tidally dominant area. There are a lot of modeling experiences that have been used in the Bay, like Ralph Chang's model, and our folks have been doing still response modeling since the late '70s.

They're familiar -- they're PhD-level oceanographers and computer modelers, so they're very familiar with the forces that push -- that compile water movement.

They developed -- they still tweak the model for site-specific purposes, based on the conditions on-scene and the forecasts that are provided from Weather Service and other sources that might be available.

For instance, if there's -- HF radar is not available all over the country, so if there are areas along the coast where HF radar is available, we're able to now start pulling in that information automatically to help initialize the models.

MR. McBRIDE: Commander Bannan, can you tell me how long shipping activity was shut down in the Bay -- I assume you only shut it down for a time?

LIEUTENANT COMMANDER BANNAN: Honestly, I wasn't necessarily involved within the first couple of

days; I was brought in a couple of days afterwards.

By the time I was brought in, shipping activity had resumed completely.

That is one thing that we focus on, is keeping the ports open. With San Francisco Bay, it's not just one port; you've got eight different ports in there.

I do believe it was a matter of hours, not a full day, that everything was shut down.

MR. McBRIDE: Well, if you didn't come in until a few days later, are you able to -- or maybe, Jordan, do you know: What was -- did the forecasting model have a role to play in reopening vessel activity?

MR. STOUT: I didn't have any direct discussions with the folks that would make those types of decisions, so -- I suspect that they probably did use our model output in making those decisions.

I didn't interact with them directly. That's why I'm not able to answer you directly.

LIEUTENANT COMMANDER BANNAN: In response to that, I think there was -- I think everybody realizes there was some confusion in the initial communications with the Cosco Busan.

There was confusion as to how much oil was out there; the fact that the oil moved so quickly off-scene.

The forecast did give us a good idea of where

it went, but, like I said, the port, itself, as the San Francisco Bay, was not shut down the way that we would if we had a 9-11 or a Katrina-type atmosphere, where we would shut down all shipping.

I believe shipping was limited that day, anyway, due to the fog.

In a similar situation on a clear day, like today, we would definitely be using that forecast to say whether or not we need to shut down the Bar because we didn't want ships going through heavy fuel oil.

MR. SKINNER: Why don't we go around the table, and if people want, they can make comments or just pass to the next person.

Mike, if there are questions, factual questions, on PORTS, you can just jump in.

MR. SZABADOS: Just real quick, I just want to add a few comments to your questions about modeling.

As part of the PORTS program, we recognize that integrating information into the PORTS product is part of our plan.

Actually, we do that in a number of the ports, based on available resources.

We're looking at developing or building relationships with operational modeling entities.

Early on, we actually did use Ralph Chang's,

but because it was not in operational status, we couldn't sustain it.

Also, the other question regarding the integration of visibility to PORTS, this is something we've been working on for several years and been testing several instruments in the past, and unsuccessfully working with the Coast Guard and FAA, finding a reliable visibility sensor.

However, we've had some success working with the FAA and the Coast Guard. Hopefully, we'll have something shortly.

MR. McBRIDE: Mike, you know where I'm going with this, of course.

That is that the port on Lake Charles, upshore river, does not have a PORTS system, but we had one of the largest oil spills in history two years ago, and experienced a lot of surprise that our trajectory guess -- it wasn't even a forecast.

You'd think that a marine environment would have flow downstream and -- like I think they're looking at the vessel in Mississippi this week, and it ain't necessarily so.

So, when we install a PORTS system in the Cocahoe, which is underway this year -- we're hoping to get enough data to have a better model.

That's my interest in the role of PORTS and the role of forecasting in these spills -- and of course, they're experiencing that over in Mississippi this week, too.

MR. SZABADOS: Lake Charles would be a great candidate for a model, but one of the critical things for a model is a good elevation, and that requires the observations, which PORTS can provide.

MS. HICKMAN: Sherri Hickman.

I just don't really have a question at this time, but the point -- if we don't capture this, that -- the system was down, and we've invested taxpayer dollars to put the equipment in.

Not necessarily that it was going to change the events of the Cosco Busan -- because it's my understanding that he didn't even have a black-top unit, so he wasn't collecting real-time data.

However, the fact that in the aftermath, it could have been used, and the fact that the equipment is there and it's not being maintained because local money wasn't available for over a year -- it's foolish to put the equipment in if we're not going to have the federal government maintain it, as well.

We really need to capture this today, with this incident alone.

MR. JEFFRESS: Gary Jeffress.

The video that we saw, the trajectory of the oil spill, was that actually from the model or was that from the measurements?

MR. STOUT: It was an output from the model, but some of the data they used in running the model was based on actual observations: Air overflight observations, shoreline observations, and heavy vessel observations, as well.

They were -- adjusted the model parameters to try to get the oil to go where it was actually observed.

MR. JEFFRESS: With the recovered oil, what do you do with it?

LIEUTENANT COMMANDER BANNAN: Actually, with all the recovered oil, according to federal regulations -- basically, the RP is required to clean up all the oil.

In this case, they've been responding very, very cooperatively.

They hired two response agencies, and when these response agencies collect the oil, they actually make sure that it's disposed of appropriately.

How they do that is basically between them and -- between the National Pollution Fund Center and a couple of other agencies, but they have permits through

the EPA to actually dispose of that oil appropriately.

Some of it is reused and put back into industry.

It just depends on what they've collected with it, really, because when you get into the soils, and that kind of thing, it's a little harder to get back out.

MR. JEFFRESS: It seems to me the skimmers would have the best chance of recovering it so it could be reused.

I was wondering what sort of commercial value it has and if you could use the leverage of: Whoever picks it up, owns it, and whether it would get picked up faster.

LIEUTENANT COMMANDER BANNAN: No, because, basically, they were picking it up as best as they could, anyway.

There really isn't necessarily much benefit.

We didn't have anybody else sitting around saying, "I wish I could pick up some oil." We didn't have those kinds of situations pop up.

The two OSPRs that we do have on scene, one of them was actually initially on contract.

Every facility, every vessel, that we have that comes into the Bay Area has a contracted agency that is there to clean up oil.

It's not a matter of mutual aid, or anything like that.

MR. JEFFRESS: Thank you.

MR. ARMSTRONG: Andy Armstrong.

I have a question for the -- about the Weather Service.

You mentioned that it would be nice if the PORTS system had wind and visibility sensors.

I guess I'm wondering why the Weather Service doesn't fund and deploy visibility and wind sensors around the Bay as part of their marine weather program.

MR. REYNOLDS: Well, we do have the ASOPS, the automated system, at the airport. That's one of our things that we do to support the FAA.

We have not -- we do put out some meteorological sensors. We have wind sensors on Angel Island; we have one on the Golden Gate Bridge, on the span itself.

So, we do have -- and we support those weather observations.

The visibility sensors are a difficult thing to maintain and operate. We need almost an ASOPS type of system somewhere out in the Bay.

Those are pretty expensive, so it's a budget sort of thing.

This has been an issue, in terms of the fact that people want visibility for mariners for dense fog advisories, but there's no buoys and no sealand stations that are out there that actually have these sensors.

I think Mike had mentioned how difficult that observation is to maintain, because they're optical sensors that have a laser beam.

The ones we have now -- and you can imagine, in a sea salt environment, how difficult it would be to maintain those things.

Maybe there's something about the technology -- and it sounds like Mike may have discovered something that could work.

However, I think it's a budget issue and a technology issue, actually, and the kind of environment you'd want these things in.

MR. ARMSTRONG: One follow-up question.

The wind sensors that you mentioned, are those incorporated into the PORTS system?

MR. REYNOLDS: Well, the wind sensors are working.

I think most of the wind sensors that are out there, that I'm aware of -- plus, there's the Bay Area Air Quality Management District, also, who has quite a few wind sensors that are out over the Bay for modeling

air pollution --

MR. ARMSTRONG: I guess the question was, and maybe Mike has a better answer: All those wind sensors that are out there, are they incorporated into PORTS?

MR. SZABADOS: They are, and actually, I'd like to announce that we're installing three new ones, also, that we're adding to that existing network.

MR. ARMSTRONG: That's good, Mike.

MR. WELCH: On the Weather Service -- is the acronym "ASOP"?

MR. SZABADOS: "ASOPS."

MR. WELCH: All right. I understand that these are automated units that are placed for -- and it's a national program, and these tend to be at airports?

MR. REYNOLDS: Yes.

MR. WELCH: Do you know how many there are nationally?

MR. REYNOLDS: I don't know the number, but they're both at -- most of the airports in the Bay Area have an ASOPS-type of instrumentation.

MR. WELCH: My guess is there are dozens, if not more.

MR. REYNOLDS: Hundreds.

MR. WELCH: Do you have any idea if there are marine ASOPs anywhere at all in the country?

MR. REYNOLDS: I am not aware of anything that the Weather Service supports as an ASOP.

MR. WELCH: Okay. So, this is an airport-specific program?

MR. REYNOLDS: Yes.

MR. WELCH: Does anybody on the panel have a real gross idea of total expenditures by the responsible part, by the responding agencies, by everybody in response to this incident?

LIEUTENANT COMMANDER BANNAN: As of right now, the responsible party has a certificate of financial responsibility, every ship, every facility.

They've actually already gone above that, which, I believe, was $61 million. I think they're up in the area of about 70 million, if you include in the Coast Guard costs and the other governmental agency costs.

I believe Coast Guard costs and other governmental agency costs -- which includes both Fish & Game, OSPR, as well as some of the NOAA costs, and some of the other costs, I believe is somewhere around 3.5 to $4 million.

MR. WELCH: So, we're at $75 million, total?

LIEUTENANT COMMANDER BANNAN: Somewhere around there. I don't have the exact number with me.

MR. DUNNIGAN: Those are response costs, not

including --

LIEUTENANT COMMANDER BANNAN: Yes.

MR. DUNNIGAN: -- natural resource damages?

MR. WELCH: So, we're going to be well over $100 dollars by the time this incident -- somebody or some combination of people are going to pay.

Commander, would you characterize this, in terms of the amount of oil spilled, as a relatively minor oil spill?

LIEUTENANT COMMANDER BANNAN: I would say more of a minor to medium.

We definitely could see a lot worse. From a ship like that, if they had actually struck it head on, we would be dealing with a major spill, probably larger or at least as large as what you're seeing down in Louisiana right now.

MR. WELCH: Does anybody know the rough cost of one of these ASOPS systems?

MR. REYNOLDS: I hesitate to quote.

It's not thousands; it may be over $10,000, inputting a full ASOPS.

MR. WELCH: Oh, I was going to assume it was 2 or 3 or $4 million.

You think it's much less than that?

MR. REYNOLDS: It's not millions; it's 10s of

thousands to put in those.

MR. WELCH: All right. You see where I'm driving at?

Not necessarily the lack of one of these systems in any way contributed to this accident, but you certainly could conceive of a situation where the presence of one of these systems would avoid an accident many times more expensive than something like this.

We just have a national policy of investing pennies into these preventative measures, and then instead of doing that -- by saving that money, we spend hundreds of millions of dollars in response measures after that the accidents occur.

It seems, to me, a little bit backwards.

There was a comment about what PORTS -- how PORTS was used in the response and how the lack of the current data might have -- had it been operative, that would have helped in refining the response, and some suggestions about what PORTS could do in a future response.

Has that been reduced to a one-pager or could it be reduced to a one-pager, the role of PORTS in this particular response and what could be done in PORTS to help future responses in the Bay Area?

Could that be reduced and given to this

advisory committee?

MR. STOUT: Sure.

I received some e-mails from my folks in Seattle, and I can pull that together.

MR. WELCH: Mr. Chairman, I think we really ought to ask for something that.

I'm sure, obviously, it's part of your presentation, and it's probably addressed in various parts of that incident response document, but that's a major, major thing.

If there were a one-page with bullets saying, "Here's how it was used"; "Here's how it could have been better in this particular aspect"; "Here's how NOAA in this day could use it in the future," that would be very helpful to this group.

MR. STOUT: Not just for the San Francisco Bay Area, but for other parts of the country, as well?

MR. WELCH: Well, right now, I think we're looking at this particular incident.

If you want to go beyond that, that's fine, but I'm just thinking, right now -- politically, I'll address this.

You've got to get people's attention to specific problems.

There's a specific problem in the San Francisco

Bay Area. We need to make sure that the policymakers of the San Francisco Bay have some very concrete observations about the San Francisco Bay PORT system, whether it's the state arguing maintenance costs or the federal folks or -- whether there ought to be a federal responsibility for maintenance costs.

If we could request that and get that, I think that would be very instructive.

Thank you.

MR. SKINNER: Tom Skinner.

That was a very interesting conversation here, and I want to take a slightly different approach, based on what I heard.

In terms of responsible party costs, I'm assuming -- and chime in anyone, because it's not necessarily part of what your presentations were.

I'm assuming that would be borne by insurance companies, or whoever bonded the vessel?

LIEUTENANT COMMANDER BANNAN: Yeah.

I'm trying to think of the actual name of the insurance company, but, basically, they're called "T&I clubs," and all -- especially the international agencies that we have -- the international ships that we see coming in are basically bonded.

That's what that coffer was, was basically an

insurance policy.

Regal Stone, who owned the vessel, has gone above and beyond, actually, the limit of their liability, and they're continuing to work with us on that.

Those issues -- once they get to that point of limit of liability, you also have a state coffer that's in place.

I can't remember what the limit is on that, but it's much higher.

Regal Stone has to work with their insurance company, and both with the state and then our Pollution Fund Center, which runs our oil spill liability trust fund -- it will still get paid for.

If Regal Stone decided to back out today, they could, and we would still be paying for the response, and the legal after-effects would be dealt with at a DC kind of level.

MR. SKINNER: We heard yesterday, and correct me, anyone here, if I'm wrong, but it would cost something on the order of $200,000 for operation, maintenance, improvements, general O&M, continuing for the PORT system in the San Francisco Bay Area.

Is that correct?

MR. SZABADOS: That's the ballpark. I don't know exactly.

MR. SKINNER: Okay. So, if I'm an insurance adjustor, and I find that for something on the order of maybe $300,000, I could have all these visibility sensors and a PORTS system, why -- it seems to me like a fairly significant incentive for the insurance industry to start saying, "You know, these ports need to have these tools to make navigation a lot more safe, and your premiums go up if you're going to a port that doesn't have this, but they're lower if you're not."

I'm not sure if this is a shipping and insurance or -- neither of them are things that I know much about, but it just seems that if someone who was running the numbers on insuring vessels were aware that there was a significant -- a potentially significant improvement in navigational services for -- compared to these numbers, a relatively small box, that they would take steps to improve that.

Does anyone have -- anyone know more about this than I do?

MR. McBRIDE: The only thing I would say is that the vessel owners are widely disbursed and move around the world.

They're still not real happy with having to pay for radar, never mind anything else. They don't want to pay anything that they don't absolutely have to pay for.

So, looking to them to pay for any of these features is a challenge. You really need to look to the shoreside beneficiaries, the terminals, the port operators.

As was pointed out correctly yesterday, Port Authorities don't actually benefit at all from the PORTS system. We don't move cargo, but, certainly, our customers, our tenants, and those over whom we have some responsibility do.

So, you've got to look to those domestic partners who are going to benefit and try to bring them to the table.

It's very difficult, as Mike knows, and he's seen it around the country -- putting in these systems -- it only costs 200,000, $300,000 a year to operate and maintain, and it's amazingly difficult to get anybody, Port Authorities, state governments, anybody, to step up and participate, which is why we continue to come back and say, "Federal government, this is a modest investment in safety and our environment to do these things nationwide, and they should be federally funded."

I mean, we've been through that at this panel on many occasions.

That would be my perspective on it.

MR. SKINNER: I was just thinking that nothing

sort of motivates people -- at least I'm thinking about my own insurance premiums -- like a hefty premium to motivate people to change their behavior.

So, I'm just sort of thinking in terms of being outside the box.

We've looked at the traditional source of local state and federal government.

If there were some greater awareness in the maritime insurance industry, would that help the situation?

That's just a thought, and we can come back to it later. I don't want to hold people up here.

MR. SZABADOS: Just a quick comment on it.

Basically, the vessels are self-insured. The T&I funds are basically associations of vessel owners that provide their own insurance.

