September 21, 2022
DISCLAIMER: DEAF ACCESS SOLUTIONS (DAS)
REALTIME FILE
******DISCLAIMER******
This transcript is not an official document of the event and cannot be used as such.
******DISCLAIMER******
TRANSCRIPT:
: :
>> Good morning and welcome to the second day of our HSRP meeting. I hope you all had a nice evening last night in this wonderful town. And we are going to go around and do introductionintroductions first. The same as yesterday once again your name organization let's take a minute and feel free to give any thoughts about yesterday that you might have thought of overnight or questions that you have about today's agenda or anything like that. So we have -- we're going to start with Qassim, yeah, just a minute or two for your thoughts.
>> Definitely I enjoy every single moment of session like we reiterated quite a few of us starting with the local culture of the native people. I mean that was mind blowing event for me probably. I mean respect them a lot their value for the land and the water and the respect for the nature is just amazing. Their -- the panels was great success definitely.
All of them actually. I mean just a lot of information.
Hopefully we can put all these data together for the benefit of the user. And I would like to see -- data and convert this data into knowledge. Because that's what's at the end of the day. I mean collecting data it's going to -- in no time but without having computer power and intelligence too to go and explore these data we will be way behind. That's all I have Julie. Thank you.
>> Great. Thank you Qassim.
Next will be Anuj.
>> Thank you, good morning everyone. So amazing session yesterday lots to take over. My thoughts after yesterday were perhaps three areas, one really like Paul's comment by saying think outside the box think about the holistic picture and to come out. So with that in mind, the other one was blue economy and environmental justice, these are important elements of society today and how we incorporate them. And then looking at the fragile supply chain of Hawaii as to you know single entry point only about three days or thereabouts of supplies and how fragile it is and how you want to look at it, and how that impacts or how HSRP can help them in that space. So great takeaways looking forward to today. Thank you.
>> Thank you. All right.
Alex.
>> Good morning, everybody.
Really looking forward for today's session. Actually we're leading that right now with the

relief efforts of Puerto Rico so you see me getting up and answering the phone. I've been on the phone since 5:30 in the morning. So a lot to learn.
And a lot of experience really looking forward or it. Thanks.
>> Great, thank you, Alex.
>> Shawn.
>> Yeah the connection to the Hawaiian culture yesterday was really helped put us in the right place. Of course I have Mississippi river challenges that are -- I see comparisons.
I heard a lot of things said yesterday. One of the things I say a lot is waterways management is a team sport. I see a lot of the inner agency challenges continue. And hope to see the efforts at HSRP to work on some of those to include fixing challenges and some of the other problems that come back to the Mississippi river.
While also appreciatng the complexity of the system here.
Well done yesterday. Let's make today count too. Thank you.
>> Great thank you, Sean.
Nicole.
>> Good morning, Nicole Elko science director American shore and beach preservation association based out of Charleston South Carolina. And I echo the congratulations for yesterday's sessions. And wanted to also mention that Paul's comments were, I thought, very insightful. Even he reminded us that the administration is saying the word coast which they haven't done before ever. So this is a great time for us to kind of recognize that and know that there's a bit of, I think some urgency in some of our recommendations where we have some receptive ears. I think that the administration's priorities line ups really nicely with the strategic plan that NOAA has in place and however we can capitalize on agenda items for the panel that coincide with those -- with those priority themes that's something that we should certainly consider. Thank you.
>> Great. Thank you. Nicole.
Lindsey.
>> Good morning, Lindsay Gee independent consultant. Notice what Sean said about the discussions about the Hawaiian cultural protocols and the way of life really and how do we say it's great but I think how does it affect us. And I think it one of the things of being part of a big family doing. Right we're all connected and we should -- and as a community we're trying to get a lot done on the Pacific is kind of remote and isolated and you can't just do that with just NOAA or just contractors and other things.
And I think working in that community together to achieve that is that's how we can best implement it. And I think one of the others is we sometimes and when we're talking about a Pacific voyaging. Unfortunately [inaudible] but unfortunately technology's taken us down a road a little bit to isolate what we do. We go into those silos of just have an system we have light iron. I think being able to coordinate that across what we do to achieve it is the real -- it's not the technology it's how we use it. It's important and I think that's a role for the community and now in the longer term it does sometimes take the government the longer view and not just the shareholders to satisfy to be able to do that and guide that.
That was kind of a summary of my thoughts from yesterday. Thank you.

>> Thank you, Lindsay. Dave.
>> When I became a member of the HSRP, one of the things that struck me was that we listened to a lot of interesting briefings. But our role was to come up with recommendations for the NOAA administrator. And I came up with the idea of issue papers. And I challenge every member of this panel to see if you can come up with some idea that you considered to be an issue in which you think NOAA needs to do something different from what it has done in the past. And I'm happy to see that Nicole Elko still young on the HSRP but been here a couple of years but ready to come up with an issue paper. So you've done the part that we're all expected to do at least come up with one issue paper during your time here and hopefully more than that. So I wanted the new members in particular to think about what can you see in the presentations that you receive that you can identify as an issue in which you would like for NOAA to do something different from what they're now doing. And then we put those ideas together and we're going to be talking about our issue paper tomorrow. But I just wanted to point that message out partly because I'm retiring at the end of session and I'm looking for somebody else to volunteer to take over to issue papers. That's kind of like the drill sergeant. Somebody's got to be in charge of getting soldiers to March well, I'm looking for somebody to take my job of getting people to come up with issue papers. Because if we don't issue any issue papers it's almost well what do we pay them for? Why go to all the trouble just for them to get a bunch of interesting briefings.
We're supposed to pull out of these briefings something to recommend to a NOAA administrator to do different.
So that's my challenge to everybody on the committee. I had to get that off my chest.
>> No, that's great Dave.
Thank you. All right Ann.
>> Hi, Ann McIntyre. You know, some of the stuff I was thinking about last night were more related to some of the sidebar conversation that I had. The first thing I'll say is wind farms. And just the wind farms and Ed you mentioned Jones act and that kind of tied into some of the discussion we were having regarding you know finding competent crew and mariners, the shortage of mar -- mar reason Iers in the United States. That kind of dove tails into a comment that captain Cruz made regarding the training ships and they certainly aren't utilized and probably other vessels that aren't utilized as well as they should be and perhaps they kind of vessel sharing is something that should be looked at more particularly in the you know the academic world and the use of those research vessels. So that was what I thought about.
>> Great, thanks, Ann. All right. Ed.
>> Thanks, Julie. First I'm not going to add too much to yesterday but I wanted to really thank admiral Ben -- and deciding to go forward with this as a public meeting. I think yesterday improved the quality of what goes on when we all get together and how much the interaction with the local community really means to all.
I don't have anything else to add except that I too want to recognize what -- was talking about in terms of think beyond just OCS and GS and co-ops and a lot more going on and a

much broader impact that all this could have. Thanks.
>> Thank you, Ed. Nathan.
>> Yeah, Nathan -- managng partner -- surveys. Yeah as I thought about it last night I was really struck by the similarities between Alaska and Hawaii the challenges both regions have with remoteness and dealing with climate change challenges and cultural connection in both regions.
There's strong cultural connection Alaska and --
>> [Phone ringing]
[inaudible].
>> Great, our next meeting will be held in Puerto Rico and I bet that Alex and people could come up with some of the same challenges too.
All right. Let's see. Gary you are online, I believe.
>> Yes, ma'am.
>> Okay. It's your turn.
>> Greetings from North Carolina. Yesterday great session. I was glad to hear about the increase the coverage of [inaudible] application for all the coastal states, coastal areas. Just and talk about NSRS modernization we all need to be prepared and get prepared for the change. I hope we have time before this in the meeting to have some discussion about recent reports on GPS interference and it was great to hear about all the partnership yesterday. I think that's a good set up for our session tomorrow on private partnerships.
>> Right, thank you, Gary. You did see that I forwarded the interference in GPS interference document and we'll see tomorrow if we have a minute to touch base on that.
>> All right. Thanks.
>> All right. Let's see.
Andy, you are right there. Yes.
Oh Ann Kinner is on the phone too. Hold on two seconds. Ann, do you want to go next.
>> Sure still a little overwhelmed with all the presentations yesterday but the one thing that kind of came through with everyone of them everybody's collecting data looking at some piece of the same elephant. There really needs to be a better synthesis, I think of all of these observations and yes having more votes input more data is great.
But there really needs to be more, I think, from my perspective coordination of what gets done with all that data.
And it comes back to that question or the comment I think I made last night data collection isn't useful if it can't be translated into useful products. Wonderful to have all the numbers, but the numbers have to be translated for the folks who don't speak numbers.
They've got to be pictures got to be words they've got to be something that people can really get their heads around. So something to think about going forward with all of this incredible data collection.
>> All right. Thank you, Ann.
Is that it for Regina? We have two remote members who could not take the meeting -- they will be joining us later on, I hope.
Okay. Andy now you're next.

>> Thank you Julie. I'm Andy armstrong NOAA co-director of the NOAA University of New Hampshire HSRP center and non-votng member on the panel.
So I just reiterate my appreciation for the presentations yesterday and particularly the cultural connections. And add that I was really struck by Jennifer's Samson's presentation regarding the critical importance of the high resolution mapping to the corral reef and fisheres management issues in the Pacific. And I think this is a this is an important thing for the panel and for us and NOAA to remember in terms of the value of our work and the areas beyond what we sometimes see that might need high resolution C4 mapping.
And on the flip side that have, I'm looking forward today to our discussion on the her time commerce aspects what have we do. And I think that these should be really great presentations as well. So thank you.
>> Great. Okay. Larry do you want to --
>> Larry the UNC co-director of the HSRP center. Again as I said yesterday -- [inaudible].
>> I'm not sure where that came from.
>> Okay. Okay.
>> [Laughter].
>> I agree. No, it was a wonderful day yesterday. I think we've heard all the comments already the culture aspects tremendous the partnership set us up for future discussions. I mentioned yesterday and I reiterate today that there's an amazing amount of work being done in the Pacific. It's a huge area that has more to do but we have to constantly stay on top of the idea of keeping track what's going on unless we start duplicatng or skipping. We need to really stay on top of idea of coordinatng things. I guess the one kind of real concern I left with yesterday was discussion of the fleet I think it interesting we have to really keep an eye on and make sure that we find ways to ensure that NOAA can maintain its vessel capability. I think this is a critical thing. We can't lose sight of that. I look forward to today.
>> All right. Thank you, Larry.
All right. Mike, do you want to chime in for Julianna.
Julianna's on the line oh I thought you said she wasn't.
Julianna sorry you're here.
Mike we'll get you later.
Julianna can you hear us.
>> I'm the director of the national -- survey. And I was able to listen in to about two-thirds of the meeting yesterday before I went to sleep because we're six hours ahead here. I appreciated all of the presentations and discussion.
And also want to compliment everyone on making the hybrid meeting environment work. The sounds coming through loud and clear and I appreciate everybody's support for making virtual attendance possible.
And I'll turn it over to Mike who is there in the room representing NGS. Mike, you did a great job yesterday presenting your updates. So thanks everybody and I'll be tunng inasmuch as I can today.
>> Thanks, Julianna. All right, Mike.