MR. JEFFRESS: Tom, that sort of value came out in studies in Houston and Tampa, and a significant component about them was the lowering of the number of incidents of collisions and spills.

That was part of the trade-off and the benefit.

In Houston, it was $15 million a year in savings directly related to PORTS.

So, the cost benefit is enormous, and it's already been documented.

MR. DUNNIGAN: Okay. Just quickly, to follow up on that, I visited the Port of Mobile two months ago.

They estimated that in the first three months of operation, they avoided two groundings that otherwise would have happened, and those are a couple of hundred thousand dollars a pop.

So, they really believe that the system has already paid for itself.

Jordan, did you see any perceivable benefits from having had Safe Seas out here, but all of a sudden, you had to go into real operations in December of '07?

MR. STOUT: Absolutely.

Certainly, a lot of Natural Resource Trustee folks and participants in Safe Seas that would normally be involved in the regular industry exercises had -- learned a lot, not only about spill response in general, but who the folks -- how the spill responses are managed and how to plug into that system and what type of information is operationally relevant for the purpose of spill response.

It also was an opportunity to work through issues, get them on the table, and pop through them in a nonemergency situation and process.

So, when this happened last November, a lot of those issues didn't come up, and it didn't sort of

redirect a lot of the discussions.

So, I think there was a number of items of value.

There are -- Safe Seas was -- you know, was essentially a NOAA-led exercise, and there's a number of other large exercises around the country.

I think that, particularly in the California area, there's been a lot more interest in Natural Resource Trustees getting involved in those larger-scale exercises, even though they may not be (inaudible).

The Weather Service has actually been increasing their interest level and been providing I-Mets and weather support for exercises -- large-scale exercises, as well.

MR. DUNNIGAN: Just a last comment for the committee: Dave talked about the I-Mets.

That's really a critical thing that the Weather Service does, not just for us, but also for fire weather.

Those I-Mets are on the ground, and often in very dangerous -- personally dangerous situations.

It's a terrific program.

Dave, you say you have two I-Mets that work for you out of Monterey?

MR. REYNOLDS: That's correct.

MR. DUNNIGAN: And you're covering what

geography with that?

MR. REYNOLDS: Well, they can be called out anywhere in the country, if necessary.

MR. DUNNIGAN: Sure, sure.

MR. REYNOLDS: Generally speaking, we've had them down on the Basin fire, which has been going on forever, it seems like, but they can be called out anywhere for as much as 21 days at a time.

MR. DUNNIGAN: Does each WFO maintain an I-Met capability?

MR. REYNOLDS: Most do.

I would not say a 100 percent of them have I-Mets, but I would say the most -- the majority of them do have at least one trained I-Met.

MR. DUNNIGAN: Thank you.

MR. SKINNER: Just a housekeeping thing.

We've gone beyond the time allotted for this. I think it's important to keep this going, so with the committee's concurrence, we'll continue on, and then try and make up some time later on in the panel, if that's all right.

MS. HICKMAN: Sherri Hickman.

Dave, this is a question for you.

You said that you've increased the dense fog advisory to happen.

You put out that it's a "dense fog" and --

MR. REYNOLDS: Right.

It's a quarter mile for the land-based dense fog advisories, and a half mile for inside the Bay, and we'll put out some sort of marine advisory for one mile or less.

Unfortunately --

MS. HICKMAN: What was it before?

MR. REYNOLDS: A quarter mile.

MS. HICKMAN: So, it was a quarter and now it's a half mile?

MR. REYNOLDS: Yes.

MS. HICKMAN: Tom, are they trying to do anything with you guys for the half-mile dense fog and --

MR. SZABADOS: No.

MR. Wells: Matt Wells.

You know, it's becoming very obvious that there's a need for PORTS.

I'm beginning to wonder, with money being as short as it is -- I manage a network of 45 CORS stations, and I pay for each of those CORS stations.

We're maintaining those. NGS does a good job of archiving the data, what have you.

I'm beginning to wonder if somehow -- and Adam, I don't mean to argue against what you're saying, but

could it be possible that the Pilots Association, or somebody, charge an additional amount that could then be used to supply the funding for PORTS?

It's an obvious need, and I don't think that the federal funding is going to be there. If it's not there, then how else can we recoup the cost for maintaining something like this?

From what I understand -- it might not be hard to do. I don't know the logistics of the jurisdiction or things.

In San Francisco, we've got eight different ports, eight different Pilot Associations -- maybe one, I'm not sure -- but maybe the funding can be generated through alternative measures.

It would be a positive thing if we could maintain the PORTS and possibly prevent something like this from happening.

MR. McBRIDE: That's a very good suggestion.

In fact, the model that's most prevalent, I think, is that the Port Authorities have picked up those expenses through their general revenue sources, your vessel activity, your cargo activity, which generally provide a nominal base for a charge.

I think Sherri or Tom would be able to comment that vessel owners are not happy to see additional

surcharges.

MR. SZABADOS: The area is being taxed, and there's a little trust fund, if I'm correct, but we're not allowed to tap into that trust fund.

Excuse me, it's our Harbor Maintenance Fund, so there's already funding taxes already being --

MR. McBRIDE: That's not for PORTS, though, the Harbor Maintenance Fund that --

MR. WELCH: If I could -- and we've been talking about this here.

For me, for federal funding, the obvious candidate is the Oil Spill Trust Fund. It's something that was created under the Oil Pollution Act in 1990.

It's financed by a 5-cents-a-barrel tax on oil produced in this country or imported into this country, and it's used to fund all -- a variety of oil spill prevention and response activities.

Now, PORTS and NOAA are not an authorized recipient of that fund. It would require a change in the law.

However, to me, as I'm listening to all the difficulties of all the other sources that get suggested, this jumps out at me as the obvious source, if a change in the law could be made.

MR. Wells: Would a recommendation from HSRP to

do something like that be a step in the right direction?

MR. WELCH: I think so, although I think we need to have a better understanding of our -- among ourselves as to what type of money we think that this would entail, because somebody should ask.

ADMIRAL WEST: Where does this tax go? Is it General Treasury?

MR. WELCH: It goes in the General Treasury, but it's a segregated fund.

There are certain parts of the fund where the money is disbursed automatically, and then there are other parts of the fund where the money is spent according to annual appropriations.

However, there is common, customary annual appropriations out of this trust fund for recognized uses.

ADMIRAL WEST: Yeah, I agree, but getting money out of the General Treasury for a specific agency for a specific issue is very, very hard.

The entire funding of the Ocean Commission, which was $4.3 billion, was said to come out of the General Treasury.

Not one cent has come out of there in five years to provide any ocean relief.

We can recommend -- I think it's a good idea --

but it's possibly not going to happen.

MR. SKINNER: We're going to try and get through with the remaining comments and wrap this up.

We need to take a break, and we need to give the reporter a break, which she's probably sorely looking forward to.

So, if we can continue on here, that would be great.

Tom?

MR. JACOBSEN: Tom Jacobsen.

I think it's all been said, about using the Cosco Busan as an example to keep pushing PORTS forward, and we need to do that.

We need to find funding somehow. I like Ed's approach; that's the way to go.

The visibility sensor, how that works is that just tells you what the visibility is at that sensor; right?

MR. REYNOLDS: That's correct.

MR. JACOBSEN: Just at that one location?

MR. REYNOLDS: That's correct.

MR. JACOBSEN: Okay. Where we operate down in Long Beach/Los Angeles, we -- as pilots, we prefer to use video cameras.

That way, we can see if the fog is coming in or

out; if it's patchy or some areas are open, and we try to keep the traffic rolling.

If it's foggy on the outside and we know it's clear on the inside, we can keep the ships going through.

So, sensors are great, I'd be all for it, but cameras, for our operation, are a little bitter.

That's all.

MR. SKINNER: Okay.

MR. SZABADOS: Jordan, you had recommended that you would like to see an addition of water quality sensors.

What kind of sensors were you referring to?

MR. STOUT: The primary ones that were outlined by my folks up in Seattle.

Again, this is related to more of a subsurface type of concurrence for floating oil and a hazmat filter. Things like temperature, salinity, and pH are probably the key ones.

Also, I believe that the current information is given -- from ACDP, they're given in one band, so you have, basically, one current velocity.

If that was broken into multiple bins so we can get a current profile on the surface, that would be helpful, as well, so we can get -- it also would be helpful, probably, in the development of the 3-D model

that Berkeley and Stanford are working on.

MR. SZABADOS: On the ACDPs, we do highlight one bin, but the multi bins is available on the PORTS data.

Real quick, for the Weather Service, I just want to say -- first of all, I want to give you some positive feedback.

I want to thank the Weather Service, because they've worked very closely with us and helping us to establish call-in control standards for our collecting of meteorological data.

So, again, thank you for that.

The Coast Guard has been critical in helping deploy our current meters on eight harbor buoys and providing some buoy support at times.

Thank you.

MR. ARMSTRONG: This is Andy Armstrong.

Dave, I was fascinated by your sort of discussion of the wave forecasts on the Bars and the need for both current data and bathymetry, as I understood it, to support this forecast.

Who is sort of coordinating that effort or working on models, or whatever, in there?

That's something I would like to follow up on.

MR. REYNOLDS: Well, the Coastal Services group

within NOAA is funding the development of the SWAN model, and has done this for several years now for Eureka.

The SWAN model has been propagated now to all the forecast offices on the West Coast for doing coastal wave modeling, but not individual Bar forecasts.

In fact, the Columbia Bar uses development of high-resolution Bar forecasts, and the same with the San Francisco Bar, but it's -- Coastal Services is doing the initial funding.

There's two professors working with the office in Eureka to sort of downscale these models to these Bar forecasts.

As I said, we're doing that now for the San Francisco Bar, but there's critical needs -- like the currents coming out of San Francisco Bay, because that's a very high current flow and that interacts with waves to produce a much steeper wave than you would have if you didn't have those types of currents occurring.

So, to get the right kind of numbers, you need all that type of information.

These are very serious -- I mean, 35-foot waves breaking across the San Francisco Bar have happened, and they've closed the Bar down a couple of times because of these very serious wave conditions.

You can't get the Bar pilot -- when his tugboat

is doing this and the other ship is doing this, trying to get that guy up the ladder onto the boat.

So, they were the impetus for actually getting the Bar buoy out there.

They want to know, before they start heading out, how serious the conditions are, before they get out there, because it's their life, and we've lost Bar pilots trying to get on vessels.

MR. ARMSTRONG: And that's the NOAA Coastal Services Center in South Carolina?

MR. REYNOLDS: Yes.

MR. ARMSTRONG: One other question.

You showed that Web page as a developmental Web page on the --

MR. REYNOLDS: Yes, the point-and-click or spot that -- yes.

MR. ARMSTRONG: Is that page up where anyone else could look at it, or is it just strictly in-house, in your office right now?

MR. REYNOLDS: Right now, it's in-house for that kind of display.

We do have something called "Point Forecast Matrix," which doesn't give you that sort of zone type of discussion and little icons of weather, but right now, on our marine page, Weather.gov/sanfrancisco, go to the

"Rain" page, and on the left-hand side, there's something called a "point-and-click marine forecast."

It gives us a text message anywhere you click, anywhere along the coast, out to seven days, of winds, waves, weather, in three-hour increments out to day, and three- and six-hour increments out to day 7.

That's currently available, and probably one of the most popular products we have for the mariners to use.

You can go up and down the coast and point and click, and get a specific forecast for your transit right now.

MS. HICKMAN: Can you say the site again?

MR. REYNOLDS: It's Weather.gov/sanfrancisco, all one word.

MS. HICKMAN: Thank you.

MR. ARMSTRONG: It sounds like you guys are really sort of pushing the envelope on this kind of stuff, and I think it's terrific.

MR. SKINNER: Jack?

MR. DUNNIGAN: Yeah, just one final thing here on the discussion.

Amy Holman has been sitting behind us, cranking away here while we've been talking.

Automated Surface Observing System around the

country has a total of 887 sites. It's a cooperative program between DOD, FAA, and NWS, particularly directed of air traffic.

Of those 887 sites, NOAA pays for 315 of them, and I believe that the FAA pays for the rest.

MR. SKINNER: Final comments? Panel members?

Thank you all very much. This is a great presentation, and again, you gave us a lot to think about.

(Applause.)

MR. SKINNER: HSRP members, we're going to have our work cut out for us, in terms of recommendations here, so get ready.

Let's take a break.

(Short recess taken.)

MR. SKINNER: Dave is going to be presenting an overview of the NGS GRAV-D strategic plan -- five-year plan.

Just to frame it a little bit, I got an e-mail from Lew Lapine, who's now on the National Academy of Sciences, on the Mapping Science Committee, and they're also taking a look at this.

After Dave's presentation, Matt, if you could, provide some details on what he'd like to do.

Lew said he had a draft recommendation for us,

and I'll let Matt talk about that after Dave's presentation, just to frame it.

MR. ZILKOSKI: Okay. Thanks.

I've been asked to make up some time and talk fast. Well, I already talk fast, so I'm going to have to talk a little bit faster -- so, I'll try to be understandable.

Just real quickly, I've been coming here for the last couple years.

So, you've been hearing a little about how the National Geodetic Survey had been changing. We began operating in -- we actually started basically around 1999, 2000.

This is what we look like. It's getting a little bit different -- and I'll show you in a second.

Infrastructure, models and tools, and outside capacity, these are the three capabilities that we actually bring. It's not just NGS, but all around the world.

We basically have an infrastructure, like our CORS that you all have been hearing a lot about.

Monuments, we do adjustments, data sheets, but we also have these models and tools.

You heard some people talk about VDatum. That's one of the models that uses our infrastructure.

We are building outside capacity, and you've got a couple people here -- Gary Jeffress is part of our Spatial Reference Center in Texas, and Matt Wells works in South Carolina, where they actually are training people in helping to do our work.

So, we're transferring our technology.

This is what it sort of looks like today. These numbers are just an approximate, but this is what it's going to be in the future.

We're decreasing our infrastructure.

I've got a picture of our GPS CORS out there, which you heard Matt mention.

That's a partnership. NOAA owns about 80 of these 1,400 CORS.

So, there's only 80 of them -- the Weather Service actually owns most of them, of the 80, dealing with ionosphere and troposphere models, but most of these are partnerships.

They're owned and operated by our partners.

What do we bring to the table? We quality control, QA/QC, this data.

Every day, it comes into our system; we store it; and we disseminate it.

So, we've got QA/QC it.

We've got to map the data to see how much was

collected, how good it is. Are there problems with the data?

That's what we bring to the table, and we use it in our day-to-day operations, but it's theirs to maintain.

If something's wrong with it, they fix it, and they do it on a daily basis, looking at it.

Models and tools, we're going to see an increase in that, because it's really trying to build our infrastructure so that people are able to better use our infrastructure, which decreases my cost, and I can spend my time doing the fourth dimension that was brought up yesterday, crustal movement.

That's where we're a little bit weak in and we haven't had time to concentrate, so that's where we'll spend more time making our system better and useable for the future.

Then building outside capacity, that's training people to be able to train others, but that's also to do the local infrastructure work that they need so they'll be able to build their own infrastructure, their own models and tools, and to train others.

Our Spatial Reference Center and Height Modernization is a key component of that.

So, how are we doing that?

We obviously have to evolve this infrastructure that I just talked about. There's a lot of controversy over it.

We put a lot of monuments in the ground, and that's what people see, that disc sticking in the ground. It has all that positioning, longitude, latitude, height, on it.

Well, in reality, we want those to go away. They just take a lot of maintenance and upkeep, and being able to explain to people what the value is and to keep changing.

I can't go around, digging them out of the ground, and we've got many of these monuments throughout the U.S.

So, our strategy is to be able to create a better infrastructure and models and tools so that they don't need those monuments any longer, but if they want to maintain them, then they would maintain them.

So, we're going to evolve our infrastructure, and we're going to expand our models and tools so that we're better to able use that infrastructure that I'm reducing, like these CORS and gravity model that you need to complete that process, and then provide outside capacity.

That's where the user -- and this is the local

user -- meets their needs.

From the federal government, we believe there are the national programs. We bring that overarching infrastructure.

You need those models and tools, but local needs -- we combine that with local use of subsidence or positioning, and that's the responsibility of locals.

My job is to bring you the tools, so that's the philosophy that we're working with.

On this diagram -- I put it together for my own employees, because this is a cultural shift. This is a change for how we operate.

We're going to be more dealing with customer focus, but with our infrastructure, trying to explain to them, "This is what we can bring to the table. What do you bring to the table?"

It would be an integrated, cooperative organization that's within -- inside NOAA, as well as with our partners.

I showed you the diagram of our CORS, of the 1,400. This is an integrated and cooperative organization. They have a say in how we operate.

We meet in focus groups.

Matter of fact, there's one in September that we -- all those CORS people come together and tell us --

talk about what they're going to need from us.

They're our customer, and then we also talk about what we need from them, because it's an integrated system and a collaborative approach, that we need something from them.

So, we're looking at: What is our outcome we need and what is their outcome, and how do we obtain that?

So, these five little circles are our 10-year plan. That's why we did our 10-year plan.

We've looked -- we're looking at building a 10-year vision, that most people didn't have much of a problem with of where we wanted to be in 10 years.

You all had that last year and provided input to -- some of you provided input into this 10-year plan.

This is a diagram of where -- we're talking about trying to plan our training process.

Our mission hasn't really changed in 200 years. We provide the infrastructure for the National Spatial Reference System.

That is what our mandate is, but nobody tells us how we do it; it's our job to figure out the best way of implementing that.

Part of what we're trying to do, in our 10-year

vision, was to say, "We will be here in 10 years. Is that the right way to go?"

Everybody kind of agreed upon that, so we've adopted that.

What I'm going to talk briefly about, what I really want from the committee and others -- and I'll get to that at the end -- is our five-year strategic plan.

Now we're getting a little bit more into the weeds.

There will be some of you around this table, not all, but some in particular, like Jon and Gary and Matt, that are very interested in what I'm doing between now and five years to meet where I'm going.

We're interested in: Are we going in the right direction?

Those are the kinds of things I'm going to ask from you.

Basically, we put our 10-year plan together. We got some customer review and feedback on that.

We went out to a lot of the GIS community.

In fact, I'm going again this year, which is next week, and I will be presenting and talking about my -- the strategic plan.

I have a focus group meeting where I will get their input into our strategic plan, also, so they're

part of our process.

We'll also meet with American Congress to sort of map it every year and ask them about the strategic plan.

So, we're getting customer review and feedback into both our 10-year plan and our strategic plan.

These are the customer needs that we're trying to build into the system. This is what we're trying to institutionalize inside NGS.

This is -- this up here is the last piece that we've been building, that we're in our planning phase for, and we're doing that now for next year.

These are the activities we're going to be doing, and those are the things, when we start talking to our users -- and this is where some of our Spatial Reference Centers, like Gary and others, came up and said, "Hey, we're not sure that what you're really planning on doing next year is in the best interests of the bigger program."

That's where the discussions come.

We actually have a height lab forum in September, and I'm going to tell you where it is, and so forth, that you people are invited to come to it.

So, the 10-year plan -- basically, that was a vision that we put together, and we adopted it in January

by our NGS executive steering committee.

It got input from our users. We modified that plan based on the input from the users.

The big key thing about this is that in 10 years, we're going to have new horizontal and vertical data as part of this plan.

That's the issue dealing with what you hear about now, having to be able to use satellite information to get accurate elevations, which is what most people need, in terms of inundation models, in terms of erosion.

You all need something dealing with better heights, and that's really the driving force.

As I mentioned, it came up, though, these five technical improvements that we needed to do, so the next step is our strategic plan, which is a five-year plan.

So, it's -- the 10-year plan is a vision. Most people aren't going to argue with it, because it's 10 years out. They aren't going to worry about it, but they want you to go in that direction.

Five-year is a little bit more detail, so that's what we're trying to do in five years.

We took our 10-year plan, we took the five technical improvements, and put another layer down there.

That's what's in your package, and that's what

we invite you to look at and give us some comments that you believe are: Are we going in the right direction, or should be thinking something slightly different?

Since we need to make up some time, I'm not going to go through these, but I will just highlight the main aspect of it.

To modernize the 3-D geometric reference system (inaudible).

That takes a lot of activity of trying to define: Just what is that reference system?

Right now, people say NAV83, and yesterday, we saw some diagrams of WGS 84, but in reality, WGS 84 by itself is not correct (inaudible).

So, there's a lot of issues that, when we talk about when we modernize, that will change the horizontal data in the United States and its territories, but then it will become recognized internationally.

You talk about using GMSS. This is not GPS; it's part of it. It's Galileo; it's Glonass.

They don't use NAV83, and in reality, they're not going to use WGS 84.

WGS 84 is used to line up the terminology, because that's what comes of the satellites in their orbits, but if you pass us this data and use something (inaudible) you're not in WGS 84.

The international community knows this, but the key here is: This may well change what happens inside this country, and that's 10 years down the road, but it's going to be a significant change to a lot of products and services.

(Remarks outside the record.)

MR. ZILKOSKI: So, now to Migrate the Coastal Mapping Program.

You heard about the Integrated Ocean and Coastal Mapping program yesterday a bit, and that's something that's part of the National Geodetic Survey.

We bring the shoreline aspect to that.

So, we have been very, very accurate in trying to incorporate other agencies into our program, and mainly with the Corps of Engineers, but also the USGS and states and locals, and even private industry.

So, we're trying to bring in and utilize new technology, but also integrate all of their activity in with us.

Core capability, this something that I believe is very critical to any federal agency. We don't think enough about it, and I've been pushing hard about that.

We need to maintain core capability. When you start contracting out -- which I'm in favor of contracting out any activities.

If you don't maintain some of that core capability, you cannot lead the nation into the future. You need to be able to maintain that.

So, how do we maintain that core capability and balance that with really utilizing the outside community to do that work?

There's a balance there, but we need to make sure that we consider it.

Increase agency visibility, this is part of -- well, how do we train others and get them engaged in the process and work with others?

It's not so much saying -- to let people know who we are just for the sake of letting them know who we are; it's getting them to know what our customers really need and increasing our customer base so we can develop better models and tools.

We've been doing a lot of that.

We've been meeting with people that are building inundation models with the Hurricane Center.

We've been meeting with coastal zone managers and talking about evacuation routes. It has nothing to do with geodesy, but it's our product.

We need to build a better system of models and tools that meet their needs.

So, that's part of what it means by increasing

agency visibility, is getting more people to understand the very basics of what we do, and for us to get a better understanding of what they really need.

You can't do that without asking questions and truly listening to users and your customers. That's part of what we're trying to change here.

So, part of what I'm asking from this committee is to provide some feedback. By October 1st is what we're asking the committee to do, and through your normal process that would.

We're also going to ask users -- we'll put this out on the Web, and we'll ask users to give us feedback on the process.

We'll be talking, like I said, to the GIS community next week, and I'll ask them to think about this from their perspective.

Many of them may or may not be to see where they are, and that's the dialogue that we'll have.

That's part of what I'm going to ask you to do, and there is actually a draft assignment or tasking that we've prepared that we'll hand out later.

So, one of the major pushes in the next 10 years, and what will make us really meet our 10-year vision, is a program called "GRAV-D."

That's really Gravity for the Redefinition of

the American Vertical Datum. That's really -- right now, that's called "NAVD," North American Vertical Datum of 1988.

This, in 10 years, will replace that data.

The concept, really, is that you'll be able to go out there and use a satellite system -- go out anywhere you want for five or 10 minutes; get a coordinate from the satellite; use, from this GRAV-D program project, the value; and get a fourth dimension.

You need to know which way the water is flowing. The satellite position will not give you that, so this will give you new elevation, within a few centimeters, in a few minutes.

That's the whole idea.

You have to have an instrument in the airborne perimeter that costs about $800,000. They're not cheap.

It takes a special person to operate this instrument, but all you really need to do is put it in an aircraft, get it to fly at a certain elevation -- most elevations are about 3,000, 4,000 feet; and you fly the nation.

Now, we have millions of nav reports in our database, but -- they span a huge database, anywhere from the early '30s all the way until just last week.

Some of that data has been processed using

certain corrections, and it has certain biases.

So, this data will help us evaluate those biases, remove some of those errors and tilts that we see through it, but the biggest thing that this allows is that we have a lot of gravity on land, we have some gravity in the water, but where we don't have gravity is between the land and water interface, about 25, 50 kilometers inland and -- it depends on where you are.

Ships can't come in to get the information. That's where we're going to have the biggest benefit, and that's where the elevations are most critical, are along the coast.

So, obviously, this is for evacuation routes, storm search. All of the things that elevations are important for, that's what this supports.

The idea here is that you'll get elevations with GPS to within two centimeters in a very few minutes of data.

That's our 10-year plan. This is not something that is cheap, although in the scheme of things -- it's $38 million you spend over 10 years, which is not that expensive.

It does require a lot of flight time.

There's a lot of processing time that goes into it, too, but those are pretty routine. Once the system

is operating properly, it's not that difficult.

Once again, with a trained person doing it, it's not that difficult, but it's really the flight time that costs so much money in obtaining it.

In your booklets, you have the whole GRAV-D report. You'll see where, right now, we're actually -- we did a test of this in the Gulf, where we had some other test data with the Naval Research Lab.

So, we validated our system and made sure we worked it properly.

Right now, we're flying, as we speak, in Alaska, collecting information, because Alaska is one of the biggest benefactors of this program.

Once again, it's in your document -- in your binder there. We would appreciate people reading it that, that are interested in it, and giving us comments.

It's a pretty technical document, in terms of what GRAV-D is about, but there are some issues dealing with how we're going to try to obtain data.

There's some partnerships I think that we could try to build on and work with you, maybe, that will help us with that.

So, you'll see that in there.

The last thing I wanted to mention is that in our height modernization -- and this will lead into what

Matt was talking about, the Academy of Science study.

Height modernization in NOAA's program really is a collaborative project with our partners, mostly right now the coastal community, but we have special reference centers that are performing a lot of this outside -- the building of models and tools that I talked about.

We've been working on this since about 2000.

So, for the last eight years, generally through some earmarks through the House and Senate giving in to some of the locals, we've been building this local capacity.

Well, now we're at a point that our height mod partners are saying, "This is more than just NGS. We're working through you to obtain this."

They're putting in more CORS, if you will.

They're doing some more monuments in the areas where they need it, some subsidence work, and so forth, but they're also working with our National Weather Service in doing flight innovation models.

They're working with our coastal zone managers to build better models for the digital elevation guide; better models for evacuation routes; doing better with their flood plain management.

All of these activities are part of NOAA.

So, what our partners are wanting to do, and they're hosting this, is to be able to bring NOAA programs into this meeting and have them tell how height modernization is important to the rest of NOAA, other than National Geodetic Survey.

It was their idea to bring them in, because they've been working on it.

So, we're trying to build a better understanding of what height modernization is really about and how it really helps those other programs.

The meeting -- the 18th is the first meeting, talking about that, and then on the 19th, it's with our height modernization partners.

That's to develop a concept of: What's a National Height Modernization Program all about?

Inside the NGS, we have a concept of what we believe the National Height Modernization Program is about. What's the national role? What's the local role?

We talk about -- we've been hearing about PORTS for a long time. What's the federal role on that? What's the local role?

What we're trying to do with the height modernization program is get out -- and all of our partners are saying, "This is what we believe you need to do, things like GRAV-D, and so forth, and managing the

programs, and here's what we think we need for you to do."

So, on the second day, the 19th, that's what we're going to be talking about, and that's open to people who want to participant and come.

So, basically, here's an overview of my request.

Please send comments on the strategic plan by October 1st. If you have some comments, that's when I would like to have them, because we have a tasking for them officially.

Review the GRAV-D program and give it back by October 1st to Dru Smith.

There may be a few of you in the room that have specific comments. You may know some other people -- so, it's just getting the word out to anybody that would be interested in evaluating.

It's pretty technical, so I'm not sure how much -- but you may know someone.

If you want to attend this height mod, we need to know how many people are coming, because it's limited space. You've got to let Gilbert Mitchell know by August 15th.

Some people -- like Gary, I believe, is coming to both of those meetings. I'm not sure if Matt is going

to be there or not, but he will be there.

He can also represent some of the concepts you might have here, but if somebody else wants to know a little bit more on that, we are having that, and that's a good opportunity for you to get that.

So, I did that pretty quick, as you asked.

MR. SKINNER: Thank you, Dave.

Questions, comments, discussions for Dave?

MR. DASLER: Jon Dasler.

Dave's shop, I think, has done a tremendous job in advancing the survey -- the survey community basically relies on what comes out of Dave's shop for the work that we do every day.

I just had a question on your thoughts in moving forward on the future and the implementation of possibly CORS sites located with Enron stations.

MR. ZILCOSKI: Okay. That's a good question.

We are working with Mike Schott to look at doing about four of these a year. It all depends on our budget, but we're looking at trying to identify from Mike's shop, as well as ours: What's our critical number that we need?

There's 175 -- I guess up to 200 now -- Enrons. I didn't how many that we need, so we're looking to identify what's the number we truly need.

Right now, we're looking at getting a few on each coast, including the Great Lakes, to start the process, and then talking to our height mod partners.

As they're putting in stations, we're saying, "Co-locate them at all of those sites."

The question we're trying to answer, and we're going to talk to our partners about that, is: As part of the national program, how many of them need to be co-located?

Mike's shop is designing new hardened tide gauges in places, and part of Mike's specifications include a GPS receiver in a slot for the process.

So, we're co-locating and tying it in with that.

Wherever we have -- part of our coastal program -- and you heard that acronym yesterday that talked about -- in there that talked about Eric Van Dyke was talking about.

We have -- wherever we deal with them, part of our plan is to have a tide gauge with a GPS receiver co-located there.

What we're lacking is that overarching, "Here's our plan for the next 10 years, how to do that."

We're not there yet, but we're talking about creating one of those, in the interim, sort of ad hoc.

MR. DASLER: I see that, I guess, as a real solution, though, to a lot of problems of VDatum and getting good, accurate GPS height tides and monitoring subsidence.

That's a real issue we faced when we doing the work down in Louisiana, that even though there was observations in the past, relative to NAV88 chart datums, that these subsidence and benchmarks would shift.

If there was active stations there that could monitor that and we had direct ties to the chart datum, even in the event of a hurricane or even if a hardened station is taken out, if you have operating CORS stations off-site, you could immediately get in and start doing the surveys, relative to that.

I mean, it would be a strong support of emergency response operations, where you could be up and running right away.

Also, from those sites, being able to broadcast correctors that would augment PORTS operations in localized area, I think would also be good.

MR. ZILCOSKI: Yeah, that is one of the things we did recognize, is that we are -- so, we'll take that back and try to visit, for this fiscal year, have a plan that will identify what those stations are, and at a minimum, how we're going to try to work that through for

the next 10 years.

The other thing is: Mike's group does give GPS observations and all his tide gauges tying to the Corps, so we have a connection, and we're working on integrating all this information into our data sheet.

So, every year that he goes out there, he monitors what's going on relative to the CORS.

The scientific community is still trying to wrestle with: Is it better to co-locate GPS at the tide gauge?

Some of the tide gauges, themselves, aren't as stable. The hardened tide gauges -- I think it does bring this up, that we should do it there.

So, they believe that you shouldn't do it at all; that you should do it at some.

You have a good reference to that, so we'll take that back.

MR. DASLER: One last comment, sorry.

(Remarks outside the record.)

MR. DASLER: Just a comment on the observations that are done.

I know as a part of the annual maintenance -- we have crews that get involved in that in Alaska, but a lot of that data is not getting processed right now.

So, there's a lot of observations done at those

sites and -- I mean, is that more of funding issue to get that accomplished?

I'm not sure which end that goes through, but I know that there's a bit of a backlog on that.

MR. ZILCOSKI: It is a resource issue, so part of what -- in our height modernization -- in those areas where we have some height modernization, and we can get people to help with the processes, it collects new the information, and we're trying to improve the models and tools to make it a little bit more streamlined, but it is Mike's shop.

MR. WHITING: I have three; okay?

One question is: In Alaska, we don't have actual monuments in the ground to control a lot of our land properties.