>> Thank you, ma'am. I just wanted to highlight one thing that I found out that Lynn and her team and the extraordinary efforts they went through in order to get that cultural introduction, again thank you.
Talked to Lynn it was pretty daunting who you that all came together. So one take away, one thought that I hope the panel can see how we've been working on this for the better part of 20 years is the value of the airborne [inaudible] and tying into a lot of what the operations we do at NOAA but also just the broad use that have data and that was something I think was highlight yesterday more so than I've seen in any other meeting. I was encouraged to see that especially since I've had more conversation about that and how we're growing also like to see how we tie in with the precision navigation discussion today. Thanks.
>> All right. Thanks, Mike.
Rich.
>> Good morning everyone I'm Rich Edwing. Like everyone else I just thought the cultural program yesterday morning was a fabulous way you know to launch the meeting and get us going.
Really appreciated that. And in the afternoon you know, mile we kind of all notice from really a young age how big the Pacific ocean is I think the presentations and discussions yesterday really kind of helped you know bring that into scale, if you will, just a tremendous amount of work that's just required here in the Hawaiian islands. But what we haven't been able to get into and won't be able to at this meeting is big need for more observations better -- control all those other things that help make up those foundational data sets.
So that's kind of a missing piece here not a criticism just an observation pardon the pun and it's not just for this area it's for the whole pick right.
And like Larry -- not Larry I'm looking forward to the session this morning. You know, they've had supply chain issues here for really since inception in each situation supply chain only recently kind of made it into the vocabulary for the mainland right because we didn't have any shortages and delays and stuff.
In fact at the restaurant last night on the TV screen a commercial for somebody I forget who that said supply chain is the new buzz word at the restaurant last night. So we're going to learn a lot from this session this morning, I think.
So thank you.
>> Great. Thank you, Rich.
And admiral, you're up next.
>> I'm the director of NOAA's office of coast survey I'm the designated federal official of the HSRP. I won't go into too much detail and reiterate my comments from yesterday other than to say I agree with the comments that have been raised.
I did want to note that I particularly appreciate Paul --
presence he's not -- he's doing another engagement this morning but he commented to me how valuable he felt or how valuable this yesterday's session was for him. He very much appreciated all the interaction and engagement that he had with the panel members and other members of the audience. So thank you all for engagng with him and helping

him. The -- I do want to note Larry's comments on the importance of maintaining NOAA's at sea capability as I mentioned yesterday, that's a huge priority for us. I'm actually fresh off this morning a last minute briefing for the house appropriations committee staff on that topic. So this continues to be a significant --
a significant level of effort for us to move this program and keep this program moving.
I'm very much looking forward to today's panel because you know, to captain Kinner's point this is about getting data into the hands of users, creating products and service which are valuable to our users, whether those are mariners in in the case of today's panel or other users as captain Armstrong alluded to. As I mentioned in my remarks yesterday that is the piece of our work flow which I'm probably most concerned about.
You know, concerned about ships too but that's a little bit out of my hands but in terms of the coast survey work flow getting that data into the hands of the users and the fit for purpose products services and data is of high concern to me. And so today's panel I think will help us sharpen our focus on that.
So thank you.
>> Thanks very much, admiral.
And I will introduce myself since I didn't in the beginning.
Julie Thomas, retired -- I'm now senior adviser there for southern California coastal ocean observing system which is one of the regional observing systems and also I was program director for coastal data information program which is basically wave observations. So moving along and we are so excited about today's presentation panel. And I think we're ready for the panel members to come on up to the table here.
>> Excite to be here and put this panel together today. I've had a long relationship with Hawaii early in my career almost 30 years ago I worked at the offshore mooring for chef Ron.
And when you came to train to do that I was handed a piece of paper. It had a sketch on it three palm trees a building and a smokestack. That was how we navigate the ships into the offshore mooring. When the palm tree crossed this one building you dropped one anchor when crossed the smokestack you dropped the second anchor. We then maneuvered the ship into a series of buoys use our eye balls and the radar. And the ships that we brought into the mooring were navigatng across the ocean with a satellite that passed over once every six hours dead reckoning and using [inaudible] C. As everybody knows like C obsolete today and I will say that we advocated heavily that we could never navigate without it. So I'm looking forward to Julianna's update. [Laughter] on precision navigation. So the last time I was in Hawaii was a week before the country shut down I was at a conference here at this hotel when the pandemic was luring.
And I looked back on that time, and I look at the supply chain disruption that we experienced on the main land on the west code of California. And the situation obviously was very very dire but we still had options. We had alternatives we had warehouses. It was nothing like what they experienced here.
And so I'm looking forward from hearing from our other panelists on those issues. And with that I'm going to pass it off to Julianna.

>> Thank you very much and you'd really like to thank my co-chair for this panelists Captain McIntyre for pulling the panel together. Understanding it was originally set for these years ago, but I'm also very excited for the speaker's presentations. So I'm -- my presentation is a little bit more about setting the stage and talking about what NOAA sort of big NOAA is doing with major contributions from the tri offices that our members of HSRP but also the weather service.

And so we look at what we call our precision marine navigation program and we call it our information infrastructure for the new blue economy because it's really about harnessing all the different types of data that NOAA has and pug it out in a format that's suitable for an application but can also be used for other application. Did not show me how to use the re are motor. Next slide, please.

Thank you. I think one of the big factors we talk about the supply chain issues but really want to think about the maritime economy as a whole and the maritime economy for the United States contributes $373 billion to the gross domestic product and also contributes about 2.3 million jobs. It's huge.

And then the other thing is when ships are growing larger and wider we still have to indicator to very different types of navigation situations. When we went out on Monday to meet with the pilots at Matson you know, we're not actually talking about the really ultra large tankers and cargo ships we're actually talking about the other end of the spectrum. So the entire spectrum needs to be accommodated for as we look at precision marine navigation.

Next slide, please. Uhhing to to co-ops for that nautical charts for that. So it's really not an easy way of actually getting the data and then all of that data is in different formats that aren't actually fit for purpose for navigation systems. You have to do a lot of different data manipulation on a shore-based computer in a GIS system potentially to get all the stuff in, and in some cases you know, I noticed that you know when we met with the pilots they had a paper blueprint from the Army Corps of engineers with all the soundings, you know. And so the key things is getting all that data into a semblance of something that can be used in the navigation system. Next slide, please. So in order to get this as we're looking at a common framework called S-100, what it does is builds -- called a framework standard. And from that you build different products specifications that standardize the implementation on navigation systems. So provides common portrayal, provides common data formats, it also has this whole thing called inner RABLT which allows for you to have your high resolution product which would be 1-102 with S-104 which is water level information and you can adjust that based on the forecast in there and you have surface currents and weather overlays.

This is being setup by the IHO.

The IMO has bought into this and in the process of revisng the performance standards. So starting in 2026 if it passes MSC next month, starting in 2026 an S-100 based will become optional on terms of implementation. Next slide, please. So when we're looking at this and we're building out our precision marine navigation program we're really talking about leveragng these standards. So we have a common operatng picture for navigation systems

but these data sets can also be used for other things.
So it's not just navigation it's just tuned for navigation but it's really also about the value of the data for other applications also. So we're building out our precision marine navigation data dissemination and services. The key thing is this has machine to machine capability which will have a little bit of a demonstration slide later on in the presentation but what it really means is that you as the human don't actually have to theoretically go find the data yourself, your system knows your route, will go find it and downloads what you need just in time. And then we harness this altogether so common website with our -- we have also what we call our data gateway which is for the human so you can see where we actually have data available. And then you can proceed to download it. Next slide, please.
So you know, looking at this and how to paint the picture of how to transit normally I use undergoing from New Orleans to New York City, however, I think you know, appear row positive for this audience in Hawaii that we're going to pretend we're going on a ship transit from Los Angeles to Honolulu. So different types of navigation considerations that you have to undertake you have to think about depths and bathymetry, you really want to think about what your surface currents are. In LA water levels potentially can be important Honolulu they potentially can be important to understand for underkill clearance if you're getting really big ships in and then as you're going through your transit waves and weather and severe hazards. Next slide, please. So as we're really leaving LA we have you know we think about it as our pre voyage and our route planning. So be want to start getting the data that we have. And so in this case we want to start looking at you know what is our surface current forecast as we go forth on our route. And so for LA Long Beach we actually have --
we have to use the global model because we're still working to implement more regional models but what you can do is surveys currents will help enable route optimization. You can take that surveys current and adjust your speed for large container ships -- results in a reduction of co 2 emissions. So next slide please. So for example you know a better example in terms of the surveys kinds I think we all know the Gulf Stream. If we look at this on the global model if you do one click. So here you can demonstrate you can see where the Gulf Stream is plan your route along that and again reduce your speed and still make adjusted time as you navigate.
And that's really big especially if we're thinking about the supply chain about how to really opt myself getting ships into the container terminals without actually having them to sit at an anchorage. It's really about how to optimize that routes and one of the big things is surveys currents. There is a lot of literature out there about what's called slow steaming which you know talks about taking advantage of these types of data in order to make sure you know you can do this type of route optimization. Next slide, please. You know and then as we're leaving LA so Long Beach this is actually where the project started with high resolution bathymetry and so the big thing with 1-102 [indiscernible] LA you know when we start this project they were draft restrict. I think it was to like 57 feet they had ultra large crude carriers between having a wave model that LA put in, and also having a better understanding of the bathymetry and putting it out in products they were able to increase

that draft restriction up to 62 feet which then allowed for prevent -- they didn't no longer had to -- [indiscernible] next slide. So here you can see you know based on the high resolution bathymetry, instead of taking the normal depth con tour that's depicted on the charts they can base it on what their actual underkill clearance is yes no longer a smooth contour but an accurate contour.

The other big thing we're working on starting towards late this year is a prototype for forecast information. So the beauty of the water levels forecast information is we have these forecasts that go out they're based on the same models as the surveys currents so they can go out from anywhere from 0 to 48 to 72 to 120 hours and then so you have that predicted forecast and you can make a determination of undergo, no go based on the additional information if the water levels going up and down in conjunction with the high resolution bathymetry. Currently right now with the water level information the Mariners have to do a lot of mental math about looking at going to the website and picking that and do some addition and because right now is not allowed to adjust for water level information we have resolved that in the future and we are allowing for water level information to be adjusted because we have this harmonized set of standards and an inner ability spec. Next slide, please. The other big thing we're working on with weather service is they're developing the X 41 suite of products. The other key thing is when you're underway at sea you really want to know instead of taking that nav text information answered then having to manually type into your navigation system plot the points, you know, draw your polygon and figure out where's the weather coming from or marine safety information is coming from. So the weather services go next instead of taking those digital those plots it's going to be delivered as a small file. One. And so now you have these polygons and you can see by the AIS this is a Gayle warning. I think there's one ship hanging out probably shouldn't hang out but you really could see this is powerful information you know but it's information that the mariner doesn't see on their screen. And that's why we're moving forward with precision nav building these products and getting them out to the end user because all of information is there it's just not in a way that you can layer and stack on top of each other to make these types of integrate decisions.