The few monuments that are up there, are they going to be transplanted into the new data system?

MR. ZILCOSKI: Yeah.

For the most part, the monuments you have in Alaska are pretty outdated and they're -- I won't say they're worthless, but in some sense, there's just so much error associated with it.

I think once we've developed this new system, you're going to be able to resurvey, and that will be more effective than transferring -- yeah, there will be a

program to say, "Here's a set of GPS CORS," if you will, and "You're going to be more efficient if you go out there and resurvey and getting it into the system," rather than trying to figure out, "How much did they move," and so forth.

It's going to be a big issue, and we'll work with communities now and in the future up in Alaska.

Place by place, we're going to be doing things now, and once you do it, we'll be able to transfer into the new system.

The real old stuff, you're going to have to resurvey.

MR. WHITING: Okay. Fine.

Mike, can you tell us: The resource issues for not processing this data, is that related to the contracts and the way they're put out?

You don't need to answer that.

The other question I have for Dave is: You mentioned a five-minute observation with this GPS.

Now, I assume that this data can go off of RTK GPS or --

MR. ZILCOSKI: Yeah.

That's the 10-year vision, but right now, we can -- we've developed the algorithm that we have that, depending on where you are in the country, if you have a

dense-enough GPS network -- and a lot of the states are having them, South Carolina and North Carolina, Wisconsin, a bunch of those states -- Michigan.

A bunch of those states have a lot of GPS receivers.

You can go out there in 15 minutes right now, and we're getting a value of better than -- I'd say 15 minutes of data.

It's possible. It's not everywhere in the country yet, but it will be within 10 years.

MR. WHITING: Okay. That was it.

MR. JEFFRESS: Gary Jeffress.

I got involved in -- started looking at it back in 2002.

It was through an engineer in San Antonio who came to us and had a big commercial development at the edge of San Antonio which encroached on an adjoining city.

It was a fairly large subdivision, possible commercial development.

Well, the city of San Antonio and this adjoining city had their own elevation networks, supposedly tied to the National Datum -- and I believe it to be either 29 or 88 -- and when they came to lay this out on the ground, these two datums didn't agree by

two feet.

If you look at the history of the placement of these monuments that Dave's talking about, where surveyors traditionally used them to get elevations from, the majority of them were placed in Texas back in the 1940s, along Rahway Mine, which is now abandoned, or along roads which have been widened, and all those monuments are gone.

It's been estimated that there's probably about 20 percent of the original monuments that had good elevations on them that have disappeared now.

That's the big problem.

It's like: What do you tie elevation to now that all that infrastructure is gone?

The GRAV-D plan can fix that by getting that end value that we've seen, that equation in the vertical height between the ellipsoid and the topography and the geoid.

It's that end value that we don't know very well, which gravity is going to fix it for us, and that's going to bring it down to the two-centimeter level.

That's the silver bullet, but it's going to take at least 10 years and $40 million to fix, but our immediate problem is: What do you do with these construction classes?

It costs them a lot of money to fix these elevation problems. It's not just San Antonio; it's all throughout the nation.

We're also seeing that flooding is not a coastal issue; it's -- every river in the United States floods from time to time.

It flooded in Illinois a couple months ago.

They're directly related to not having good elevations and not knowing where infrastructure is, either in a flood plain or out of a flood plain.

That affects a lot of money related to flood insurance, and FEMA is involved, and they're trying to remap, and they're not remapping to a good elevation, because it's just disappeared.

So, I see this as an opportunity, this height mod program, to -- not to get just the coastal states interested in what we do and what NGS does, but all the land-locked states, which probably aren't big supporters of NOAA programs, because they don't have coastal issues.

Flooding is a big issue throughout the nation, and this is one way that we can get policymakers interested in what NOAA does, because it affects them directly.

A lot of folks don't make the connection between what NGS does and the floods that happen and the

lack of infrastructure and elevation, and height mod is designed to fix that.

Of course, like every other program, it's grossly underfunded.

MR. SKINNER: Any other comments?

MR. DASLER: Yeah.

This is Jon Dasler.

Just one comment along that same line.

This, again, supports -- I mean, the best benchmark you can have is the ellipsoid. All of these are mathematical models, and as that's improved, you can recalculate that and get back to us.

If there's no monument, if there's subsidence, tectonic plate movement, the ellipsoid solves all those issues.

So, again, it just pushes that case of getting that tie -- that even as things change, we can get back and have that repeatability of the surveys, and tie both topographic and hydrographic data together.

MR. SKINNER: As I understand it, we've asked to look at two documents: The mapping document that Roger discussed yesterday and the documents in our book on the five-year strategic plan.

Is there a third one?

MS. CHAPPELL: There's also the document on the

CMTS national strategy, which wasn't an explicit tasking; it's a request -- sorry about that.

The CMTS national strategy was a third request for review, which could be an explicit tasking if you'd like it to be, but it was Helen Brohl's request.

MR. SKINNER: Well, with all three, if we can set up subgroups to take a look at each document and think about potentially circulating recommendations, getting something together by mid-September, and then a conference call there around that time, so that we can hit the October 1st response dates.

I know Roger had asked for August 21st, and I think that to do an HSRP review, we have to have a -- correct me if I'm wrong, but we have to approve it in a public session.

So, that would require a conference call.

Are people willing to, A, work on these task -- whatever you call them, working groups, I guess, and then, secondly, willing to also participate in a conference call to approve our recommendations or comments, I'd say, sometime mid to late September?

MS. HICKMAN: But then we wouldn't be able to do a recommendation for Roger by his deadline if we don't have a phone conference by then.

MR. SKINNER: I guess the second part of my

question, that I didn't ask, was -- Roger said it was going out to public comment, I think, in October.

So, I was hoping that maybe they could wait until the beginning of October to get our comments.

MS. HICKMAN: Was the August deadline just for us?

MR. SKINNER: I believe so, yes.

MS. CHAPPELL: This is Ashley Chappell.

I think if you want your comments to affect the draft before it goes out, then you would need to have them to Roger by his August deadline.

MR. SKINNER: Well, I don't what people feel about trying to do a conference call in August.

We've repeatedly heard that that's not a great month to try to get together, so any thoughts on that?

Do we just bypass that and issue our comments in a time prior to the public release?

MR. Wells: One thing.

Dave, when is that height mod meeting? Is it September 16th through the 19th?

MR. ZILKOSKI: 18th and 19th.

MR. Wells: 18th and 19th.

If we were going to have a conference call, it would probably need to be a week to 10 days before that conference, so we have a chance to review things and make

suggestions, as well.

So, end of August, 1st of September, is going to be the absolute latest we could have a conference call if we were going to try to do anything with this meeting coming up, as a recommendation.

MR. ZILKOSKI: I'm not sure that we need to worry about that for that meeting, not my strategic plan.

I think that that -- I think that's at a higher level. The strategic plan is the bigger picture.

I think from the height mod standpoint, I think those that could come and participate in person and -- I know Gary is going to be there.

It may mean that someone like you and Jon, that are really key, that can represent what most of the committee members want, could participate, and some of them from -- that's not so much familiar with it, maybe someone else like Tom or -- you bring a different perspective.

MR. SKINNER: You keep looking at me.

MR. ZILKOSKI: Or maybe someone else.

In other words, that meeting is different than the strategic planning.

MR. Wells: Okay.

MR. SKINNER: Andy?

MR. ARMSTRONG: Yes.

I guess I think that both of these issues would get more value from a considered set of recommendations from the committee rather than a rushed set of recommendations from the committee, trying to meet some deadline.

Both of these things are going to evolve over a longer period than the next month and a half.

So, I would recommend that the committee set a rationale, reasonable timetable for looking at these rather than trying to meet some conference deadline.

MR. SKINNER: I agree with that, as well, and just nod your head if you're generally in agreement.

ALL: (Nodding heads.)

MR. SKINNER: So, rationale and deliberative instead of rushed and crazed will be our approach on these.

We'll come up with sort of a timetable for doing this, and we can talk a little bit more about that this afternoon.

I just wanted to make sure that people were on the same page, in terms of getting all of these reviews done.

MR. ZILKOSKI: The October 1st deadline doesn't have anything to do with any conference; it doesn't.

If you want to stretch that out, you can, and not have any problem.

My strategic plan is two pages; okay? It's not at the -- into the real details; it's a little higher level.

So, when you take a look at it, see, reasonably, what you think you can provide, but it's not -- there's no due date that I need that by.

MR. SKINNER: I'm going to say October 1st.

I think if we push beyond that, then we'll all forget about it and go along our ways.

If we can meet something close to October 1st, I think that's fine.

Dick?

ADMIRAL WEST: Dick West.

This is a public hearing, so any one of us can comment as a private citizen, based on what we've heard today.

So, for you experts, feel free to help out and give it to him. As Andy said, we can do this over a period of time as a consensus.

So, anybody can comment on this, because it's a public meeting.

MR. DUNNIGAN: Very true.

MR. SKINNER: Great.

Any final comments for Dave?

All right. We have a slight change in the agenda. We've pushed back a lunch a little bit.

You may have noticed here that it's easy come, easy go, with the food, so we want to time it pretty accurately, or we may miss out on lunch.

So, the next person up will be Amy, who's going to be talking about Alaska.

This is, I think, a really good follow-up from our meeting -- is it two summers ago -- yeah, a few years ago in Anchorage.

(Remarks outside the record.)

MS. HOLMAN: Mr. Chairman, panel, thank you for having me.

I'm Amy Holman. I'm with NOAA's Alaska Regional Collaboration Team.

This is actually a new team set up by the Admiral in late 2006, with two primary goals.

One was to integrate with NOAA and Alaska a little bit better, and secondly, to get out and to really get more connected with our stakeholders.

So, in that light, our team's been working for the last two years -- one year, plus, at least -- developing what we've called an "Integrated Services Plan."

What we did is we tried to go out in the community and say: What are the things that NOAA needs to be planning for in the future, in the kind of 10-, 15-, 20-year time frame?

To give you an idea, we have a document online, which I'm not going to be speaking to today, but a lot of this came from that.

Our Integrated Services Plan shows 21 different scenarios that we think NOAA is involved in, with our stakeholders, in needing to address.

What I'm going to focus on today is what we see in terms of emerging requirements, primarily on the mapping and hydrographic survey side.

I'm going to hand out -- I don't have this for everyone, but these are primarily the -- what the state, the legislature, and also the administration has come up with as recommendations, primarily on dealing with climate change.

I've tabbed some of the issues, and this is just for you to breeze through and see some of the things that they are pointing to as requirements for NOAA.

If I could have some help in kind of distributing this across the group -- great.

As I said, one of the things we're working with a lot of our partners -- and you'll see that some of our

partners have had some great quotations that I'm going to use.

One of them was by Admiral Brooks of the Coast Guard, and that was, "The Arctic is upon us, and all of us are going to be needing to be having full operations in the coming years."

So, one of the things I'm going to do in this presentation is walk you through what we see as trends that are occurring; what we see as actions others are taking; talk a little bit about the actions we're starting to do; and then kind of summarizing and having a couple questions for you.

One of the things that was biggest in the news last year was our ice melt.

One of the interesting things was that while we had this minimum ice melt last year, this last winter, we were 25 miles further south than usual.

So, we've got this very dynamic situation starting to occur. That, of course, leads to the potential for sea routes opening.

One of the organizations we're working with -- or members that we're working with is the Arctic Marine Shipping Assessment.

So, we're trying to learn: What really do we think is going to be happening? What is the vessel

traffic going to be in the coming years?

Now, one of the things that's very striking to us, of course, is this distance comparatively between the current route of getting from Europe to Asia to a 40 percent less route coming across the northern passage on the northern edge of Russia.

Since there are no canals to go through, there's at least no limit on the width of the ships.

So, I apologize for having only text on this, but I wanted to give you a flavor of some of the findings that are going to be released in the Arctic Marine Shipping Assessment.

You see that, basically, there's going to be a lot of regional shipping in the short-term, with the more global shipping coming down the road.

Of course, one of the things that scares us about all this is that, as you well know, we don't have great response capabilities, certainly north of the Bering Strait.

In fact, we have no points of refuge north of the Bering Strait.

That cruise ship accident last year was very, very eye opening to the Coast Guard up in Alaska, as we are expecting seven cruise ships up in the Arctic this summer.

Again, one of the things that our -- the head of the Alaska's Division of Homeland Security Emergency Management always reminds everyone is that we've got 90 percent of the goods for 80 percent of the people in Alaska riding through the Port of Anchorage.

If we have an incident preventing access to the port, we're going to have to start rationing of some commodities in six to seven days.

If we have something like an earthquake or an incident or a spill, we've got some pretty serious implications up there.

As I think will be alluded to by Steve, maybe, at least in the bigger picture of his Homeland Security piece, we are one of the national strategic ports up in Anchorage.

Climbing temperatures are leading to Permafrost thaw, and everybody is starting to try to figure out, in relationship to Dave's talk: Is the land going to be rising or is the land going to be sinking?

Well, yes.

So, we're a big fan, and I think I need a big "I love GRAV-D" button. Maybe Dave will get one for us to wear.

We have lakes that are drying up.

We have foundations of roads, homes, and

pipelines changing.

That's really going to be a key consideration in all the engineering that's going to be going on for infrastructure in Alaska in the coming years.

Another one of the big ones for Alaska right now is the coastal erosion. There are seven communities in imminent danger of being wiped away in one good fall storm.

This is something where we, at NOAA, are talking with our Coastal Services Center and our community resilience -- hazard resilience folks about what can we do in Alaska.

As you can, see this is from the town of Shishmaref, and one coastal storm. This house was upright, and then after the storm, it wasn't anymore.

We're also getting intensifying fires. We've been lucky this year, because we've kind of had a little bit of a wet year, so we haven't had too much to do with that this year, but in the last past years, we're seeing an increase of fuels.

As temperatures are warming, the vegetation is growing, leading to more fuel, and we're getting more kind of thunderstorms, so more triggers, and you can see how that goes.

The obvious effect to the living marine

resources is: We are seeing ocean acidification. We're looking very much into that.

We're looking at the distribution of stocks. The stocks are moving. We're starting to see more and more walleye pollock going further and further north.

You know that the North Pacific Fishery Management Council is trying to establish a Fishery Management Plan for the Arctic that will basically close commercial fishing until we know what we've got up there and whether it would be viable.

Right now, there's a couple management plans that do go north of the Bering Strait, but nothing that goes all the way up.

What we know now, as we're seeing these fish move north, is that we need that.

The polar bear has sure been in the news, but for NOAA, we've also got four-ringed seals that are our polar bear.

They're seeing their habitat decreasing, and of course, all the legal concerns with that, as well as just the natural resource concerns.

I've got one of Andy's graphics in here. I appreciate all of his talking to our team.

One of the things that makes the news for us for sure is all of -- everyone working on: What are the

resources out under the ice and under the new open waters that we can maybe get to more often now?

There's a huge push in oil and gas development and exploration.

We'll go directly to this slide.

Our navigation manager took the information about the 2008 Chukchi Sea leases, the record 2.6 billion in sales, and overlaid that on a nautical chart, and also did grids for where the highest bids were, etc.

We don't do marine forecasts for this area right now.

Another thing that our colleagues in the military keep telling us about is how much flying they're doing to go fly next to some Bear Bombers, and unannounced flights.

There's more and more unannounced flights going up.

So, what are the military implications, and what are some of the requirements of NOAA to support on the civilian side?

I love this one.

This is basically looking from the Diomede Islands in the Bering Strait. The picture is taken from Little Diomede, which is on the U.S. side, across to Big Diomede on the Russian side.

So, I mentioned already tourists.

This was actually from a presentation that was given at our Coastal Response Research Center's workshop in this last year on Arctic incidents.

We're seeing an increasing number of visitors wanting to see the Arctic now that it's more accessible.

So, of course, what we do is we are bringing more and more people up to where we don't have the infrastructure to support them.

Again, the largest single human presence in the Arctic are tourists.

The majority travel by ship.

It does have an impact on social issues.

Now, there are a number of communities that can benefit from the -- being able to sell goods and to share information about the subsistence, but it does have an impact on their infrastructure.

Just kind of pulling some of that together, some challenges out there, that kind of go across all of it, are: We don't have regulatory regimes up in the Arctic.