Next slide, please. So here is talking about the power of the 1-100 discovery metadata. Beneath this and this is one of the importance of standards is we've built out all of this discovery metadata. And so essentially you know when you look at New York harbor we have all of the square boxes represent all the data sets for 1-102. Those each data sets are about ten megabytes a pop. When you're coming in on your satellite system you do not want to download 20 data sets. It's going to kill your bandwidth and also cost a lot of money. But what you really want too is the intersection with those routes and only want to download those data sets that are particular to your route. And that's that power of what we have with our discovery metadata. This is what makes it machine to machine capable. And this is why you know we're really doing what we're doing is to be able to easily get that data to you in a way that's simple and easy to understand. Next slide, please.

I think this is my last slide.

So really the benefits of program is we're trying to make marine navigation data more

accessible to enhance our -- as I said optimize our fuel rates or savings and co 2 emissions reduce our [indiscernible]
potential such as we did in LA Long Beach that's a safety and environmental issue reduce port wait times. We want to improve our safety [indiscernible]
groundings and you avoid your hazardous weather conditions.
Thank you very much.
>> [Applause].
>> I'll turn it over to [inaudible].
>> While they're getting setup there thank you very much. Oh, okay.
>> [Inaudible].
>> Okay.
>> I think we're playing musical controls here. Okay.
Good morning everyone. I'm the deputy director for state Department of Transportation harbors division. And welcome you all and my topic is about the support of NOAA to DOT harbors for just in time delivery of goods or supply chain as you heard earlier in any of the. It's not working.
Next slide, please. Okay as an island state Hawaii its people and history are tied to the ocean as a important of transport and commerce. The state DOT harbor's division is tasked with effectively manang and operatng -- sufficient people of goods to and from the islands.
Next slide. As you can see on this chart here we have ten commercial harbors state-wide located on six islands and Honolulu or --
others what we call [indiscernible] so we operate hub and spoke as my partners here who operate the cargo vessels know how spoke great.
Next shrewd, please. The department of business economic development and tourism and that tourism and study has revealed that 80% of the goods that we consume on island are important.
And over 98% of those goods comes through the harbors. Next slide. Okay the importance of harbors again this relied on NOAA graphing forecasting and mapping. Without those I think the cargo operators here and cruise vessel operators will have a hard time navigatng or going to save haven during inclement weather. So your data is so important to have our timely delivery of goods because we lack all those big land like you have in the continental U.S.
where you have ample wear housing. We're we just all this vendors and grocery stores including the military commissares and exchanges they rely on the just in time delivery because we don't have enough capacity to store our warehouse goods. Next slide.
This is the hub. Which we about 20,000 -- units per year of what we call -- it's the hub state-would youed ocean port and ship all the way to Guam, American samoa and -- alongside ships. We also handle domestic and foreign containerized cargo.
And also for cruise ships and vessels. Next slide. On this slide here you see color code and that's self-explanatory.
Next slide, please. Okay on peer 2 this is where our tourist area. If you are in peer 2 yesterday you saw the big cruise vessels and that's how we need to maintain this maritime

support here. And if you can see all those upcoming projects that will enhance the appearance of the waterfront or the tourists to enjoy their stay in Honolulu. Next slide. Okay the new terminal case KCT container terminal will have approximately 1,800 linear feet of space and have a cargo area of about 80 acres and about 50 truck --
50,000 truckloads per year will be moving directly between facilities and avoiding congestions on the highway. If you look at the end on the northeast side or the top right there's a -- in there. So the cargos that come off the ship will go across the bridge into the barge areas where they could transfer it and go to the outer islands. Next slide. Okay this one depicts the importance of the KCT, the blue line is our estimate. All container best line estimate and the green dotted lines is all containers high estimate and the yellow dotted line is our low containers low estimate. And if you look at the black solid line in 2024, when the KCT comes into operation March 2024, that's the current contract completion date we'll increase our capacity by 430,000 -- so just in time if you look at that line on the blue and we forecasting the next 2046 we'll need another expansion which we are looking at in our master plan. Next slide, please. Okay this one I need NOAA to assist because there's a lot of alphabet soup when you deal with environmental. We have a lot of endangered invasive species on the harbors and we just dredge the federal channel from the main entrance into the -- peers.
And we encountered a lot of corrals. And there is so many policies and loss that we need to follow and it adds cost. And delay our projects. So I think we need to get together and come to one stop shop so we don't have to go to mother may I, mother may I. Core engineers department even the state --
natural resource which has the division of aquatic resources and Army Corps of engineers and Coast Guard sometimes they conflicting. So we delay our contracts and we need to get better with this. I know security is important and we need to work together to work smarter. Thank you.
>> [Applause].
>> Sorry for the lack of order there. Ed from the Hawaii pilots.
>> Okay. So first of all thank you for invitng us to be here and offering some commentary on a lot of your programs and products that you guys are working on. So we were lucky that I think Eathan too that Richard and Paul and Julianna were all down on Monday came down to our office at peer 19 and we were lucky to spend an hour and a half with them. So we got down to the nitty-gritty what have do we need what do we talk about, what our issues are.
And for us that was a big deal.
But I have to briefly go through this very quickly. On behalf of all the pilots thanks for inviting us. We do piloted on 7 islands at four different ports.
In 2019 our last normal year we did about 2,300 movements. This works, okay. So they asked us, you know, okay, what, you know, what do we basically need? We need to know route now what the weather is under another island under another port or you know the forecast for the next day or 48 hours out. The weather includes to us the pilots what is the wind doing, which way is it blowing and how hard is it blowing? We also want to know what

the currents are doing maybe not at every port but some ports are more important than others where it's a strong cross current and when you're bringing in an 800-foot bulk cargo ship that barely has any water under it you know it's a critical issue to us. And this also includes sea and swell. You're going to hear more from Mic than me about that some of our harbors get closed out seasonally from the waves that are just pounding on the waters and making it hard for us to go in and out. I got a little video I'm going to show you in a few minutes here. So what happens when the bad weather hits us? So cargo is interrupted. And you know, even local people here don't appreciate what we do. They walk into the grocery store at safeway and magically all this food appears out of space. So it's us that brings -- bring in the cargo to Honolulu, it gets delivered to the million people on this island and then it goes over to Mic's company on barges next door and goes to all the neighbor islands. And again I lived over on the big island for seven years once and even I became more acutng aware of how delicate the schedule is on the neighbor islands coming from Honolulu. So when there is an interruption in the service whether it's the big ships or the barges you're not getting your food, you're not getting your medicine and one thing I try to pound home and I did on Monday was that the military installations on -- in this state also don't appreciate what's happening. If you go ask anybody at the naval exchange hey how did all this stuff get in here or at a garage where they're servicng a humvee or barber's air point air station electronics to the helicopters you know all this stuff that the military needs who brings it here? Anybody? The civilian shipping industry. We're the fourth arm of defense you know, they could not function we would not be militarily ready in this state the hundred thousand forces that are based here if it were not for us. And this picture right here you know, this is a great example the Marines at the air base just changed out their whole operation. They shipped all their big helicopters out and they brought brand new ospreys, how did those ospreys get here on that ship. Energy. Nobody ever thinks about this either.

The lights are on, air-conditioner's running great right we're all comfortable.

Think of what would happen especially on the neighboring islands the barges couldn't take diesel fuel to the neighbor islands to run the power plants or the ships couldn't get in over here to unload crude oil to refine and pump ashore you know for all the power plants here. So this you know this is a very and you know politicians and the business company don't like to say this out loud I mean I will because you're all here. You know if anything happens with the barges going in our island or the ships coming here the economy here would collapse. I mean you know we saw a little bit of that during the pandemic.

There are ten million tourists that come here every year there's one million residents. And if something happened where like the canal where harbor main ship channel was blocked this is no food coming in, and there's no tug boats that are able to get out of the harbor to pull those ships off the dock or if the entrance at the port it's the same thing there's not that much capacity to store food and fuel on the neighbor islands in very little here on Oahu.

Doesn't take much for the jet planes bringing in relief supplies to Hawaii when they land here guess what there's no fuel to go back. So what do we want what do we need? Okay.

We need to have easy access to information the data that you guys are all collecting and that gentleman was very -- I'm glad you said something, you know, you have to produce a product that you know your justification for your program, there's an end user, that's us. And we need the information, we need it right away and it needs to be accurate and we have to access it. So obviously charting Beth I missed that whole thing yesterday I wasn't here we want to know how deep the water is.

That's a standard questions for mariners do we have enough water underneath the keel. Don't just think that big huge ships have that issue. We have a problem in -- a small propane tanker not even 400 feet long but because of the water available at the berth is so little the agents and the ship owner have to plan their schedule around all the ports so that he goes to that port when he's you know when he's already discharged the cargo it's not just a big ship issue. Here in Hawaii the barge docks that a lot of the barges and ships go to are relatively shallow. So just get caught up on that thing. We want to know what the wind is blowing and which direction. And I talked to Richard about this the other day most of the sensors are in location either at the airports nearby which doesn't help us or they're in the harbor but they're locate some place where either being shielded by a building or by container stacks or whatever. So we're not -- we can't rely on that as being an adequate, you know, source that's reliable. We need to know more about what is the sea and swell and wave conditions doing at the harbor entrances or currents. And the other thing is right when the weather's getting really bad is when we need it the information the most. So whatever sensors you guys do put out there they need to be pretty robust and withstand heavy weather. Here you go a great example I can't remember Paul or admiral yesterday mentioned this public private partnerships. So we got together with -- is that Melissa in the background there, I'm not sure -- came to us and said what can we do for you guys. We got together it was the pilots and the -- provided this little man lift the Paco use technician was in there. We purchased and paid for the instrument talks that they got and the state allowed us to install the and tap into their internet cable and their power cable on a big tall communications tower out at Pier One. The justification for this was from safety from the standpoint of the Coast Guard the state curbing cruise lines and us. They wanted to bring a large ovation class Cruz ship in Honolulu we said well we'll think about it and talked to the pilots in Alaska who went through a stimulator in the facility up in an core rage and doing these exercise runs of these large ships going in and out of certain ports and clearly the issue was wind. So when they came to us and said can we go to Honolulu we said we want a better way of knowing what the wind's doing at the peer you're going to. So this was an example of a public partner everybody got together easy to do actually once everybody understood what we were trying to accomplish. So worked out really well. Isn't that great picture of your tug there? This is a classic picture. Okay.

That's a tug it's by Rick Wilson who passed away a couple years ago but check out the surfer in in the very shallow water immediately adjacent to one of the harbor main ship channel and helping one of Eathan's big container ships coming in. We need to know how much water we have. And we don't care who does the survey if it's the Corps, NOAA we don't care. But we need that data right now. We don't want perfect data four, five years

from now on a chart as soon as that data is available to you pass it off to the end users, that's us.
Okay. So this is a graphic taken from the simulator in Seattle there's one in Baltimore too. As pilots we do a lot of work there and in Baltimore.
Okay. So we were doing a three-day emergency ship handling exercise and on the third day we had some extra time and just for fun this is several years ago we decided you know that building that new container terminal over there and weren't really sure how we were going to manage taking big ships in and so on a whim we asked the technician to sort like put a ship in this case the one on the right side there that's where the KCT peer is going to be, and on the left there that big tanker by the container yard that's the existing horizon yard. And just playing around on a simulator we realized oh my gosh this is going to be a challenging job. The ships that were designed to go to these yards originally were hulls you know 7, 8, the hundred feet by five feet wide at most now, the ships are much wider deeper and longer. So the problem that we're realizng now is that we have to come to this basin and spin ships around and put them alongside the peer while ever wider ships are parked on adjacent berth. That's a challenge for us. The little barge in the middle in case in the future the -- wanted to know what if we had to tow barges through what might be a bridge or a tunnel in this new channel.
And even they realized that's going to a tight fit. You've got to remember in this basin there's a lot of cross wind all the time. So what does all this mean to you guys? We wish we had a chart that showed what where the new peer is going to be and in this picture it's upper left corner that kind of long rectangle. If we had a chart that accurately depicted where the line of the peer is, today we could go to my tags in Seattle and do training of vessels moving Eathan's vessels and -- ships today in training to prepare for what's going to be a very challenging job but we can't do that until we have the chart that shows where the peer is. So I wish I had Eduardo's picture this is an older picture showing the from the air they're much further along as a matter of fact starting to lay the groundwork for the main peer itself. So the peer where we think it will be based on drawings that have been given to us doesn't quite look like what we're seeing being constructed.
So there's some fuzzy gray here that we're not really sure about and that's why I'm asking and I asked the admiral the other day I understand that the chart depicts what's there. This is a little different for us. We'd like to have what's going to be there and the sooner we could have that the better off it would be. Quickly now weather.
Took a propane tanker a couple weeks ago Kahului that's the ships -- it's blowing 40 knots Gusted to 46. That's a normal day at Kahului. Here's the fun part. Here's a video. So this is the before and after kind of the good stuff and the bad stuff. Okay. So we take this car ship it's 580 feet long and because -- that's the barge that's the propane tank right there or kind of the maneuver as seen. Nice day. [Inaudible]
Severn from the tug the entrance and I got it muted because they were using expletives to describe what is happening here but these waves are bigger than the break water. And I was offshore trying to come in and they were saying I don't think you want to [inaudible]. One thing to sit here and talk about it just tried to find something to show it to you but I'm

way past my time. So any way that's it. Thank you.
>> [Applause].
>> Sorry Eathan.
>> No, good morning and thanks for having me. Knowing I'd follow Ed I couldn't compete with that slide and video. So I'm going to go over some bullet points here. Ed very much focused on safety and of course harbors and also talk about the infrastructure but really good that Julie covered sort of the real time data that we're going to look at kind of from the vein of sustainability or you know, the topic being climate.
Climate change here. So you're all aaware of the unite nations Paris agreement and one of the milestone is reduction of emissions by 45% come 2030. And then 2050 is going to be net zero emissions. And so that's a pretty lofty pretty high standard and that's something that as international shipper we're looking at addressing and within that there's the 17 sustainability goals. So as a company Matson has come up with their environmental social and governance program ESG and within that we have very similar reduction by 2030, of our emissions, 40% and then 2050 a net zero goal. And so you know, how are we going to achieve that. And there's a lot of ways to achieve that we're exploring.
And one of them is this real time data and how can we make better decisions managng our ships. So you know, more information for those of you that want to look into Matson policies there there's a sustainability tab. So just kind of looking at what is well you know they do have a 2050 goal the governorer has recently amended for essentially you know, net zero which they're working towards with a lot of projects right now solar and battery backups and things like that how can NOAA hydrographic data delivery help us gain this. It's really the real time data the voyage planning you know just in time shipping how can we at departure as Julie was going through the route there coming out of LA how can we fine tune our speeds to be most efficient and economical. And knowing the currents knowing the weather to make that arrival on time and again the just in time shipping being you know, we have limited harbor space to physically store anything there's limited wear housing so the ship has to arrive when it is planned and when the store is expected and it just has to flow seamlessly.
And so that is a critical component for us to understand.
And that's kind of the high level view of the data that we'd be seeking you know for you guys to develop for current modelling, you know, unfortunately we don't have a Gulf Stream that runs from LA to Honolulu that would be perfect three extra knots there. We could certainly increase our fuel savings and emissions output through that. But then drilling down to the local data, you know what can we have within the Hawaiian islands to help us supported that. Something shorter and Mic can cover some of that when he goes over his slide show there but 12 to 24 hours depending on the transits and of course it's a hub spoke. So everything's mostly flowing out of Honolulu harbor into the neighboring islands. But within that it is -- it's weekly and it's constant. So it might be a slight savings but that will add up as you make 3, 4 sailings a week. So I think it's incremental but really it adds to the big picture of what you're going to be contributing you know from that fuel consumption from that emissions output and that perspective. So again, looking at NOAA

ports, that's kind of ties into the S-100 presentation but the physical real time systems and you know, they're in place in a lot of our continental U.S.
ports looks like a really good product. We don't currently have anything established here. I know there's discussion about Pearl Harbor in support of the Navy but as Ed mentioned you know, we are the support for the military the DOD. And so if there's a -- if there's a federal priority to you know, put something in Pearl Harbor to allow them to better manage their data and safely navigate, you know, that focus really needs to be mirrored equally in the commercial harbors because you know they're not going to --
you can look at current global situations occurring around the world, and you can get your troops to the fronted line surround a city but after a few weeks you're going to lose the war of logistics right. That being said real time data you know we can slow down even for the neighboring island transits we can slow down our tugs if we know that hey the harbor is closed out Ed just showed you a video of a great example you're not going to get in for probably 24 hours and having that forecast of the swells and when we might be at a safe point to make a you know, essentially cross the bar even we don't really have bars here but basically what they're doing and ports like -- we have you know, winds will just are kick up out of nowhere coming down the slope of this massive volcano and you know your tugs aren't able to get in that they're not able to shoot into the channel there even with the assist and oftentimes because we don't know that data ahead of time it's kind of a coconut wireless system. So you're basically going as fast as you can to get there you want to make your proforma and you call someone on the dock and giving you a visual observation saying hey I don't think it's going to a happen now, doing circles offshore. So those are again incremental but in the scheme of what we're trying to work towards here just sustainability and you know, continuing to be relevant and do the right thing I think those are all important. So the other portion that have obviously sustainability is very important but just the climate change impacts they kind of exam hand in hand obviously sustainability is something we're trying to mitigate and reduce but climate change impacts are here they're real and having to deal with them on a daily basis. How can the hydrographic data help support that, you know, I think just being on an island in the middle of the Pacific we see, you know, tropical storms and hurricanes whether or not they're increasing for global warming or whatever your position may be on that, they certainly are becomng more powerful and certainly are becomng having greater impacts understanding those we had a nice discussion again as Ed mentioned we had an opportunity to sit down on Monday and it was really a good time. But talking about you know how you prepare for hurricanes and again with this just in time model everything's flowing through if four days out you're saying okay we got to start closing ports what are you going to do you're sending ships out to loiter the clock starts at that point on your delay and just becomes much harder to catch up. And so it's not so much when the hurricane actually impacts because you've already started your you know you've already set the clock much earlier than that. And so the recovery becomes that much harder, you know, so I think we worked really closely with our friends at the harbor's division U.S. Coast Guard and national weather service has been great.

And we're trying to get more realistic estimates on actual impact time lines and what is a safe margin for us to continue to operate and when should we shut down in advance. And so that helps us to just be that much further ahead when we do get to reopen and not knowing what the impacts will be when the recovery does begin. So that's another one in addition to that you know we have winter lows. So these are the unnamed storms right hurricanes get a lot of publicity they have names spin around in this big colorful circle well winter lows take up the whole Pacific and never named. Pretty severe system one of the graphics showed a big low with a couple ships going around it except for a couple of crazy guys in the middle. Those are ones that we need to better understand as well. As these storms come through they generally tend to bring in winds and swells from different directions that are not you know the normal 90% of our trade wind patterns. And so the impacts from those the surge those create, these are the types of things that I think with this better data in this ports system I think it will help us to manage. And so I would propose to you folks to look at ports for the island, the islands of Hawaii and not in the you know, harbor-centric but as an island port. So you take for example some like San Francisco and it is bordered nicely you know within this bay and you do have different ports Oakland, Sacramento, you know, San Francisco, Richmond all the way up and down. And they're different municipalities, maybe different port authorities but they all sort of fall within that port of San Francisco which is from all appearances covered nicely through the port system.

And so developing something like that holistically for the state of Hawaii and you know, really treat it as sort of a I don't want to say an inland or coastal network but that's even though we're in the Pacific ocean it is very critical as you've seen through the hub spoke system and how our goods flow. Again you know just looking at how is climate impacting us? And obviously as good stewards of the environment we have our sustainability goals. This data will definitely help us get there to achieve those as well as operate safely in this changing climate with these increase in storms surges, sea level rise, flooding and coastal inundation. So I thank you for your time and I look forward to the ideas and suggestions you folks come up with.

>> [Applause].

>> All right. My name is Mick -- sister companies here in Hawaii. And appreciate the opportunity for letting us kind of err our grievances and letting you guys know you know what we are all about here.

Next slide, please. One more time, please. Okay. So we are young brothers and maritime young brothers is the public utilities commission has given us regulated monoply over interstate commerce by water in Hawaii. So anything that comes from out of state either by Matson they have the able to transport that the hub and spoke system but anything that originates in the state of Hawaii goes by young brothers.

We have 370 employees state-wide 15 non-bargaining sort of management employees, 200 IOWU long shoremen and over 120 IBU represented mariners. We have a fleet of 8 barges, 6 flat deck barges, one semi covered house barge and auto row row barge rogue stock. These barges are towed by six towing tugs. We hope to be adding a couple more in the

short-term here. We also have 3 harbor assist tugs in the neighbor island and our assist company operates three assist tugs here in Honolulu. Next slide, please. So we have a minimum of 12 weekly sailings originating in Honolulu and going out to the neighbor islands. And but generally we do more than that. Sometimes up to 16 weekly sailings. Again we are regulated by the public utilities commission, all of our rates and sailings are the 12 -- we have 12 required sailings that are agreed upon with the public utilities commission. We move freight of all kinds.