We don't have the Antarctic Treaty up there to tell us how this is all going to work.

We don't have vessel traffic zones set up in the Arctic.

So, there's a lot of things in the policy realm that aren't available to us.

The last two years, the minimum in 2007 and the maximum in 2008, really show us this variability, and I think it's going to be incumbent upon us in NOAA to help really look into that, and to be able to forecast and be able to give folks a sense of what things are going to be like.

The other fun thing is that people are paying attention. Our federal partners, our state partners, industry, are taking action.

So, I put this slide up here just to let you know a little bit about some things that are going on, and some of them are very bold.

The Pilots Association -- and this is still under review -- proposed that in this red area, compared to this area, which is current, that this would be compulsory piloting.

That's a pretty huge area with not -- this is where we need to improve or are trying to improve our weather forecasting.

I mentioned the Coast Guard before. They have certainly stepped up. They've been really impressing us.

They have gone to basically not much of any presence up in the Arctic up to having different

deployments of aircraft, both fixed wing and rotor, and vessels.

One of the things I'll get to in a little bit -- I think I either went past the slide or I'll be alluding to -- is how we're going to be working with the Coast Guard later this year.

I already mentioned some of the Department of Defense activities that are going on.

What does this all mean for NOAA?

Well, you see in all these mission areas, we're having increasing requirements.

Geodesy/vertical control is a huge one.

Tides and currents are another huge one.

You'll see in some of the documents being passed out, particularly the one from this Immediate Actions Working Group -- this was a working group set up to really tackle the plight of these coastal communities -- something had to be done.

The governor said, "I need a working group to figure out what it is."

Each of the communities -- they ask for these things from NOAA: Weather observations, water level and tides, vertical control, and ice forecasting.

The government is pretty serious.

This report came out; they got together with

the legislature; and funds were appropriated from this budget.

So, it's going to be interesting for us to have them providing more and more requirements for our activities.

I think you probably heard some of this before: The NOAA push for helping coastal communities and how important the coastal communities are.

Here's one I threw in for Alaska.

You look at the GAO reports and some of the Army Corps reports, and we've got over 180 Alaskan communities experiencing some kind of coastal erosion.

Now, those are on the ocean coasts, as well as the rivers, as well.

Again, these are some of our capabilities: We can help with tools -- and one of the key things that I always love talking to people about is how great this all comes together into one NOAA picture.

If we think about it, we're seeing changes in the storms, where they're coming from, how -- what their frequency are.

There's a climate implication.

There's the storm-track implication -- which other parts of NOAA are working on right now -- in which directions they're coming.

These are the ones that are affecting these communities.

I'm going to take a quick aside here, because one of the things I didn't mention is that one of the reasons these communities are in such trouble is the ice that usually formed, the shore-fast ice, used to protect them from these fall storms, but now the ice is coming about a month later and leaving about a month sooner.

That's exactly when some of these fall storms are at their worst.

So, again, climate changing; storm track changing. What is that doing?

That's generating waves.

To us -- we deal with waves. The waves run up into the bathymetry.

We need to know the vertical control.

We need to know the DEM so we know what our inundation is going to be.

It becomes this big NOAA circle around, and what is really exciting about it is pulling all the partners together in NOAA to work on this.

So, what are some of the things that we're doing?

We've been doing a lot with the Coast Guard.

We've been getting more observations from them.

We're training their folks to do ice-edge observations.

One of the key things lost to us this year was data from the Radar Sat-1, and so we've minimized -- the number of synthetic aperture radar images that we have access to is really hurting our ability to forecast ice.

So, we're trying to make up for that a little bit and plan for down the road by having the Coast Guard, which is now doing twice-monthly flights from Nome to the Arctic Circle and back, and also on some of their just routine patrols, reporting back into us.

Another major thing -- and we thank the NOAA corps -- is that we're going to putting an officer on one of the Coast Guard's vessels that is doing the water waves analysis this summer up on the North Slope.

So, they've got four main tasks to do: To work on the coast pilot; to do weather and ice and other observations; to assist the Coast Guard with their report; and to look at hydrographic survey best practices.

One of the big things that we passed around within NOAA was a Cutter Spar trip report from last year, where they went up the West Coast, and they had a lot to say about what little information they had.

So, another tip of the hat to some of Andy's work and the folks up at UNH, in terms of the Extended

Continental Shelf Mapping.

There's a lot of work going with Coastal Response Research Center on oil and ice, something we're not very good at, as a planet, on how to deal with.

The Arctic Incidents Workshop, where they looked at different scenarios across the Arctic, just cruise ship, fire, oil spill, etc.

That's going to be pulled into the Arctic Marine Shipping Assessment.

As I mentioned before, the Fisheries Management Plan.

Here's another one that might be easier to see on your handouts, is the Weather Service doing a number of things, as I talked, concerning the storm track climatologies, so we can see how the storm charts are changing.

We have a number of ongoing research efforts to try to increase our ability to model the waves accurately in all of Alaska.

Then one thing that's really interesting here is -- the outline I'm drawing right now is our current -- the current extent of our marine forecast.

Well, the EEZ comes out to here, and the ice is opening up further and further.

So, we really have to change how we're going

about business.

So, the Weather Service is actively looking at how they are going to be changing their operations, and they're working on changing them as they can with the resources they have now, but it's going to also mean impacts down the road.

I just put this up here, because it was fascinating to me, when I saw this slide, which is information needs for safe operations for tourism.

I kept going down most of these, and it was hard for me to find one that didn't have a NOAA mission associated with it.

So, I was, like, "Wow, it's nice to be important. Hope we can come through for everybody."

So, in here, I did another quick poll that kind of summarized a lot of things going on with the Coast Guard, with a member of the Joint Commission -- one of those reports are coming out, kind of what some of the big -- I said, "I'm going to be talking to this panel.

What are your top three things you think are important?"

These came up: Vertical control.

Some of them were concerned about how Alaska doesn't fair well, necessarily, at least in the Arctic, in terms of number, and stuff like that, so they wanted

to look at risk.

Then in terms of mapping -- this is also -- I've seen drafts. This going to be coming out in the Arctic Marine Shipping Assessment as a recommendation.

This is bilateral mapping of the Bering Strait.

I've been talking about these, too, but we're getting more and more requirements for NOAA documenting.

So, the Joint Climate Impact Assessment Report -- that's a state legislators report, and it goes the whole gamut of NOAA: Geodesy, water levels, precipitation, weather, unmanned aerial, technology development, fisheries, etc., etc.

Then this Immediate Action Working Group report says these things: Sea ice, weather, water level, tide information, and geodetic control.

Let me go back to one thing.

A big thing that the governor is working on right now, that we're very much associated with, is that she's got two working groups.

She's got actually a subcabinet for climate change, and under that subcabinet, they have two advisory groups: One on mitigation, and one on adaptation.

Our regional team member, who is also the head of the Weather Service in Alaska, is a member of this advisory group, and we are in the process of providing

NOAA input and that of our partners on these items.

The way this is going to work is there's committee meetings that are going to generate, in the April/May time frame, a report to the governor.

That will be corresponding with time for the state to put budget numbers in for next year.

So, they're going -- looking for real recommendations that they can act on.

Then, again, I'm borrowing another Coast Guard -- down at the International Oil Spill Conference, Admiral Allen said this:

"I am agnostic to climate change. What I know is that there's now open water where there wasn't before, and I am responsible for it."

That's really the way we're feeling about this, is that we've got NOAA missions that are emerging because of the climate changes, because of other activities that are going on, and we're really looking forward to stepping up and getting started on those.

Thank you for letting me tell you about that.

I wanted to just kind of say, you know, this was an informational presentation, but there's a couple things that I would be interested in, in terms of feedback.

One of the things is, you know, up in Alaska,

we're really excited about all the things that are going on and how we can all work together right now.

We're bringing our duct tape and our paperclips and our pens, and trying to do what we can with our resources, but how does this fit into national priorities you see as a panel?

That's kind of broad brush.

I'll leave it there, and ask if the chair or anyone else has any other questions of me.

Thank you for your time.

MR. SKINNER: Thanks, Amy.

There's a lot going on up there.

As I said, this is a good follow-on to -- we had probably an eight-member panel in an Anchorage meeting two years ago, where a lot of these topics were touched upon.

I think this is a good way to follow up on that information.

I'll open it up to questions or comments.

Panel?

Adam, I see you're ready to go.

MR. McBRIDE: My question is either for Amy or for Jack; I'm not sure exactly.

I'm interested in knowing whether NOAA -- particularly, I guess within Congress, what they're are

doing with appropriation and budget hearings.

Are the elements -- the growing needs in Alaska recognized by appropriators, and not only recognized, but are they getting funding in any way?

How is that looking, Jack?

MR. DUNNIGAN: Well, it's not getting a lot of specific traction as an issue area at the NOAA and above levels.

If I can comment about from within NOAA, we talk about the Arctic all the time.

When I was the Gold Team lead for Ecosystems, I got together with the Gold Team lead for Climate, and we talked about ecosystems and climate, recognizing that the articles -- the place where these things are playing out, we needed to spend some long-term thought about it.

Then even in the current process, we're now beginning to focus on FY 11 and beyond.

We're talking about: What can we do to bring a particular focus to the Arctic?

Within the context of the transition, there are some of us who think that the Arctic is particularly important and needs some specific attention.

So, if your question is: For budgeting, does Arctic get traction?

I would say it's not obvious to you, when you

see the output, that it does, but it is something that we are talking about a lot now, in terms of outyears and sort of in the future.

MS. HOLMAN: If I may add a just little bit about what we're trying to do about that in Alaska, we are trying to actually to get the federal agencies together to speak with a more unified message about -- particularly on the side of climate change -- what each of our roles is and how it's all working together.

There is a federal executive roundtable on climate change.

We're just trying to take those steps because we know our message will be stronger if we can be in unified message.

MR. McBRIDE: Amy, have you spoken to Alan Brough of the CMTS, the Maritime Transportation System, a committee of the federal cabinet, because it seems to me that they would have specific input in a lot of the shipping elements you've mentioned, as well.

MS. HOLMAN: Our team has not.

I believe members of the Arctic Marine Shipping Assessment have.

MR. SKINNER: Matt?

MR. Wells: Matt Wells.

I'm just a little curious: Is there open water

now, or have models been developed, forecasting when you're going to have open passage across the Arctic from one side of the continent to the other?

MS. HOLMAN: Right now, the models -- most folks are still working off of the IPCC models about when things -- of course, 2007 kind of threw that up and said, "Wow, this is a lot less ice a lot sooner than we thought."

So, there's a number of people looking at that.

I don't have specific information about new models that are being used, but most people still reference back to the IPCC, and then kind of on an ad-hoc basis, reference and say, "Well, this is our current experience."

MR. Wells: Is it open yet?

MS. HOLMAN: Ships came across the Northeastern, and ships came across through the Northwest Passage last year.

Now, some of it is still with ice breakers, but we're expecting kind of seasonal openings.

There are some -- through Mead Treadwell's group, and if you look at the Arctic Shipping Assessment, there's PowerPoints that I can make available to you that show what the vessel traffic has been.

MR. DUNNIGAN: We're not looking at scheduled

commercial traffic at this stage.

MS. HOLMAN: That's down the road.

MR. DUNNIGAN: I know a number of recreational boats have made it last year from Greenland to Dutch Harbor.

MS. HOLMAN: There are Russian icebreakers bringing some ships through, but it's not the big commercial -- we don't have Udimet Pass yet, and we don't expect it in the next 10 years, but that's one of the long-term things that is possible.

Everyone is looking into it and scratching their heads over these models and saying, "What is this really going to be like?"

What we know is occurring is an increase in the seasonal regional traffic, particularly from oil and gas, and we expect there will be more northward push for some commercial fishing.

Now, it's going to be limited by this new Fishery Management Plan, but, also, definitely, the tourism industry and the regional offshore oil and gas is definitely increasing.

MR. Wells: Are you saying that with the ice breaking, there's a faster retreat of the northern ice?

Since it's kind of already being broken up, the ice melt would be faster?

MS. HOLMAN: I don't know of any connection to that, but I can try to find somebody who might.

Andy, do you know anything? Could you speak to that?

MR. ARMSTRONG: No.

I think most people still view the sort of yearly ice as a yearly event that depends on lots of different things, although, clearly, there's a generalized reduction.

I think that, like Amy said, even though we had very little ice, relatively speaking, last year, the winter was heavier, and parts of the Arctic ice were thicker than they've ever been last year, because of the sort of localized temperature and wind pattern.

So, I think it's tough to predict, but I think that the trend is towards less ice.

MR. SKINNER: Jon, and then Larry.

MR. DASLER: Amy, you mentioned that the lease block sales in the Chukchi Sea -- and I guess this is towards Steve or Roger -- that MMS -- I mean, there was a significant -- like a 10-year record, I think, lease block sale in the Chukchi Sea, which is going to have a significant impact on NOAA's services that are going to need to be stepped up for that region.

Either through IOCM -- I mean, there's going to

be lease block surveys done for those areas.

Are you working with MMS on maybe pushing for requirements to getting surveys down to charting standards or -- certainly, this will have an impact on NOAA.

Is there some way that can be addressed?

CAPTAIN BARNUM: That's an area that we're looking at, partnerships of getting that data.

I think a lot of the data that MMS -- I think a lot of it is proprietary, not leaseable, but certainly, with the sale of lease blocks, it certainly indicates that there would would be a great increase in the amount of ship traffic in that area.

So, we will be looking at the partnerships with anybody to take whatever data they can for that region, because it is very data sparse.

MS. HOLMAN: Speaking of MMS and partnerships, one of the new ones that's just been created in the last month is working between the Weather Service and MMS, on their ice observations and what they have, throughout their history of kind of working with the oil and gas companies, to see if this is something we're going to explore.

We're now getting access to more and more of that data.

MR. SKINNER: Larry, and then Admiral West.

MR. WHITING: I'm Larry Whiting.

In reference to the new ice that formed this year, most of that melts again. That doesn't stick around for multi years; it's gone.

The other one is: On these lease blocks, MMS doesn't have a requirement to do anything like a charting survey.

They're like square kilometer lines, and then right at the site that you're going to drill on, there's the detail of that.

So, it would be a big change for their specs to give us the charting specs. I don't believe that that's going to happen, unless NOAA comes up with some money for their selected survey -- surveying contractor, who happens to be a native corporation.

MR. DASLER: You need to get a proportional amount of their lease to cover that.

ADMIRAL WEST: Dick West.

Amy, you mentioned that you lost Radar Sat.

What happened? Did they just price us out of business? What happened?

We got this out of Canada; right?

MS. HOLMAN: Right, but with the launch of Radar Sat-2, we did not have the agreement to get that

data.

ADMIRAL WEST: Well, I think it's because they wanted to charge a hell of a lot more, too.

That never came about, so we lost it totally?

MS. HOLMAN: I'll let Ashley -- Ashley has been very tight on this issue for us.

MS. CHAPPELL: We were getting Radar Sat-1 data for free, essentially, and with --

ADMIRAL WEST: Well, we got a reduced rate; right?

MS. CHAPPELL: A lot of it, we got for free and reduced through the National Height Center, through partnerships with the Navy and the National Geospatial-Imagery Association, or NGA, along with DMA.

We now have to procure it, and it's actually cheaper to buy SAR imagery from European and Japanese providers.

It's not -- it doesn't have the same coverage and it costs more, because we didn't have to pay for it before.

So, we're working that out through our budget-formulation processes to see what we can accomplish there.

We're also looking at future potential partnerships with Canada, on sort of a replacement for

Radar Sat, a government-owned operation that would be shared with NASA, NOAA, Canada, for free data in the future, a new satellite system.

ADMIRAL WEST: Well, with the ice coverage being such an emotional issue, as well as an economic and political thing, I would think that that's something that needs to be worked out.

Thanks.

MS. HOLMAN: If I might give you a moment on IOCM, as I talked about kind of the big NOAA picture, we are currently doing an IOCM project down in Hedgemont Bay, a homeowner Alaska area, where we're really looking at helping you get more habitat information out of the data we're using.

Between that type of thing, because most -- the Fishery Management Plans are so data sparse on habitats.