Containerized as well as [inaudible] container a farm on the big island that wants to ship a pal lot of mangos to Honolulu we'll accept that as well. We also provide essential services for first responders public safety vehicles other public utilities. We also transport to some islands where they don't have bulk oil facilities we also do move containerized fuel. We are the only source of fuel for [indiscernible] for instance.

Okay. Next slide, please. So some of our challenges. So I mentioned the island of -- on these two islands Lanai in particular only gets one sailing weekly and even that is a shared sailing with the island of -- so half a barge a week to Lanai --

gets half a barge and get a dedicate barge on another day of the week. We have harbor assist tugs available on the larger islands. We do not have harbor assist tugs on -- sort of irony because those are the I guess I don't want to say poorest parts but they are the most challenging ports to get into as far as what facilities are there. So those tugs are very reliant basically on the dock telling them what's going on there. On the other islands where we have assist tugs as Ed showed in the video can communicate with the ships before they come in over their -- with our tug captains and let them know what's going on real time what the conditions are right then and there. We don't have those options in the smaller islands. And because those islands receive such little service, they are actually the most reliant about actually getting their stuff in.

If you talk to the people that live on those islands if the barge doesn't make it in that week the shelves are going to start going bare before the next barge would arrive. So often we're doing whatever we can to make a recovery sailing fit that into our already packed schedule to make sure that those people have you know, food on the --

food in the supermarkets. And in case of Lanai fuel at the gas station. So I guess what we could really use would be live data showing us what's going on in those ports in particular the smaller ports which may be seep counter intuitive because they get the least traffic but actually the most ten you a with us as far as their situation.

So live current live wind would make us a lot more reliable on what we can predict what the problems are going to be and maybe they can better assist in whether we can or cannot try to make an entry into those ports.

And the other I guess thing we could really use is more frequent updates to the charting. We have peer 4 in Hilo which is our dedicate port our dedicated peer in that port.

It does not appear on any chart.

It's been this for four or five years already. So that would be another area where could definitely use some updating.

And that's about all I got. A lot of the other stuff was covered by the other speakers here.

Thank you.
>> [Applause].
>> Thanks very much guys. It was really informative and it also shows how reliant Hawaii is on the services that NOAA provides. I'll open it up to questions from the panel. Dave.
>> Do you supply the island of --
>> No.
>> They just live like natives with nothing from the outside is that correct.
>> We do not sail -- I would assume that they're receiving their stuff from island of Kaii which we do make two weekly sailings to.
>> Many years ago I visited --
>> We actually do. We make one annual sailing to --
[indiscernible] excuse me on the north shore of [indiscernible]
there. Where they can get some larger equipment in and out of there. Yeah once a year.
>> Amazing. Thank you.
>> That's a big event that takes a lot of planning for not just the barge going over. Think about it everybody there at [indiscernible] has to think one chance to get the stuff they need on one day that the barge can get in there. They'll load the barge and have to sit there for a few days to wait for absolutely perfect, because it's on the north shore. They have to wait for the perfect conditions to go in there and put the barge alongside and very quickly get all the stuff off and then all the garbage from that place has to go back on a barge. Here we go again only one barge a year but you could imagine the logistics involved in just that one move. And then as far as -- concerned and --
they use a landing craft. So they go to -- with the landing craft and they put stuff on there as needed and then they run the landing craft over and land it on the beach and push everything off under the sand and that's how they get their stuff. Again very weather dependant.
>> Thank you. I'm just a couple of comments captain Ed about the charts and the lack of the -- my question to the admiral or whoever want to answer it, I mean is in I plan to add this kind of detail like the captain suggested they needed for planning for navigation for example?
>> The existing level of detail that is on the traditional NOAA chart is fine. I think really more that the specific issue is how often the harbors are sur evade. And then that information being put out on either a chart or the core of engineering unsounding survey that we get our hands on or on as -- was showing the other day how it's actually starting to get onto an electronic chart a lot faster and easier. So we use PPUs little iPad that is we take on the ship with us that kind of show us what we're doing it's like a mini version of [indiscernible]. So that's actually happening and that's a good thing. But as far as the bathymetry is concerned it's really more about and here you go again it's a jurisdictional thing right. The core and the feds do like the channel and then the state does a little spot between the imaginary line and then the peer. So getting the various agencies to actually do the survey you know, put it on paper and then give it to the users that's where the challenge really is. And so the whole Hawaii state wasn't even getting dredged traditionally

every ten years mains dredgng this year or this decade our dredgng was pushed back a couple years. And then we were only getting either a pre dredgng survey by the corps or a post dredgng survey.
So like right now in our chart drawing the office I have charts in there from 2016, 2017 and then a couple from 2019. But you know that's -- so it really isn't the data that you putting out there on a piece of paper.
It's like I mentioned as soon as you get the data and you can put it out to all the users, whether it's an electronic chart on a ship or on their you know laptops on the tug's wheel house or our PUs. That's great it's not what you're doing it's how long it's taking really. Yeah.
>> I'll address that as well.
Unless Ed you wanted to comment first.
>> No I was just curious if that peer shows up on Google maps?
>> I don't know.
>> Peer 4 is there on Google maps. It's not there in the NOAA chart though.
>> Yeah I've seen that peer and it's definitely at a scale that is would be appropriate for the chart. So I don't know the specifics of why that particular peer has not made it to the chart. And I think you know we can look into that. I will say as I think many folks are aware there is often break down in communication between getting those as built drawings from the authority who have built the feature and then getting those to us and getting them onto the chart and it is -- it can be a convoluted process. And there are often -- there's opportunities for this continuity there. I don't know that that's the case here. I don't want to suggest anything because we haven't researched that but that is frequently the cause of those breakdowns.
>> If I can also sort of address Ed's comment about the Beth and the through put of the bathymetry this also ties into this greater thing that the panel has already heard about with the national source where it's all of the consolidated bathymetry from either the NOAA holdings external source data and the Army Corps holdings put into a authoritative database.
Actually being extracted. Not to undercut charting we're able to through put the data into the S-102 format much quicker than it can get on the chart. So we're looking at in a policy process is that we know that there's going to be a disconnect what's the charting sounding say versus what the bathymetry says and it just has to be no less safe. So but we have that ability that's that whole precision nav per a dime is trying to get the latest and greatest data out to the mariner for use.
>> Can I say something too please help my memory. This goes very technical. Okay. So we use PPUs. And there's their to no standard. I mean in terms of you know like for example we use a trail borg company production some guys use CIQ up in Alaska, okay but years ago the New York -- some national convention went to the guys in New York harbor started using PPUs before everybody else and kind of setup their own system and they were using a chart datum thought far more accurate than what NOAA was putting out at that time. Somebody had an accident and the Coast Guard during a Coast Guard hearing it came out

that they were using some unfamiliar to them datum on the electronic charts that were different. So the pilot was getting hung up because he wasn't using a recognized datum but to them it was a more accurate datum on their PPUs than what was readily available somewhere else. You see the conflict there? So while you guys are figuring out how to partner up together and filter all the information you're all getting to the end users, make sure it's what they can use or what the software companies are producng they can use on the equipment that they take with them. It might seem trivial but that example is you know, it goes to the message and somebody else mentioned it, you know, you guys are making all this information you're gathering all this data it's got to go somewhere to where the mariners can utilize it every single day.
>> [Inaudible].
>> No.
>> Yeah. No, I'm very anxious you know what I'm like. It's actually related to a number of discussions here. I think admiral yesterday was expressed his concern of he getting the data through to the users at the end right that's a little challenge. But if we turn that around and what you say about portable pilot units, I think the precise navigation and you know why it's a -- it's a step forward but in a way it's still a constraint that the federal -- it still has to go through that get certified go through and be used in a product then has to come back to that user, right.
But we know that [technical interruption] [inaudible] using the Corps of Engineers blueprint because he knows it's the latest information and supplements something he knows isn't on the chart. So I think how due do you enable that to -- in the newer products and I think the portable pilot we've seen in some outside the U.S. and foreign courts where they are integrated there's kind of the formal authoritative basis of the data whether it's the bathymetry but then within the port there's a group that are actually adding and editing that. We see that it's an authorized use of the data. So you take it not just doing it independently but it's kind of a combination of that national responsibility of building that infrastructure that has all the authority of data but you also give the locals the -- the local user to actually get that in there and know because you're going to use it any way if he's got a blueprint it's the same thing. How do you enable that I guess is the partly the -- again it does exactly what say it's the association with -- and I think you guys are already working on it the association with the portable pilot units the software to enable that.
It's not just NOAA providing this, it is that relationship to be able to get it through to the end users kind of together with those partnerships and portable pilot units I think. I have many other questions but --
>> I was going to say I think that's why when we started building this we were like okay, let's use internationally recognized framework standard.
>> Right.
>> Because you use [indiscernible] a Danish company but other -- U.S. country and other countries in the world are starting to produce high resolution bethymetry. I'm not going to go deep sidebar there's liability in terms of the data the authoritative source. I think that's one of the reasons why we're moving with the standards. Standards take while. And it's

now we're starting to see the light of day with putting out the high resolution and the integrated fashion. And part of our project is we work with the pilots and the software companies to ensure that the implementation is working.
>> So I mean, but the APA has technical committee that that's all they're working on with you guys and the corps and all the international IMO to get that standard to that everybody's looking at the same thing.
>> Yeah, Julianna's actually going to be presenting at the technical committee at the next APA conference. So, yeah, working on it. It takes a lot of time.
>> You're right it takes forever.
>> Yeah it does. And pilots you know you kind of goes back to the trust thing you use what you trust and usually it's what's most recent and you know there's always a safety factor that's built in you know to kind of account for how trustworthy you think the data is, but recent is really the key to that. Larry and then Anuj.
>> Yeah and actually between Lindsey and Julianna most of my questions were already answered.
This is really I think for my own clarification there's wonderful presentation about precision navigation. I think it's a great step forward. I'll trying to understand in the context of this discussion what you envision NOAA delivering.
Do you envision NOAA delivering the data that will then be picked up into a PPU? Or somebody else's -- or do you envision NOAA delivering something that I can on my iPad actually navigate on?
>> All of the above.
>> Okay.
>> It's -- we're using an international standard and so by understanding that, it's similar how ENCs yes slow to up take.
You can navigate there's lots of apps, you use ENCs on PPUs and Ectus. Same principle trying to teach people about how to implement that standard and because now we're starting to go operational with it, flow but we're getting there. I see the light at the end of the tunnel.
After working on this for a very long time.
>> And I guess a follow-up and again this is the original question I had and I think you mostly answered but if indeed you -- if NOAA is offering an end product, as part of the all of the above, and there are also possibilities going to an Ectus or going to a PPU there are standards there are standards for symbols displayed and things like that but the overall look and feel of each of those may be a quite different. And that may be why one group of pilots chooses one PPU and another group chooses another. And I'm just wondering if that's going to just be natural selection or are there real efforts to understand really at the end of the chain how this information is pro trayed in the way that is most useful for the end user.
>> Yeah, so trying to figure out my best analogy for all of this which is that we have S-100 look at it as your grocery store and every product specifications is an individual recipe. And so for your ENCs it's one recipe you go to the store and get a bunch of stuff and build your