Between National Fishery Service and the state, they're really at a dearth of information, and the habitat is crucial.

I think Jack can speak to this at far more length than I can about how that's useful in the Alaskan fisheries.

Also, we're trying to do more between USGS and the state. There's a statewide digital mapping initiative going on.

They've actually already written a letter of support for the GRAV-D project, and we're trying to also coordinate the mapping flights.

USGS is doing some work on the North Slope, coming up here, and to really try -- since the area is so vast, and we need so much information, is to really put IOCM in effect up in Alaska.

So, stay tuned for that.

Again, thank you for the time.

MR. SKINNER: Not yet.

MS. HOLMAN: Well, I can say thank you a number of times.

MR. SKINNER: Ed?

MR. WELCH: Well, I love Alaska, and I've spent a fair amount of time up there, particularly on the North Slope oil fields and the coastal plane.

I love my Alaskan friends. They're so enthusiastic, and they have a boomer type of mentality, but they're always asking for something.

(Remarks outside the record.)

MR. WELCH: Amy, you had a slide about the Port of Anchorage and the vulnerability, but that has nothing to do with global change.

I mean, that has existed now; that's existed 15 years ago; and it existed 50 years ago.

I worry sometimes that Alaskans and other folks will take every Alaska issue there is and relate it to global change and reduced Arctic sea ice.

That's a true problem for the Port of Anchorage, but it has nothing to do with any of that.

So, I worry sometimes we can get a little --

MR. WHITING: It has nothing to do with --

MR. WELCH: The vulnerability of the Port of Anchorage to some kind of interruption has nothing to do with reduced sea ice on the Arctic Ocean.

I'm not saying that that is wrong, but we've had that problem, potentially, for a long time, and we continue to have that problem.

On the Arctic shipping, do we know how many tourists there actually were up there on the ships this year?

MS. HOLMAN: We have some data, and I cannot quote it offhand to you, but we can pull it up.

The Arctic Marine Shipping Assessment is collecting that.

I was reading the Bering Sea -- sorry, the Bering Strait case study before coming here, and there is some data on the number of regional cruise ships and the number of passengers.

That report is really going to be the seminal

document on what's going to be coming on, and it's going to be coming out, I think, later this spring.

MR. WELCH: Suffice it to say, it's probably in the high hundreds or low thousands per season?

MS. HOLMAN: Currently.

MR. WELCH: Okay. Now, the marine traffic system projected from Europe to Asia, the shorter route, they're not going to be stopping in Alaska?

They're going through Arctic waters; right?

MS. HOLMAN: Sorry. I'm not an expert on that, so I don't want to speculate too much.

One of the main concerns that I bring it up for, though, is the potential for incidents.

MR. WELCH: Right.

The potential for an incident, I understand that, but those folks are not going to be having an economic plus for the U.S.

They're going through our waters, but they're not stopping, they're not delivering stuff, as opposed to the Chukchi Sea oil development, which has the potential for great economic benefit to the country as a whole.

What I'm driving at is: I think we need to be very careful with where NOAA invests its activities up there, because we could be -- I realize there's a potential for environmental incidents with a bypassing

ship or a small cruise ship that's carrying a couple hundred passengers, getting into trouble.

I don't want to make light of that, but let's be honest: The resources that are going to go up there -- the hydrographic services are not going to be add-on resources; they're going to be diverted from other hydrographic services in all the other states.

So, where do we get the bang for the buck?

I would argue very strongly that we ought not to be spending a bunch of money on hydrographic services to help promote possible deep-sea shipping from Europe to Asia when we aren't doing enough to promote shipping to the Port of Long Beach or Houston, or whatever.

NOAA has got to make some tough choices here.

The Alaskans, God bless their soul, they're going to be saying, "We need this; we need this; we need this," but somebody has got to set some priorities, where I could easily see hydrographic services based on oil development and oil exploration up there, because that really relates to direct impacts here nationally.

I think some of this other stuff is sort of -- I don't want to make light of it by using this phrase, but it's frills.

I worry a little bit about NOAA saying, "Let's jump on the bandwagon of Arctic research, and we can get,

you know, some blessing for this type of stuff."

If we're doing that at the expense of some of our other resource programs elsewhere, I'm a little bit cautious about that.

So, that was just sort of editorial comment I had.

As the senor said to Evita Peron, "Let's not get carried away."

MR. WHITING: I already have my mic on.

MR. SKINNER: And now for the rebuttal.

MR. WHITING: I don't believe we need to do anything up there today, but I do think that we have to start planning for it today.

It's something that's going to happen 10 years from now.

One comment about the tour ships: When that ice leaves, they come.

Captain Mennis is not here today, but he can tell you: They go where prudent mariners shouldn't be, and that's what happened to that last grounding in Alaska.

MR. WELCH: Absolutely, and with all due respect, they're all foreign flag ships.

MR. WHITING: They're employing a lot of Americans on that thing. It might be foreign flag --

MR. WELCH: Not so many.

MR. WHITING: Anyway, their passengers are American citizens --

MR. WELCH: Well, that's true.

MR. WHITING: -- and we have to figure out how to plan for that.

I don't think we need to jump up there with NRTs stationed everywhere, but if some type of a plan is made in the next five-year or 10-year plan -- I don't know what these models really say, but we have to start now, not 10 years from now, in the emergency response, like Katrina.

MR. JEFFRESS: Gary Jeffress.

Did you ever take a look at what the Canadians are doing with this ice trajectory?

Are they doing similar planning? Any collaboration going on there?

MS. HOLMAN: We characterize it as: They're out ahead of us.

They're doing plans for a deepwater port. They're doing plans for additional icebreakers.

Andy might also be able to speak to some of this.

There is great collaboration between the National Weather Service and the Canadian's

Meteorological Service, back and forth.

We share lightening data, and we're also working together on climate issues.

It needs to be -- we're aware of those things, and we've been doing more in all of them.

More on the shipping vessel/marine transportation side is one that -- right up there that we need to keep working on.

MR. SKINNER: Jack?

MR. DUNNIGAN: Yes.

Just to follow up on that last question, there's a new agreement between the Canadian Met Service and NOAA, signed in January.

The Canadian Met Service is not a part of DFO; it's a part of Environment Canada, so it gets us working with a department that we don't normally work with, from a NOAA standpoint, but there's a lot -- and the other thing -- the benefit you get -- and I see this at IOC.

When the U.S. and Canada go to WMO, we're going to go together and help each other a lot, so it's a pretty good collaboration.

Just to weigh in on the "how important is Alaska discussion," I think the other thing we need to consider is: A lot of this is commercial traffic, and assuming an ice-free transportation line, isn't

necessarily going to directly come to the U.S. if it's just making it easier to get from Asia to Europe, but it is going to be going through waters -- our waters, which are very environmentally sensitive.

That scares me a little bit, not that the traffic is coming here, but that when something goes wrong, we're the ones that are going to have to eat it.

So, I think that gives us another reason to make sure that we've got the kind of information that we have to have to promote safety.

MR. SKINNER: Other comments or questions?

Great. Thank you very much. It was a very good presentation.

MS. HOLMAN: Thanks, everyone.

I really appreciate the time and the opportunity.

(Applause.)

MR. SKINNER: I think we'll move now to another public comment section scheduled for noontime. It will be closed at that hour.

Do we have anyone signed in?

If anyone is interested in making public comments, I think this is the last scheduled opportunity for this meeting.

(Remarks outside the record.)

(Short recess taken.)

MR. SKINNER: Folks, here, again, we are not trying to wordsmith. You'll have that opportunity as we circulate the letter later on.

What we're trying to get here is any concepts that have been left out that you want to include and general consensus.

The first one is on hydro services, the 30,000-foot view, and I think it gets to -- there are some issues with the funding, but if there is an opportunity coming forward -- this is Ed's point from yesterday -- that NOAA should be aggressive in going after those.

ADMIRAL WEST: I would suggest putting '09 in front of the "emergency supplemental funding" at the end, just to clarify that.

MS. CHAPPELL: But in terms of the concept, everyone is on board with the concept?

MR. SKINNER: Jack?

MR. DUNNIGAN: If you want to deal with that issue first, I have a different question.

MR. SKINNER: Okay. Conceptually, everyone is on board?

MR. JEFFRESS: I've got a question.

Does that include everything, including NGS?

MS. CHAPPELL: When we say "hydrographic services," that refers to all the parts of what this panel is involved in.

MR. JEFFRESS: I was wondering if we could put "hydrographics" and "NGS services" --

MR. SKINNER: Again, I think we can -- we are going to have a chance to go through this to specify it.

The idea is that hydro services -- it's whatever we talk about, and I think we can drill down a little bit more when we get the letter, and see if we want to highlight stuff.

MR. JEFFRESS: Okay.

MR. DUNNIGAN: About that first sentence, I certainly support the President's FY 2009 request; I don't know that you necessarily need to.

The House and Senate subcommittee marks are dramatically different from each other.

So, the sentence doesn't really hang together, because you can't support all these things that are not similar to each other.

Maybe you just want to say in there that we support strong funding in the regular budget for these programs.

MR. SKINNER: Dick?

ADMIRAL WEST: That's a great point. You can

almost take the first sentence out (inaudible).

MR. WELCH: An alternative to that would be to say: If funding for '09 ended up, through a continuing resolution, at '08 levels, we're concerned that our services are underfunded by that.

Therefore, if there's going to be an opportunity for an emergency supplemental, we urge that NOAA try to position itself to help out.

So, we don't say anything about whether we endorse any of the particular '09 appropriations; we just say that '08 levels aren't enough.

MR. DUNNIGAN: I can even officially support that.

MR. SKINNER: Okay.

MR. DUNNIGAN: I think you even can say that under a continuing resolution at the '08 levels, we're very concerned about whether these programs are going to be able to do their jobs, because, frankly, they can't.

ADMIRAL WEST: Is this going to Congress or --

MR. SKINNER: This is not the specific language that -- what we need is the conceptual approval of our recommendations.

Then we'll take these, work them up, and put them in a letter that will then be circulated to this panel for getting down into the details and wordsmithing

at that point.

ADMIRAL WEST: But it's to Congress and the NOAA administration?

MR. SKINNER: Yes.

ADMIRAL WEST: Okay.

MR. SKINNER: As has been discussed, is everyone is comfortable with this as a concept?

I think maybe we should wait to the end to do one motion to approve all these.

Is that format that -- okay.

I'm looking at you as my Roberts Rules of Order --

CAPTAIN BARNUM: Yes.

MR. SKINNER: Do you have everything you need?

MS. CHAPPELL: Yes.

MR. SKINNER: Okay. PORTS?

MR. WELCH: I don't think it's necessary, in the first bullet, at this point yet, for us to refer to either the Oil Spill Fund or Harbor Maintenance Trust Fund.

I think various people have different levels of familiarity with intricacies of those, but what I think we can say is that we've concluded that the cost benefit of this program is dramatic.

Therefore, NOAA needs to figure out some way of

aggressively funding the program.

We can take as a task, or some of us as individuals can take a task, prior to another meeting, of sort of fleshing out the pros and cons of possibly going after one of these trust funds or some other mechanism.

MR. SKINNER: Adam and Jack?

MR. DUNNIGAN: I think Ed's making a good point.

I can't really discuss on the record what is going on with these things, but I can tell you that issues relating to the Oil Spill Liability Trust Fund and the Harbor Maintenance Trust Fund are very actively being discussed.

It think it would be helpful, in those discussions, to have them specifically referenced in the recommendation.

When we go off the record, I can talk in more detail.

MR. WELCH: Well, delete what I just said.

MR. SKINNER: Admiral?

ADMIRAL WEST: Just a quick question.

Jack, are they all part of the General Treasury, then?

MR. DUNNIGAN: As Ed said earlier, they're both separate funds within the U.S. Treasury that are managed.

The Harbor Maintenance Trust Fund is running right now about a $4 billion surplus.

In both of those instances, funds need to be appropriated from the trust funds. For Oil Spill Liability, some funds can come out automatically, but others need to appropriated.

All of the HMTF money needs to be appropriated every year, so very complicated issues.

CMTS has been involved in these, but -- yeah, they're both federal funds, but they operate just a little bit differently, and they're segregated.

So, the HMTF, if it doesn't get appropriated, it just builds up.

ADMIRAL WEST: But they're for any the federal agency, other than the General Treasury?

MR. DUNNIGAN: That's correct.

MR. McBRIDE: The HMTF is subject to a lot of controversy right now amongst ports, and particularly channel users, because its specific intention, when it was drafted '86, was to provide funding of dredging, nominally $4 million service, but that cash drawer is empty because it's gone to pay for the war, and everything else.

So, there's no actual money there.

I don't know anything about the Oil Spill

Response Fund.

I guess where I'm headed on that is that there is a great deal of discussion amongst industry and PORT users about trying to coral the Harbor Maintenance Trust Fund so it was fully appropriated to the Corps for dredging, and currently, it is not.

The PORT issue -- I would be very concerned about other uses being addressed, so there not to be unanimity for using Harbor Maintenance Trust Funds to fund other than PORT things.

MR. WELCH: That's a fair statement.

I mean, there are folks who feel like Harbor Maintenance -- there are folks who feel like they have been taxed for a long time for a specific purpose, which was dredging, and that moneys have been building up, and through various policies at the national level and through various administrations, both Democratic and Republican, they haven't been spending that money on dredging, and these folks rightly have been saying, "Why am I paying these taxes?"

So, there is -- by referencing the Harbor Maintenance Trust Fund, you are taking money, that other folks perceive was collected from, them under less-than-truthful pretenses, whereas the Oil Spill Fund, there is less of this proprietary interest in the people

who take it.

MR. SKINNER: So, I'm not sure we have a resolution of that issue.

Adam, where you saying that -- do you suggest we take out that reference or --

MR. McBRIDE: It would be my preference not to include our Maintenance Trust Fund in.

Either that, or reword it in such a manner that we focus the administrator on available trust funds; don't specify the Harbor Management Trust Fund.

That's just one thing.

MR. SKINNER: I think we may want to defer this to when we get down to the details in the letter, and also for further information.

I think we can get that today or in the subsequent weeks after that, if that's all right.

Is that acceptable?

We've flagged that as a potential issue, and we'll try and address that.

MR. McBRIDE: Certainly.

MR. SKINNER: Other comments? Everyone comfortable with that? Okay.

Next one --

ADMIRAL WEST: Are we keeping the second one?

MR. SKINNER: We'll go back for the "Specific

to the Cosco Busan."

ADMIRAL WEST: Will that stay?

MS. CHAPPELL: Unless you say to take it out.

ADMIRAL WEST: Well, my concern here is if you're saying that that's out (inaudible).

(Remarks outside the record.)

MR. WELCH: Admiral, I meant for that to be specific to the San Francisco Bay Port setup as opposed to a national --

ADMIRAL WEST: Well, I'm little concerned here about -- we're all concerned about the O&M long-term sustainability, and we're coming up with Band-aids here.

If this is one way to pay for it, I agree, but if this the way you want to pay for it in the future or we want to sustain O&M within the NOAA budget -- so, this is -- I'm a little concerned about that sentence.

MR. WELCH: All I'll say is: Somebody is going to get this settlement money.

Somebody in the federal government is going to get this federal money, whether it's Fish and Wildlife Service, other aspects of NOAA.

I mean, there's going to be settlement money that's funding a bunch of government -- and it's not going to be long-term funding; it's going to be one-shot funding.

So, I say: Why not one shot here?

ADMIRAL WEST: Where do you put the one shot?

MR. WELCH: Well, I'd say that there ought to be some one-shot funding for the San Francisco Bay PORTS, either capital or operating, or some combination.

ADMIRAL WEST: Enough to do it one year? Ten years?

MR. WELCH: Whatever you can get.

ADMIRAL WEST: Then you've got a unique situation here as to the other PORTS systems, and how are you going to maintain the long-term -- what is the plan to maintain PORTS as a viable system for this nation on --

MR. WELCH: I realize this doesn't fit into a --

ADMIRAL WEST: This is a band-aid fix for the O&M, is what I'm saying.

MR. SKINNER: Maybe one possible solution to this is to start that particular recommendation with, again, reiterating our support for a long-term solution, but that in the interim, NOAA should work with DOJ to, I think, not only support PORTS funding, but other hydrographic uses, for any settlement process, and expand it.