recipe and build your product and it's like your Thanksgiving dinner and then we have another thing called 98 which is our specification and that's where you take all of your products and sort of make your sandwich you know your day after Thanksgiving sandwich and build it so it all tastes goodtogether. And how it all portrays together. And S-98 is that key thing and that's one of the big things that we worked with on the international community was when they were putting together the updates to the Ectus performance standard because PPUs have lots of freedom. They don't have to adhere to things. I would love it if they did but they don't have to. Ectus has to and one of the key things is when we argued to get S-100 and EOCs in I said in I said we have to get S-98 into the Ectus performance standard because that controls everything else. That controls your 102, that controls your S-104, controls your surveys currents and controls the visualization of how everything looks. We just put out addition one of S-98 inn RABLT -- where we shake everything out and I would go to -- I've had discussions with Andy and now you Larry, I would go these are things like in terms of research project how this visualizes and how this gets put together in a way for the mariner to process that information. I know we talk about autonomous shipping and don't need the portrayal need the portrayal for people on the shore operating the system. And you want it in a way that's harmonized. I think that's the next big thing that we're working on and have to better understand that visualization. When I adjust my water level with my data well how can you tell is that an, you know, how does the mariner know there is a two foot adjustment on that?
You know, I think there's --
they need to understand that.
>> So another example is talking about [indiscernible]
may be others but those are the two that I'm most familiar with that other pilots groups are using but to be perfectly honest this is a human nature thing when I went to Alaska and doing this training with the guys up there they all had CIQ oh this is great of course they're all using it one guy gets it and next thing you know three guys have it and four guys have it. They're looking at it accustomed to using that's what they learned to use. Until you're a real tech geek guy but go by what they've already seen because they have to use this at work it's what they're used to seeing so it's easy. It's easy that's the main thing right.
The trail borg that we picked kind of was the same one it was one of us were using it and pretty soon we're all using it because that's what we're all looking at. But the point really is the data that's being displayed should be some common standard internationally. Because that's what we're all using. And I would point to the Costco [indiscernible] example as the pilot goes onboard a foreign flagship, new officers on the bridge they're looking in Ectus with Chinese instructions but the trick was or the problem was he was looking at symbols on their Ectus that he was confused by that he -- and wasn't the data per se, it was the symbolism in the presentation.
So that's the challenge, right.
So that's why the ship hit the bridge. So this is kind of a big thing. So yeah it takes a lot of time but I think you understand why there's a lot of to weigh through there right.
>> Got rid of both sets.

>> Yeah.
>> [Laughter].
>> One set is simple.
>> [Inaudible].
>> I was going to say that's one of the things we fixed is we don't have simplified andchart symbols any more. It's just one set of symbols. So you know because of that type of thing.
>> Thank you. Julianna, great presentation actually all of you very informative. Julianna, specific for you so with all this precision navigation do you think we will have a tool where we can run a dynamic -- so just having a tool on the website where I put in my ship's details I put in my parameters and I run a simulation to see what my UKC looks like?
>> Yes. So there is a -- I didn't mention this because this product is more of an industry product but we do have a standard for it, so there's a product specification called S-129 which is under keel clearance management. I'm the chair of the working group that oversees this portfolio and when I provided direction to the project team I said we are not standardizng the algorithm to calculate UKC because some Matt brain is going to come up with a better algorithm. What we are standardizng are the different inputs required for UKC and how it looks on the screen. So yes.
And you'll be able to do that on -- and it's done in their OMC has been helping to lead the effort they're an Australian company because they've got a huge need in the straits for UKC calculation and I think they're -- yeah. So yeah.
>> Awesome. So the reason I highlight this is there's a lot of cone -- confusion in U.S. sports when Coast Guard declares certain depth for channel because you're using tankers, and the oil companies behind them they add in a two foot or three-foot safety margin. So in effect you may be losng that commercial advantage whether ships could come in deeper but because that clarity is not there. So that will be very helpful. Coming to Eathan and Mikal great presentation. Thank you. Specific question can you do -- what's your arrival does Hawaii knowing you have dedicated changes and would like to be more sustainable and why speed up and you have to anchor or run circles does Hawaii or Honolulu allow virtual arrival?
>> Sorry I didn't understand virtual arrival.
>> So virtual arrival is when you know there's a -- so you can come at full speed at a port and then you anchor over there and because you wait your turn to get in or there's a condition there which is a problem, what many of the ports around the world are doing is knowing the congestion and local conditions restrictions in way that the port advises you that hey your window is this, so when the captain knows that five days in advance, he or she can adjust their speed and optimize so that you have lower emissions and low sustainability -- better sustainability.
>> Sure.
>> So do you think that is existing today.
>> I think I better understand your question sorry. Yeah we do deal with that vessels overseas more so during COVID we saw with the backlog many layers they had to implement and roll out. In Honolulu there's really nothing established per se and again it's

because we don't have that volume of shipping. The ships are just the right size and they're designed to come in in sequence at just the right time.
And that's just to meet that flow. So that you've got for mariners here you've got the inch and a half hose on a constant boundary cooling rather than flooding the space with a two and a half inch hose. So scaled it down to the right volume and left it open and continually flowing through. I don't know if that kind of answers your question. I don't think this is a need for that to be established because we do know the proformas and know when we need them to be there so that's already built into this model it's more when you're leaving the West Coast or wherever you're leaving having the confidence in the data that you're getting and being able to maximize and utilize if there is currently available and where the winds might be and the favorable conditions so that you can set your RPMs and set your course accordingly and really with the planned route that you have knowing your arrival time just get the most economical benefits out of it.
>> You know, there's one conventioning and Eathan's right by virtue of their schedule sailings and arrivals in Mick too it's more the calendar the clock everybody's kind of you know, but one thing that you guys might be interested in and not know for example it's cruise ship season they're all coming to Hawaii after leaving Alaska.
So what ships will often do and you got to know they have like five big generators below the engine room all producng power to the propellers. So the captain and chief has to figure out I've got to get there in X number of days. So they have to figure out -- they don't need all five so they run maybe three at full speed to get to where they want to get to a certain point and they're minimizng their consumption while maximizing their speed and get maybe halfway there or maybe two days out and then they -- now, they've cut it down to two engines. So I'll tell ya those guys if there's anybody that's hyper sensitive about both their fuel and their pollution it's the cruise guys. And I'm note a big advocate of the cruise companies. I mean it's just me but you know, we go onboard and literally when we get to the dock and they throw a line out the captain turns and tells the mate okay tell him to cut it down. I mean by the minute those guys are being tracked at how much how many hours how many minutes did X number of engines run and therefore, how much fuel you were consuming and they got the cameras on the stacks all the time how much pollution were you making. So that is a big issue in our industry. And there are people that are really watching, they have to. So.
>> So that's exactly what I was leading to because I was going to recommend to Eduardo because you're expanding the port and have that plan it may be worth putting in that virtual arrival because you're going to land up in a dispute where a ship comes in at a higher speed and reaches there while you've allowed for a virtual arrival and then you're competng for pilots. That's how it's going to -- that's how it's developed over time so it's something to consider for you.
And coming back to your sustainability side we know C, the EXI is coming in force 1st of November, what do you think is -- how's your ratng how you A through CII force compliance as a plan for this -- are you planning for it, what's your future, how you looking at that?

>> Yeah, we're planning on it.
And you know, through various engineers and process procedures and obviously you know coming to participate in this was trying to get the most out of the weather element of it. And the cheapest solution being you know better routing really of course you know every company's going to have to address it differently. So.
>> Great. Thank you I'm going to open up the questions to the floor and I know that Joyce --
>> [Inaudible].
>> Oh.
>> HSRP member.
>> As an HSRP member.
>> And --
>> [Multiple speakers]
[indiscernible].
>> [Laughter].
>> Okay.
>> I'm a resident here and I've actually surveyed Honolulu harbor. And I've always had the nightmare of hurricane or tsunami doesn't matter much two aspect what happened to all those Matson containers that sit on the edge of the port and how long will it be closed? And the other one for Eduardo, what are the state plans if we also those pictures of the bridge with the very narrow restriction what are the state plans if that bridge got wiped out during a hurricane or a tsunami?
>> So I'll take that first containers falling off the apron, okay. So ahead of a storm and again we as I mentioned this is that four-day build out, of course we have that DMZ 140 and once the storm crosses that it's tracked and a whole battle rhythm and the Coast Guard kicks off these processes and meetings. And part of that for the harbor users we go through our own checklist and you know you start to drawdown on your inventory in the yard, you start to you know really get the customers rallied or excuse me the shippers rallied to come in with the truckers haul out as much as you can. And especially if there's hazmat if there's perishables, refrigerated container things like that we want to get those to the store because they're going to have the most value when the stores can reopen. So there's a lot of preparation ahead of time. And that does kind of circle back to you know what I mentioned in my discussion about just having useful information to make those decisions and hit those milestones at the right cadence and not too far in advance or not wait too late then of course that's very problematic. So I hope that answered your question.
>> Okay.
>> Just to follow through and depending on the captain of the port the inclement weather conditions we are ordered to have all ships go out to sea.
And maybe that will help some the container issue because if they come in and deliver full loads and they take all the empty containers then that will reduce the stackable containers and those locations. To answer your question about the bridge, last week we have a three-day [indiscernible] visibility study with the Corps of Engineers Coast Guard and the other players for the state, to design for sea level rise to widen the main entrance channel, to

widen what captain Enos mentioned that wide area, existing piers that's a part that have visibility study. And we rely on grants federal grants because DOT harbors it's like an enterprise agency. We live and so by --
tariff and property rental fees.
If we compete with the other ports nationwide on federal grants we are at disadvantage because of that BCA or the benefit to cost analysis. It's hard to compete with those other ports in the continental U.S.
So we lobbied with our governor and senator -- that they met with the DOT secretary and explained or ask that we be given a different ratio for computation analysis when it comes to benefit cost analysis.
So we can gain some of those plenty and there's plenty as you know. Federal grants are out there. But we need to get ourselves in a competitive position and those benefit cost analysis. So part of the bridge too part of the feasibility study.
>> So there was a FEMA conference that was probably twice the number of people here in Honolulu that attended a couple years ago before COVID and the truth is that the more vulnerable piers at Pier One it's not the -- right at pair 1 and piled up right there by the entrance where a big wave came in that's what we're worried about.
>> Well, the reason I mean all the Matson containers that contain our food are on the other sited of the bridge.
>> Right, so the bridge issue.
So here you go, the brim issue was addressed by yeah what do we do [indiscernible] okay, so this were a bunch of guys from the military seat of command and the Army and all that and the concept was they would activate vessels that could build a bridge literally like the Army does when they go to war and all that in an emergency they would block start bulldozng stuff and lay a bridge down so trucks can go back and forth obviously take several days but I asked the question where is the ship that has all this equipment, it's in Norfolk, Virginia. [Laughter]
that's why I always say to you guys we've been screaming for years and nobody listens to us.
You guys have to go back to Washington DC and convince them that they have an invested interest to helping our little state like Eduardo is saying so when we tell you this is how we fix the problem and your idea but the resources are on the east coast that's not going to help us. It's going to be several weeks before that kind of help come out here. When we asked them could you station those vessels by the pre position ships in San Francisco bay or somewhere on the west coast they're like well we'll look too it. Okay.
>> Did you have something to add?
>> I did. Thank you. So thinking back to the beginning of the conversation and really appreciate this panel and the discussion, at the beginning we talked a bit about optimization and reduction of carbon footprint and thinking about that and kind of a basin scale, we're aware that there are commercial routing services for deep draft ships. Question to the operators what do you see at the appropriate role of NOAA and the federal government what there is inherently governmental and what is the province the

appropriate province of the private sector in that -- in that area.
>> [Multiple speakers].
>> [Laughter].
>> [Multiple speakers]
[indiscernible].
>> Data making the information making the decision -- the information to make the decision with that real time data, I think, you know, there's an economical component to it but also a safety component to it.
And I mean we got to take a look at the harbor layout and a very narrow channel that could shut the whole harbor down. So there is alternate port concepts a great initiative that was put in place and it's hasn't been tested in a few years and I think they've got to renew the MOU for the alternate port but things like that, you know I know there's been studies for hub spoke and been a lot of great ideas but again they're coming from a place where like Ed mentioned underground ideas on the east coast and then they come out and look at it and it's weeks away. So I'm not sure if that kind of answers your question but I think what we're seeking I think is just the better data.
>> Yeah, I think certainly understood data you both met and ocean graphic data currents what I think I'm hearing the focus from your perspective you know where NOAA can help most is in the local area the approaches to the ports, but that at basin scale as your planning you're routing across the Pacific for instance certainly surveys current am I correct in assuming that you're relying on a commercial service to ingest that data from whatever source and provide recommendations to your masters on how to operate the vessels?
>> Yeah, that's correct. We currently do use commercial software and weather advisories. With that being said, I think, yeah drilling down on the local data and you know, again for Ed on the safety aspect of it, but I think what I've been hearing you know across the panel here and maybe from some of the members is just that collaboration and it seems like you know with a couple on the terminal project occurs and how the dredgng occurs state owning 50 feet out from the apron and the Army Corps I guess maybe there can be some better concert of that -- those processes to streamline that to get the information out in the timely manner and into those platform that is Julianna was kind of giving presentation on this morning.
>> I think too that from what we've seen you can go on a bridge of most box ships that come out of Honolulu and right there on the bridge there's a couple laptops big screen you know, in real time they're showing you whatever product either their commercial service is showing and/or on another laptop maybe what the NOAA satellite stuff is all displaying to the public. I think the difference is is that you know, every cargo carrier or the cruise lines they've hired a weather routing system because that commercial server understands what your fleet, your specific vessel is trying to do or wants to do. So they're tailoring they're rather routing to your vessel specifically whereas you guys NOAA it's a generic general, you know, here's all the data here's what the weather is doing but they're trying to figure out how to minimize damage and max myself speed and stay on schedule. It's obvious but it's interesting how here you go, if I jump on a ship in Honolulu I'm supposed to go to -- tonight

and going tomorrow morning and I know it's really bad I look at the NOAA the federal government website and I look at your forecast and I print that and walk over to captain you see they're saying it's going to be really bad. So if I'm going to tell you we're going to cancel going in tomorrow and millions of dollars are going to be lost and the tour vendors and your company and all the insurance claims and you know, so they have to -- I mean again from there point of view they have to make a basis using some standard, the standards of you guys. You know, I can go to the weather -- I can go to my commercial guy that's working for me and say well they say don't go in, you know well what did NOAA say? What did the federal government say? Me personally and I think some of the pilot do too however bad your forecast is I got to show the government said it's this bad, do you understand the difference? So the custom ability to tailor what they need is completely different than what you're offering. Big difference.
>> Yeah I'm just echoing that.
We do, you know, you do have programs optimized for your vessel based on your parameters a lot of injects that go into it types of engines, propeller pitch et cetera, but again there is that government standard and with things like you know hurricane tracking everything's going to be based off of what national weather service what your advisers are saying and so we do -- we will also use for weather avoidance a commercial provider that's -- that they have you know, a bunch of ex mariners who evaluate the product and there's algorithms but also a human eye that looks at it and provide their input and they give a recommendation but we are also going to you want ultimately look at what the government products are going to say as well in accordance with Coast Guard recommendations not just for our routing but for how we have to operate in Hawaii. And closures of ports and things like that.
>> And all of those observations that the commercial service is basng the recommendations on typically coming from the -- typically NOAA observations, NOAA satellites.
>> Exactly.
>> [Inaudible].
>> Yes.
>> Thank you. I know we're getting short on time and Ann Kinner has a question. Ann did you want to go ahead?
>> Now, I'm unmuted. I'm looking at all of this from the perspective of the fleets that I deal with and those are the 12 or 13 million American registered recreational boats, who knows what size they are. I deal with little guys all the way up to the 120-foot fancy yachts and bigger and also deal with the fleet that the last I looked at was 7 or 8,000 smaller inspected vessels under 500-gross tons. And their hardware isn't always ECDIS in scope or in capability. And I've known myself over the years I think I've used seven or 8 different brands of plotters which took varying sources of chart data and yeah some of it was NOAA but some of it was privately produced sea map, [indiscernible] media, whatever and I'm wondering and a lot of them will incorporate with some arm waiving NOAA data as well. But I'm wondering to what extent you are actually connecting with the people who are

making that hardware whether it the Garmin folks or the marine folks or whoever because those people it's a huge commercial base.
And it's certainly the majority of the people that I see day-to-day. On my own boats even. Got -- I've got two marine systems which are incredibly comlicated and interesting thought to me that I have to update my charts what's it going to take to do that what am I going to get in terms of data, is it going to be something privately done by [indiscernible] one of those, or is it going to be coming directly from whatever sources NOAA is putting out. That's a -- it's a huge commercial market and I understand that to a large extent NOAA's giving it away for free but the hardware people aren't.
>> Yeah, so thank you, Ann.
That's a really good and insightful comment because I think it -- there's a bit of a gap between you know, the big ECDIS manufacturers that are governed by IMO, the pilot that use the portable pilot units and have a lot more innovation whereas a lot of the -- either the recreational either navigate via their cell phones or iPads or use the Garmin or Navionics that's one of the big things like we do a lot of stakeholder outreach and two years ago we had a stakeholders forum to tell them what precision marine navigation was. Now, we're actually onboarding a precision program manager who could do more and more stakeholder outreach and engagement and program management because it's fallen to my head for the past two and a half years and I have a full-time job. So you know but I think the problem is it hits on that market on the head all of the dissemination data at that we're putting out through our website and our services, it's free.
>> Yeah.
>> We're not entirely sure, you know, how it goes to the So lis market is a little bit different in how they consume the data they have to have encryption on it and digital signatures whereas what we're servng out right now isn't encrypted doesn't have the signatures yet and how -- and Garmins in the world do the same thing repackage our data and then put it out and have you build by a subscription service where you update once a year but you're actually not getting the latest and greatest products a lot of times with some of those manufacturers.
>> Right.
>> You know and I think the thing is it's really about educatng the mariners saying the systems really should be able to get that data and continuously update that data as NOAA produces the data.
>> Thanks Julianna. I'll just add to that because it is an unregulated market the demand has to come from the users particularly when it comes to those hardware-based systems. The only thing I would add to that is that the ECSs electronic chart systems which are not fully [indiscernible] but they tend to be an and our experience has been that those manufacturers generally are fairly nimble and going back to the introduction of S-57 charts 20 years ago they were well ahead in implementation of S-57 well ahead of the ECDIS manufacturers so we are anticipating as Julianna said engagng with those manufacturers with those software makers to incorporate these newer S-100 product series as rapidly as we can make it available recognizng Ann that that doesn't directly answer your question

about the hardware-based chart plotters but that is a bridgng technology that's between the fully [inaudible] ECDIS and a Garmin or a you know, data marine or whatever the hardware-based system is --
>> [Multiple speakers].
>> I'll echo that our tugs are all under 500-gross tons no ECDIS requirement but we do all employ ECS you know, just off of a laptop and -- those companies I would agree are I'm sure going to be chomping at the bit to get this information and have that as a feature within you know to compete with the other possibilities that are out there on the market. So I think be excited for that.
>> Just a quick follow-up and it may be completely outside of your bandwidth for good word, but I'd send a lot of people to Canada in normal years. British Columbia and the Canadian have their own digital system. Is there any outreach to other international cartograpy groups to conform so you're all using kind of the same data formats same data capability on these plotters?
>> Yeah. So I mean that's really what the IHO the international hydrographic organization is built for is to create the standardizations. I will say with the paper chart world not the most standardized.
There is a standard but there is little differences. In the electronic world we're pretty much all standardized because you can't get away with being different on that because of the way it's implemented on the system side. And so Canada is a human participate on the S-100 working group and the development of the different product specifications. They've actually have led the charge on S-102 development, I think they were a little ahead of us, although we're ahead of them on the metadata and data discovery but partnered with them on surveys currents also actually we've shared the code base for both the S-102 development.
This so there is a lot of international engagement on this so, yeah.
>> Welcome back input here but I'll just had that we have the U.S. Canada hydrographic commission and specifically in the trans boundary water there's active efforts going onto harmonize these 1-100 products to ensure that there's seamless coverage whether that's charts S-1 charts or other products in the waters between Utes and Canada specifically.
>> Julie, I think Julie had a question.
>> Do you want to -- answer there.
>> [Multiple speakers].
>> Yeah.
.
>> Let's reconvene after the break here. We're jumping into the public comment. Did you want to --
>> All right. So we're going to go ahead and start with public comments. If you could take your seat, please. Need the whistle behind the -- all right. Admiral Evans is going to -- we have two public comments, I believe. And he's going to go ahead and read them for us.
>> Thanks, Julie. And I willwill -- when do you want me to read them or do you want to read them in?