MR. JACOBSEN: Tom, I agree with that.

We're not getting the federal money. Ideally, you're absolutely right: We need to keep pushing for that, but what do we do in the meantime?

We should get the money somehow, some way, for San Francisco and for the other ports.

So, I do like that concept.

Maybe the Marine Exchange or somebody can get some money to fund PORTS.

MR. ARMSTRONG: Well, one sort of compromise might be to, say, explore the possibility of PORT funding to refurbish the San Francisco Bay PORT system, or something like that, or to put it into -- you know, the sort of one-time repair or renovation of the sensors in the San Francisco Bay rather than -- I agree with the Admiral, but the solution to PORTS is -- particularly, operation and maintenance funding is at risk if we make this kind of recommendation.

Recognizing what Ed says about this money coming, I would suggest we sort of aim it at some kind of a clearly identifiable, one-time expenditure.

MR. SKINNER: Jon?

MR. DASLER: What about the thought of no new instrument or PORT system until there's a long-term operation and maintenance funding plan in place?

MR. DUNNIGAN: Be careful what you wish for.

MR. SKINNER: That's sort of a new spin on this.

I think we're looking more for something specific to what we heard yesterday, is my sense.

Is it beyond the realm of possibility to set up a navigation maintenance trust fund that DOJ settlements could feed into, as a long-term solution, maybe?

MR. Wells: Is there going to be anything coming out of the New Orleans spill for recoupment?

MR. DUNNIGAN: The lawyers are going to send their kids to college for a long time.

ADMIRAL WEST: I think identifying it in a more general approval for navigational services for NOAA would be a better thing than identifying PORTS in this sentence.

MR. SKINNER: Andy?

MR. ARMSTRONG: I'd like to sort of second that.

I mean, if you look at the Cosco Busan accident and then if you look at the QE2 and then you look as Exxon Valdez, and you look at most of the big accidents we've had in the past few years that have spilled oil or caused damage, they were mainly caused because the people operating the ship didn't know where they were relative to things that were around them.

The solution to that is to improve a situational awareness on the bridge, and that's the job of NOAA's navigational services in general.

So, are we not making electronic charts that are good enough? Are we not providing the ones that we make efficiently or -- you know, we have a wider problem here, that these accidents keep happening.

MR. WELCH: As a reality, these settlements -- and I'm familiar with about a dozen of them.

They're announced generally by the U.S. Attorney, or whatever federal district it happens to be under, the money is invariably spent locally.

They say, "We're going to use this money to enhance" -- they call it "environmental restoration," but a lot of times, the projects they fund really have nothing to do with the accident.

They might not have been damaged by the accident, but they're in the same location as the accident.

So, we can say -- and I don't have any objections to saying this ought to be going to enhanced NOAA navigational services, but as a practical matter, they're going to want to say, "Look, they spilled oil in San Francisco Bay, and here we are, the Department of Justice, the Congressional delegation, the governor --

here we are getting money back from the spiller that we're going to apply locally."

So, if we can't fit within that political context, we're going to have a hard time -- we're going to have a hard time arguing this money ought to go to some kind of national enhancement.

That will fall by the wayside.

MR. SKINNER: Just to kind of try to move this along a little bit, it sounds like some of the concepts are: We want to push -- continue to push NOAA for a steady funding source and an increased funding source, but we also want to explore the possibility of a DOJ settlement amount that could be used for something in San Francisco Bay for navigation.

Is that conceptually the consensus?

Okay. Great.

MS. CHAPPELL: Thank you.

MR. SKINNER: Next.

This one may need a little bit of explanation.

This is something that I was thinking about after listening to the San Francisco stakeholders panel yesterday.

While listening to each person, it occurred to me that they were all talking about very similar problems, but different applications, and that we might

want to -- instead of focusing on individual issues, that -- let me step back a little bit.

This was also based on something that Jack had said earlier, that despite all our efforts, the budget doesn't look great.

We're always looking at things from a national perspective, and what about the idea of taking a discrete geographic area and using it as a pilot project to really beef up the Hydrographic Services, the Integrated Ocean Observing System services, and combine them all.

We heard about the navigation services.

We heard about the research reserve.

We heard a number of different users talking about how they use all of these things and whether it might make sense to have a pilot project, that if they were able to integrate these all successfully, you could then say, "This is what we're talking about, and these are the products that it provides."

Everyone's jaw just dropped.

MR. JACOBSEN: Well, I mean, I understand what you're saying, but just to state it a little shorter: We continue the support of IOOS and the partnership between NOAA and the IOOS, something like that.

MR. SKINNER: Okay. Matt?

MR. Wells: I'll hold off for a second.

MR. SKINNER: Gary, and then Jon.

MR. JEFFRESS: We're kind of already doing that in the Galveston port, because the Galveston port system is made up several tide gauges, which are owned by the State of Texas.

It's integrated into the current meters and other NOAA water level systems in the Houston Ship Channel.

So, we've kind of already done this, and it's not funded by IOOS.

MR. DUNNIGAN: Yeah, but is that all integrated with whatever assets GCOOS is playing out over there?

MR. JEFFRESS: Yes, and GCOOS is part of GCOOS assets, and the PORT system is part of GCOOS assets now, too.

MR. SKINNER: Jon?

MR. DASLER: I think what you're getting at here is interoperability of sensors and dissemination data.

If that could get boiled down to, "NOAA is actively pursuing our operability of sensors, both internal and interagency, and the dissemination of that data," along those lines -- so that infrastructure in place at these sites already -- if other sensors could be added to that infrastructure, those radio links are there

and other infrastructure is there.

I think that's huge problem.

I think when Admiral West and I were looking through all this stuff -- all the different things the different agencies are doing, kind of measuring the same thing, sometimes at the same location, and this whole interoperability issue and blending that together.

MR. SKINNER: Can I hire you as my speech writer?

Admiral?

ADMIRAL WEST: Tom, I think this is part of the bigger issue that OMB is bringing up with this integration of NOAA's investment in coastal issues, and it's what Stu was looking at before.

I think we need to help NOAA -- we're not going to solve it today, but how can they better coordinate and integrate what they spend in hydrographic services, along with what else need NOAA spends in coastal areas to better manage public money?

That's even bigger than your paragraph, but I think this is part of a bigger movement that is going -- that NOAA is going to face from now on, and we need to help them, from our perspective, of what we're looking at.

How can we help NOAA have a better story about

how they integrate their capabilities into NOAA investments, and then from there, into interagency investments of public money for the good of -- whoever that is.

So, we're on the right track here.

I'm being a little vague here, but this is really, really important for NOAA, I think, for the future.

MR. SKINNER: I think maybe if we change the "IOOS" to -- I was actually initially thinking more of all of the hydro services that could be included -- well, actually, I'll defer on that.

Mike?

MR. SZABADOS: I like having the pilots not included, because there are a number of activities going on, like in Houston/Galveston, in New York, in L.A.

So, there are pilots around, so I think some generic encouraging that going in this direction would be the right way to go.

MR. SKINNER: Matt?

MR. Wells: Real quick. I guess I got my backbone back.

The idea is good, but choosing possibly the San Francisco area as a pilot project may not be the best in the world, because you've got nine jurisdictional

areas that you're working together with.

Logistically -- I heard the term yesterday, "herding cats."

I think that might be more of a situation for this than a situation like this with Houston/Galveston, or some of the other port locations.

It needs to be done, but it would be a logistical nightmare, and really take some strong leadership effort to pull off a pilot project in this area for something like that.

MR. WELCH: Going along with Jon's theme of interoperability, and Dick's comment about getting the various agencies within NOAA coordinated with all their efforts, I wonder if this -- I wonder if we might be doing something better.

Rather than trying to come up with a specific recommendation here, if we made this as a big theme of our next meeting, and tried to maybe have a little work group between now and the next meeting to flesh this out and come up with some more presentations for NOAA at the next meeting about this general theme.

This does seem like a pretty serious problem, and this does seem like something that OMB would be very interested in.

MR. SKINNER: Are people comfortable with that?

Okay. Hearing no objection, we'll defer that one. We'll take it up at the next HSRP meeting with some interim work by the panel and NOAA.

MS. CHAPPELL: Okay. In the recommendations that I have seen the panel provide, at least in Miami, you've sort of responded to the stakeholders and the presentations.

So, this would be one that you weren't directly providing -- I guess that's okay. There's never a requirement that you do that.

MS. HICKMAN: Is there?

MR. SKINNER: No, there's not.

I think, in terms of responding to the stakeholders who are on that panel, I certainly would want to get back to them and say, "This really started us thinking about this much bigger issue," and even invite them, if they would like, to attend the next session where we take this up.

MS. CHAPPELL: You could include that in the preamble that you write.

MR. SKINNER: Yeah, that's a good idea. Thank you.

The next one is up on the screen.

(Remarks outside the record.)

MS. CHAPPELL: I had lots of notes on it, so we

were coming at it from different angles and different sessions.

That's why there're so many.

MR. WELCH: I like, particularly, that second bullet on the seafloor mapping project.

I wonder if it might even be worthwhile pulling that out and having that a specific to itself, just to highlight the fact that this seems to be a success, where a state has gotten aggressive, and we acknowledge that they've done that and give them some credit.

MR. DASLER: I would second that, but I might add, after "federal agencies," the partnering in the private sector as well.

MR. SKINNER: Other comments?

Andy?

MR. ARMSTRONG: Well, I'd just endorse everything that's up there. I think that's a great recommendation.

MR. SKINNER: It brings a tear to your eye.

MR. ARMSTRONG: Yeah.

MR. SKINNER: Are there other comments? Concerns? Is everyone comfortable?

Great.

The next one.

MR. WHITING: I guess this was mine.

The reason for doing this is that the speed of the hydrographic survey and the accuracy it's collected can be correlated to the speed that it's delivered to the people.

If you can't get those things in and out of your office in a short period of time, then it would be -- a better way to go than -- GPS RTK, GMSS, and Geoid models have been around for about 10 years now, and maybe a little bit longer, and we're still doing hydrographic surveys based on methods that are, in some cases, probably hundreds of years old.

Now, the infrastructure is required to support this, and that's why the -- it might be a 10-year program, I don't know, maybe five years.

I think it could be done next year, but we'll have to wait and see.

Anyway, I would -- I would like to make this as a motion in this panel for discussion and for inclusion in that letter.

MR. SKINNER: Comments?

MR. DASLER: I had something similar on those lines, and it's up there somewhere.

(Remarks outside the record.)

MR. ARMSTRONG: I think we should take a pause, since it's a brand name. I think this it's inappropriate

to reference a brand name in an HSRP recommendation.

MR. DASLER: I mean, basically, this outline -- there's areas today where this could be used today.

In fact, it's being used by the rest of the surveying community, including the Corps of Engineers in some areas, and specifically, the Columbia River, which is an area that's actually defined relative to the -- it's not a tidal datum as you start moving up the Columbia River.

So, NOAA's currently doing surveys in the Columbia, and we're working down in that same reach, so we're going to be doing both conventional methods and surveying on -- using the ellipsoid to get water level correctors.

They currently have that ability on the Ranier, as long as that data is being logged -- and I understand that data was logged last year, but -- to continue logging that data, and possibly used for corrections once that's evaluated.

Starting in '08, when they're there in September, we'll be there simultaneously, and that's an area where it's all defined.

We'll have a model that will go all the way downriver, relative to the ellipsoid, and that's a perfect place to start.

I think that a lot of what we're heard has been looking at the big picture.

Definitely, there's areas where you can't apply this technology now, but there are areas where you need to be committed now, because that's what everybody else is doing now, and you're not just getting data to fit relative to the zoning.

The zoning just don't work on the Columbia River, and there other areas that do that.

I think the next part of it is getting this technology out to the NRTs.

So, before investing more dollars into NRTs, get them the GPS tools they need so that in an emergency response, they can use this technology.

MR. SKINNER: This is in addition -- is this a substitute or is this in addition to what Larry had suggested?

Adam, do you have --

MR. McBRIDE: I want to hear the answer the answer.

MR. WHITING: This was an attempt to get something out here, I believe.

I would think that the more general motion that I made would be a little bit better, but this one specifically states an area that can be done.

We could have these combined into the introduction to the motion real easily without any problems, and still have the motion based on mine, sorry.

MR. DASLER: I think with a little wordsmithing, you can integrate it.

MR. McBRIDE: I support what the intentions are.

My only observation is that we had previously recommended the extension of the NRT program already, and perhaps rather than saying we put anything (inaudible).

Let's just drop that last clause up there and ask them for '09, period.

MR. SKINNER: Could you say that again?

MS. HICKMAN: Drop it after the "FY 09."

MR. SKINNER: Okay. Is everybody comfortable with that?

MS. CHAPPELL: Wordsmith together --

MR. SKINNER: And drop the last part after "FY 09" in the last sentence.

Steve?

CAPTAIN BARNUM: Steve Barnum.

I was going to suggest: Instead of NRTs, you may want to say "in-house survey assets."

You and I weren't talking just NRTs; we're talking our other survey assets, including the shipping

and launches, real broad.

MR. SKINNER: Okay.

MR. DASLER: Is that a bigger hurdle, I guess, for -- I guess that's what I was trying to restrict the -- because they're mostly nearshore.

The technology is really based -- more shorter baselines rather than big ships way offshore, where it's harder to implement that.

I would agree there still technology that needs to be developed, in terms of the bigger operations.

The way I see it, NRTs are used for short baseline, nearshore operations, and it really -- especially with an emergency response, it seems very appropriate for that.

If you feel like you can get funding through the whole fleet --

CAPTAIN BARNUM: I just wanted to not make it so constrained and keep it more open as a larger picture, that's all.

We can rephrase it to say -- to begin "implementation of the NRTs."

MR. SKINNER: Are people comfortable with that?

Matt?

MR. Wells: Matt Wells.

I've got one question.

The spin would be reference to the ellipsoid --

MR. DASLER: No.

They would still -- they're using GPS -- sorry.

We use GPS now, even NOAA does, to calculate settlement and squat of a vessel, and settlement and squat -- now you're combining settlement and squat measurements directly with tide.

I mean, with all those correctors, there's no question you get a higher vertical accuracy when you combine all that together and still go to the chart datum as opposed to the total propagated or tide measurements, settlement and squat -- I mean, the current settlement and squat measurements are based on speed over gravity (inaudible).

There's a lot of total propagated error that this eliminates by doing this, and we're still talking about surveying the chart data.

MR. SKINNER: Okay. Mind you: We don't get to eat until we finish these.

For the next one, I think the general idea here is that we wanted to come up with a recommendation that got the sense of the group yesterday.

Elaine did, I think, at the end, say that she was interested in our working group on this.

So, I say that if we can approve a conceptual

thing, subject to, also, Elaine's comfort level, I think that's the general idea.

If she is more interested in doing a -- sort of having a work group look at it, then I think we should be respectful of that, as well.

MR. WELCH: Tom, if I could, on the print-on-demand, it seemed like, to me, yesterday -- I mean, my observation is that the vulnerability that got shown in the Raster situation, the potential for that vulnerability is there with the print-on-demand.

I think the implications, if the same thing happened, would be a lot worse on print-on-demand than the interruption of the Raster charts.

I got the impression from yesterday that there really are two ways of addressing it.

One would be the way that, I think, some of the agency was requesting, which was that we need redundancy through the possibility of multiple suppliers.

The other way was the way I think Elaine and David from the company were addressing it, which is we could avoid the possibility of interruption by some kind of a stronger or longer contractual relationship with the existing supplier.

So, they're kind of diametrically opposed solutions to the problem, and I'm not sure we're at a

point where we can endorse one or the other.

I don't want -- I don't think, and I'm not sure, we want to say something that would be perceived as endorsing one or the other, unless we clearly knew what we were doing.

MR. SKINNER: Larry?

MR. WHITING: Isn't part of the NOAA capability the ability to do these charts? Would it be considered as that, and that NOAA would be almost required to have this capability in-house?

CAPTAIN BARNUM: Steve Barnum.

In regards to paper charts?

Currently, we have the lithographic charts as a fall-back or a backup system to the POD charts.

As we move forward, we are certainly looking at our options of what happens now, that people want the (inaudible).

So, is this going to be contracted?

We currently contract the FAA for the litho currently, but that's two different mechanisms by which I would deliver the product, at least in paper form.

MR. SKINNER: Andy?

MR. ARMSTRONG: Andy Armstrong.

Maybe we can acknowledge what Ed said here.

If we change redundancy to "reliability," maybe

that would solve our problem here.

MR. DASLER: I don't know if we need to go into how it's solved.

I think the real issue is that Raster charts currently are not being updated with the local notice -- Notice to Mariners that are coming out and are dangerous to navigation.

So, getting that back online as soon as possible, no matter how it's done, I think is the real issue.

Even a recommendation that NOAA do what's needed to get the Raster charts back, with giving regular updates as soon as possible, and then having -- moving forward, having some kind of plan that offers some kind of redundancy, if something like that happened, again, rather than a specific recommendation on how to do it.

CAPTAIN BARNUM: I'm thinking this through, but I kind of agree with what Andy suggested here, changing redundancy to "reliability."

I understand what you're saying about the Raster issue. Again, under the Raster charts currently, they're not approved for navigation.

ENCs are, paper charts are, but under Title 33, Raster is not currently.

It did show out a weakness in our system. I

think that how we produced other systems -- I think recommendation for reliability, I think would be good.

MR. WELCH: We really have two problems.

We've got this interruption in Raster charts that we want solved somehow, and then we've got what seems to be a working, popular program for print-on-demand, but it might have a vulnerability, and we want that eliminated, too, so --

MR. SKINNER: The vulnerability?

MR. WELCH: Yes, not the program.

MR. DASLER: I'm assuming Raster charts are print-on-demand prints.

Is that not correct?

CAPTAIN BARNUM: Not -- well, not exactly. It's a complex system that -- is Dave here?

Dave could talk about how they're assembled, but the key thing, as we move forward -- we're in flux right now with new system coming online.

We talk about the chart system and changing into those systems, but the issue that, certainly, was exposed to us was reliability on, certainly, this one particular contractor who ceased business and left us out sitting out in the cold, sort of, if you will.

ADMIRAL WEST: Tom, I'm not sure if this is the type of topic that needs to go to the NOAA administrator.

I think we can say to the director of NOS and Steve, "We're concerned about this. Get back to us in 90 days, 60 days, with your solution to that," and then if that's not satisfactory to us, we'll take it up next time and bump it up the line, but I'm not sure it's going to register with the big picture stuff.

You can solve it right now if the director of NOS says, "I've got for an action item, and I'll get back to you."

MR. DUNNIGAN: I think I agree with Dick.

The way Ed just explained it was: These are problems we want to fixed. Well, so do we.

So, I think that the way of just coming to Steve and I and saying that -- "Come back to us with what your plan is to make this thing workable" by our next meeting is probably a better way to go about doing this now.

Maybe, in your report of the meeting to Admiral Lautenbacher, you might want to say, "We had some real discussion on this. We think is a big issue, so we've asked NOS and OCS to come back to us with a better discussion."

That sort of then blips it on his radar, that it's a problem, without putting you in a position of having to make a recommendation.

That may be a better way to do that.

MR. SKINNER: Everyone in agreement?

Excellent.

Next one.

(Remarks outside the record.)

MR. Wells: Matt Wells.

I think we all understand the need for accurate heights, and we could build on it even more for this group by saying the marine transportation industry could benefit as ships become their own tide gauges to maximize efficiency and time during their approach and departure from harbors.

Coastal environment concerns, such as sea level rise, subsidence, storm surge, and accurate definition of state seaward boundaries could be addressed and sensitive decisions made based on accurate data.

The idea was for the HSRP to endorse a National Research Council study on a height modernization program.

What we would like to see is a working committee.

The Mapping Science Committee has recommended a study to assess the benefits of the National Geodetic Survey Height Modernization Program, using the 10-year plan as a starting point, and provide guidance on how NGS can most effectively execute this on a national basis,

and the benefit for society.

What would society gain by having an accurate height modernization program, and where can things go with this?

The study would address specifically societal benefits; technical improvements that National Geodetic Survey can provide the nation; identify other federal programs that would benefit from the improved three-dimensional geodetic control that National Height Modernization Program can provide; review parts of the 10-year plan that are relevant to the implementation of accurate vertical control; identify key organizational attributes and infrastructure required to support National Height Modernization; and then identify opportunities for improvements to the National Geodetic Survey's organization and infrastructure to support a National Height Modernization Program and existing regional and state modernization programs.

So, the idea is for us to endorse a National Research Council -- I'm sorry, Mapping Science Committee study, and to publish a report on that the societal benefits of the National Height Modernization Program.

MR. DUNNIGAN: Thank you.

Is this a study that's already underway and you're just endorsing it, or are you asking that

something new be done?

MR. Wells: This is something new that would be done.

MR. DUNNIGAN: It is your judgment that the next $300,000 that Dave Zilkoski gets in his budget should go here rather than to height mod partners to do work?

ADMIRAL WEST: That's the point.

Who should pay for it?

MR. ZILKOSKI: Do you want me to answer that?

MR. Wells: Yes, please.

MR. DUNNIGAN: By the way, think about it.

Dick's right: NRC is a great group. They do nothing for free, but sometimes when they do things, they're valuable, and they help you get traction.

So, maybe your judgment is that it's worth the investment of $300,000 for the long term, but recognize that it is $300,000, and that $300,000 would have helped Dave and me a whole lot about four months ago, when the other partners were not happy with the way the '08 money got distributed.

MR. ZILKOSKI: Just one clarification on some of it.

There is some money that comes into what's called the "National Height Modernization Program." If

you looked at the budget, it was two-and-a-half.

So, sort of what Jack is saying -- you're saying that of that money that goes, you're recommending that we would use some of that to go to that.

There's also earmarks that come in or other add-ons that people do to that height mod.

The other part of that is money that goes out to the ports, so there is some discretion on our part when that comes in, but if -- in the President's request there's only two-and-a-half million.

MR. DUNNIGAN: I just picked $300,000, but that's -- typically, 250,000 or 300,000 is what a good NRC study will cost you.

MR. SKINNER: Admiral?

ADMIRAL WEST: Well, I'm not ready to endorse anything until I figure out why we're spending NOAA's money, and you reading a 10-second note is not good enough.

They've got to come in and tell us what drove this thing and why, and let the group decide whether that's a proper investment of NOAA's moneys.

MR. SKINNER: Is that the general sense of the group?

MR. Wells: Okay.

MR. WHITING: Everybody should know where this

came from, and that's Lew Lapine. I think he was even a past NGS personnel, right --

MR. ZILKOSKI: Yes.

MR. WHITING: -- back when the contracting first started up.

I think that his attempt to broaden the awareness of this thing is what it is all about.

Now, height modernization is a very important part of what's coming down here in the near future. I don't think we should drop it -- just arbitrarily drop it.

I think we either need to discuss it more or work up a resolution, such as this, to continue on.

I really think that there's -- it's an important part of this.

Now, I don't know how Dave actually feels about this, how the agency actually feels about it, but I think it's very important.

Thank you.

MR. SKINNER: I think the concern about having just a brief kind of overview -- certainly, I'm reluctant to move forward with something like this at this point, but I think your point is well taken, that maybe at the next meeting, we can have a little more detail, in terms of recommendations.

MR. JEFFRESS: Matt, did this come about because Lew is now on this Mapping Sciences Committee?

MR. Wells: I think that's a big part of how it came about, yes.

He asked me, since I was coming here, if we, as a council, would recommend or endorse the study.

MR. JEFFRESS: Well, I'm all for this, but I didn't know it was going to cost us $300,000.

It may be a worthwhile investment, but it's a toss of the coin, isn't it?

MR. SKINNER: I think that's worth getting more information and again, acting, in Andy's words, deliberative and something else.

I think that's probably where we should be headed.

MR. ZILKOSKI: One clarification on the committee.

This actually started -- prior to Lew being about on that, it was Gene Trobia, who's also on the committee, out of Arizona, that started the process inside the National Academy.

Lew became a member, and Lew pushed it with him because Lew understood what height modernization is about. So, it's really -- I mean, Lew is one who wrote this up with Gene, and so forth.

MR. Wells: Right.

MR. SKINNER: I think we can take this up at another meeting and get some more on it.

MR. Wells: Okay. Thank you.

MR. SKINNER: Ashley?

MS. CHAPPELL: We have one more.

This, again, is just what I could quickly pull out from the things that you said just now, after Amy's talk.

You can push this into working groups to follow up on her request for discussion of priorities, or you can make a recommendation now or not.

MR. SKINNER: Andy?

MR. ARMSTRONG: I think, certainly, the second two bullets are something that I think the board ought to consider for some kind of activity in the next meeting, or so.

In the first bullet, Larry was right that they don't normally do surveys, but there's been some indication that there might be industry ship time available to do some survey work in that area if we were to ask, and then the Arctic Research Commission is following up on that now.

So, these things seemed like something that we might want to put on our agenda for consideration rather

than sort of write it up as a recommendation at this point.

MR. SKINNER: Larry?

MR. WHITING: My understanding is that Shell has backed off of any -- that the leaseholder has backed off of any surveys this year.

That doesn't mean they're not going to happen, because politics play a lot in this scene up here.

The way I understand it is the assets are not in place to do these surveys yet, and so if we're going to have a discussion on it -- by our next meeting, if they do this survey this year, there's no opportunity for us to have any input into that, because it's going to be done in late August, before the end of October.

So, if we want to have it this year, we need to discuss it.

If we want to put it off, that's fine, because -- you know, we're not going to affect that survey one way or the other. It's going to take place, and it's going to take place to MMS.

MR. WELCH: Would it make sense, at a future meeting, if we invited a presentation by MMS and a panel of the leaseholders as to what their plans are up there and how they see their hydrographic needs?

MR. DASLER: I think that's a great idea.

I think now, it's really not MMS that's going to be doing the survey; it's going to be the oil companies.

I think Andy was stating it more that if this was going to be in future, this is going to continue to happen.

So, what MMS could do, as part of the requirement of the lease, is when you do your surveys, do them to a charting standard.

There's all kinds of options, and I think you're suggesting inviting MMS to see how that could be coordinated?

MR. WELCH: Even to the extent that if MMS doesn't put conditions in the current, already issued leases, they still have jawbone possibilities.

MR. WHITING: Let's invite them to a future meeting.

I think if they show up, it's great; if they don't, then we have to look at how we can include their surveys later.

MR. SKINNER: So, what we're going to do with this is schedule it, to have MMS come in to talk further about this rather than do a specific recommendation.

Is that the sense at this point?

Great.

Are we done?

MR. DUNNIGAN: No.

Amy, once again, is doing the homework for me.

She's suggesting, and I think this is great idea, that if we're going to continue to look at this that we have the Arctic Marine Assessment come in and give us a background and briefing on what that project is up to, as well, because I think that's good, broad thing.

Frankly, I think they'd have a lot of tell us, and maybe we can even help them.

MR. SKINNER: Okay.

MS. CHAPPELL: So, we'll reconvene, at the next meeting, on Arctic Alaska issues?

MR. SKINNER: Yes.

Admiral?

ADMIRAL WEST: Along that theme, I suggest a briefing on where we're going to go if the ice -- to the DOD, Coast Guard, and NOAA, concerning -- maybe somebody can figure out how they'll do that. Maybe somebody the ice center could come.

MS. CHAPPELL: Okay. If you're looking at mapping requirements from the oil and leaseholders, you might also want to hear from other parts of NOAA about their ecosystem, fisheries, mapping needs, as well, if we're going to put a panel together.

MR. SKINNER: Good idea.

Larry?

MR. WHITING: A question for Amy.

Would the natives up there be interested in coming out and expressing their opposition or support of this thing, do you think?

MS. HOLMAN: We can ask.

Certainly, the Coast Guard would be, I think, more than willing to come on down.

Alascom, the joint Alaska command, I think -- the Coast Guard is certainly interested and would be willing to come on down.

Also, Alaska Joint Command, I think, is the folks who could give the military-wide perspective, and they might be a good group to contact.

We have points of contact with them -- that organization.

MR. WHITING: How about any of the native corporations, like NANA or ASCT, or things like that?

MS. HOLMAN: We'd be happy to help arrange that and see if that could happen.

MR. WHITING: Just see if they would be willing to send a rep down here for that meeting.

MR. SKINNER: Andy?

MR. ARMSTRONG: We're maybe getting a little

overaggressive for the next meeting. I think we've already added several other things.

So, maybe at the meeting after next, or something.

I think the Arctic -- we have time to deal with that a little more deliberatively.

MR. SKINNER: I think maybe we're just saying that if we substitute the next meeting for a future meeting, and then I think it would depend on where we meet and what time of year, and so forth, and who we can get when.

Those will be worked out, but that's a good point.

Anything else? We're all set; right?

We have one more public comment from Heather.

MS. KERKERING: Sorry. I know you're all ready to get out of the seats and get some food, but I missed the public comment period because I had to step out.

I just want to say a couple of things.

One, an appreciation for your discussion of IOOS yesterday and today, and that I would encourage -- I think this was mentioned around the table -- that there be somewhat an IOOS theme or discussion at the next or maybe the next meeting.

I would encourage you to promote NOAA IOOS.

We are charged with doing a lot of the things that have been discussed today.

I do think San Francisco may be a good place for a pilot project that you're recommending, because, as you've learned over the past couple of days, the relationships between the state agencies, all the NOAA PORTS, NOAA NERRS, the sanctuaries, OSPR, our relationship with CDIP, has allowed us to really move forward with a lot of things.

IOOS does also work with a lot of other groups, monitoring within the Bay, such as USGS, and all the environmental health departments of each of the nine counties surrounding.

So, there's a lot that we can be doing here.

Lastly, my other thing that I wanted to encourage was inclusion of HF radar in your recommendations for technology to improve marine transportation and event response.

It was discussed a lot yesterday.

I'm not really sure about where that might fit in with your recommendations with everything else that you're trying to recommend, but it has been used throughout the state to track coastal discharges, which have been proven useful for determining when to close beaches and keep them open, and playing a role in plant,

wildlife, and human health issues.

It's proved successful in both the Safe Seas oil spill scenario and in the Cosco Busan event response.

It's been crucial for marine transportation -- and also, if we want to build a page like Julie -- Julie talked about yesterday, that they did for the L.A./Long Beach Harbor, it's essential that we have that information.

One of the reasons I'm promoting this through you is that, right now, it's funded through the state, through a voter-approved bond, but that funding actually runs out mid to late next year, and then there is no more funding for HF radar at this point beyond that.

So, I believe that we've been trying to get NOAA to get on board with this. I know there's all these budget and funding constraints.

There is a meeting in August, in Colorado, to develop a national HF radar plan, and all the regional associations do have reps going there.

Toby, who is here, and Sheila, that was here, will be attending that, as well.

If you could at all make recommendations for that and for marine transportation and event response for San Francisco Bay, and pretty much anywhere else in the nation, that would be appreciated.

That was it. Thank you for allowing me to comment late.

MR. SKINNER: And thank you for staying so late.

Any final business?

I think we need a motion to adopt the conceptual recommendations.

MR. ARMSTRONG: I'll say it.

MR. SKINNER: Any second?

MR. Wells: Second.

MR. SKINNER: Discussion?

All in favor?

ALL: Aye.

MR. SKINNER: Any opposed? Any abstentions?

Great.

Now we need a motion to adjourn the public meeting.

MR. DASLER: Yes.

MR. McBRIDE: Second.

MR. SKINNER: Any discussion?

All in favor?

ALL: Aye.

MR. SKINNER: Any opposed? Any abstentions?

Thank you all very much.

(Proceedings adjourned at 1:34 p.m.)

REPORTER'S CERTIFICATION

I, DAWN A. STARK, CSR No. 7847, Certified Shorthand Reporter, do hereby certify:

That the foregoing transcript of proceedings were taken before me at the time and place therein set forth; was taken down by me in shorthand and transcribed into computer-generated text under my direction and supervision; and I hereby certify the foregoing transcript of my shorthand notes so taken.

I declare under penalty of perjury under the laws of California that the foregoing is true and correct.

DATED this day of , 2008.

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DAWN A. STARK, CSR No. 7847