>> Whatever you want.
>> I've got them right here so I'll go ahead and start reading.
So yes, we have I believe actually three actually quite a few public comments. And I'll start at the -- start at the top. First from captain Jason -- the New Orleans and Baton Rouge steam ship the pilot he writes we have several missing facilites docks and buoy systems that are not currently depicted in the most recent chart releases. These were reported as missing on January 4th of year when will the facilites be placed on the respective charts and why did the collision between a ship and oil platform and subsequent investigation I would expect that these types of requests would receive priority from the chart division going forward.
What quality control and other chart feature verification protocols are currently in place to avoid another incident like this? Second comment also from captain -- we need NOAA and Army Corps agree on a common datum.
Once reached we can utilize the data that was collected during the data Evans survey four years ago. We have precision clearance for all bridges and high line crossings throughout the entire survey area it has been sitting there collecting virtual dust. Ship pilots and other mariners are currently using decades old data to determine air gaps and clearances of ocean going ships as well as crane barges. As we all know ships are getting bigger and clearances -- [reading] [indiscernible] ocean going ships and sometimes with sometimes six inches of clearance just a few short years ago the sunshine bridge was struck by a crane barge the navigation system that was used has a chart that overstated the height of the bridge by about 4 feet the NTSB has already recommended -- when can we expect an agreement to be made and third comment we have a critical need for more ports data and sensors we currently only have 2 leaves four bridges without that additional layer of protection. Our two currently meters are not working and need to be moved to better locations that can be accurately -- that can accurately depict the extreme currents we are facng here during the frequent high water events. We current have only one ports river gage sensor. U.S. Coast Guard vessel traffic service and ships 240 pipes of the lower Mississippi river are relying on this one port sensor. Moving on Lynn can you take over at this point. I think I'm going to start coughing again.
>> [Inaudible].
>> Thank you.
>> From Rapheal Fernandez does NOAA have navigation response teams on the mainland for surveys or are you working directly with the port response teams to share information prior to U.S. Coast Guard captain of the port allowing shipping to commence? Some from Robert sharer nobody seems to be aware that there already is a navigation program and provides the following capabilities namely aqua map that runs on apple and android products Army Corps surveys are loaded from e hydro and displayed as a color coated overlay to point one feet. They're update weekly.
From the E hydro database and gives an example in color. And let go down. The entire e hydro database is load need aqua map including Hawaii. [Reading]
base NOAA chart is update four times a year but a bottoms up update so nothing is

missed.
Weather wind waves and currents including estuary currents such as Delaware bay et cetera are overlaid on the chart within a 40-hour prediction slider all data sources are from NOAA. The latest is the model HRR I've attached more detail on the weather data in the app all this is difficult to implement which is why no one else is provided Army Corps surveys to the recreational boater although many people at Army Corps now routinely access aqua map since it displays data better than their own instruments. And those are the comments. Do we have comments in the room? And we'd welcome them. And please don't be shy and if you want to make a comment at any time you're welcome or to give it to us in writing.
>> So Sean Duffy Big River Coalition I would like to briefly respond to the comments from captain Ludett who I of course novel -- know very well.
And there are some things ongoing with our port system.
One of the challenges we're running into right now as we have approval for a third air gap sensor on the northern most bridge in Baton Rouge, the in between inflation and traffic management to shut a lane down on a bridge the costs are more than we have prepared for or budgeted. I think this is one of the things that's going to be seen throughout with inflation hanging where it is. The coordination and I'll -- I would have loved to have been able to ask this question but my remembering of precision navigation was that the Long Beach was the first and then it was New York, New Jersey and then come into the Mississippi River. My assumptions and discussions have been I know that we have a new project manager and I know that both captain Ludett and myself and others on the Mississippi River have coordinated closely with NOAA and staff and I would hope that not only the issues listed there there's some newly expanded anchor rages that are also not listed in ENCs but that we could work to come back to the Mississippi River and really focus on all these products and try to help answer some of those questions, fix some of the problems. The datum alignment is a big deal there's a big difference at Venice between NOAA's interpretation and the Corps of Engineers that will have a huge impact on moving things forward but I'd like to just say that I know -- I believe that NOAA's response and coming back to these questions and focussing more on Mississippi River which we have some real challenges I don't want to go into any more detail but hopefully we can help coordinate that and work to on some of the fixes that really do need to be made, and trying to -- we're trying to move, we have two current meters that are going offline one of them I believe is offline already. The second was supposed to. And we're just placed in areas where they were easy to place because they were on a dock but they weren't in places that were representative of the channel for ship traffic what the current was. Our belief is that the best place for those current meters to be would be on bridge piers which of course raises up the cost. This gets back again to the O and M funding of ports and the requests for full funding federal funding to pick up the program, but at this time we're limited on the third bridge sensor and we may not have the money to even do it based on the current scheme. I will say I spoke to Chris Deviglio port program manager last week and that we -- the navigation industry was going to reach out to the Louisiana Department

of Transportation and development to try and work on some of the costs and see if we could help bring some that have down. But traffic management shutting down on a bridge that type of complications of installation is of course, going to really push the need to communicate and solve some of those problems. Thank you.
>> Yeah and this is Rich --
just to update a little bit on that. So last year we did modify the agreement between us and the pilots to remove the two current meters and the Baton Rouge air gap. You know, Sean talked about the funding challenges with that with increased pricing. One of the current meters has already been moved at portal less than and the other one at 1st street and wharf is going to be removed I believe in November. They never provided the data -- we had some mixed feedback in terms of how representative they are or not.
So it took some time to consensus on not really meeting the need to let's take them out and use that equipment elsewhere but then it kind of comes back to the funding issue that Sean has talked about.
>> Okay. All right. So Sean the lower Mississippi River is still one of our three priority areas. The reason why we did LA Long Beach for the high resolution bathymetry and New York New Jersey because those are two of our other three main priority port complexes that we've been focussing on. There is other dependences so it's not simple as turning out the high resolution bathymetry that was acquired by NOAA into an S-102 product because it also has to be loaded into the national source and become operational and regularly maintained in the national source for that region and the hydrographic surveys division is working on operationalizing that. And then there's the datum issues that also have been to be resolved. We have it on our project plan that we'll have our resources freed up to start focussing in in on how to produce that S-102 product for lower Mississippi River starting, I believe our resources are freed up in January. If I'm looking at commander Hilstrom. So yeah.
>> [Inaudible].
>> Yeah.
>> [Inaudible].
>> Yeah.
>> [Inaudible].
>> Yeah.
>> [Inaudible].
>> Yeah, it's too weedy but we have -- we are still a hundred percent committed because the lower Mississippi River based on our top 30 ports that complex lower Mississippi River represents probably seven of the top 15 ports in that entire complex going from Baton Rouge all the way out. So it's a really important maritime economic area. And so yes, we're continue to be committed to that it's just we have to load it into the NTSB operational because the key thing is we want to be able to as we get new data in continuously update that data and not have it stale because we want to do an operational prototype. As to all the other charting issues, when we go back to the office we'll have a discussion with the marine chart division to figure out what is the prioritization of what needs to be applied.

Because there's a lot of stuff and what is the most important thing that needs to be applied to the product for use by the stakeholders. You know, primarily dangerous in navigation is always the first to be applied things like shoreline infrastructure, right now we're chasng down to make sure we've received the as built permits for that. It's not like we can go to Google earth and you know, copy it from Google earth and apply it to the chart we actually have to get the as built permits from the Army Corps of engineers and get that into our data and source application pipeline. So we'll continue to work with captain Ludett and yourself to figure out what is the prioritization of what needs to be applied and also our local navigation manager and then I'll turn it over to Admiral Evans who can talk about that sort of bigger datum issue where we're trying to coordinate.
>> Thanks, Julianna. Just on the datum issue, I think it's important to share that so through the trident which is our partnership in our form with Army Corps and Coast Guard on navigation issues at our recent this summer we have an annual flag level meeting of the principals and at that meeting we raised the issue -- re-raised really the level of the issue of datum specifically on the lower Mississippi River but also elsewhere other place where we have datum harmonization issues with Army Corps and other authorities and General Graham was very receptive to that. So that's been officially accepted onto the trident work plan for this year. So we're expecting that that will get significantly more traction now than it has in the past.
>> May I add to that as well?
So as a follow into that, we actually met and GS meet with the Army Corps Tony Niles who's lead of navigation with his team and very receptive if y'all go back to the presentation from --
last time about the harmonization how we can use that datum to unify all systems and all reference datums throughout the country and be able to see from Mississippi to Honolulu with the same reference system. We have a follow-up there's a working group that's following up that's meeting Monday this coming Monday that we'll be a part of it when we presented to them that they could unify and get away from all these backyard datums as we're calling them and get to a unified system they all kind of -- lights went on and very receptive to that going down the road. But again I think it's an opportunity to raise the issue because we heard it again today from the last panel that you know, that may be a topic of white paper. Maybe
Dr. [Inaudible] could see this through before he leaves. But the opportunity with the new datum really it will be hard but the opportunity will be a unified reference system unified with the positioning system unified with charts, unifed with autonomy in order to make that happen. So we are working on it.
>> Thanks, Mike. Any other comments on the comments before we move on? Anything else online or anything? Okay. All right. Well then with that we'll close out this public comment phase and I'll turn it back to Julie.
>> Great. Thank you very much.
Admiral and everyone for your comments. And you know, we do have half an hour now now, we have like more 15 minutes, 20 minutes where we can have an internal discussion.

And you know, I think that the two things I'm going to start out are internal discussion I think the two things that I've heard that I want to make sure if the Pam -- panels agrees is one this unification promotng or advocatng for continued work on the unification of datums because that has been something that we've seen on the river with the presentation last time, I believe it was was it you Ann that did that presentation on the -- river. I think it was one of the pilots talked about the three different datums that you had to go through on the --
river. And I think that that comes up quite often. And then the other thing is to advocate for the sustainability of the corps program within NOAA because if you know, through the inflation reduction act if funding is going towards new programs expanded programs, it's really important we keep our core -- the NOAA's core programs going too. So those are just two items that I -- I have many others that we could put in the recommendations but I wanted to just highlight those two that I've been thinking about.
And the last thing I want to say before I turn it over to you for our discussion is Nicole, thank you very much for sending out the revision paper. I don't think people have really had time to read it yet. So if you get a chance tonight when we get home from our lovely afternoon and evening, or tomorrow before breakfast or whenever let's try to at least glance at it so that tomorrow afternoon we can discuss it in the public forum.
And just keep that in mind because if we're going to submit it as an issue paper with the administrator letter then we want to make sure that we have some agreement within the public forum even if it's to provide further edits at least it's good to keep it in the public forum.
>> And it also about 7 sentences too long. So I would love it if one of your suggestions was deletng things.
>> Right.
>>I know we love to add.
>> I did see that and I thought oh my God I don't have time to read this right now and think about that. But yes, it has gone over and you took the picture out. So it's actually a little bit longer that. We'll have to delete some more, but I'm getting good at deletng now. A bunch of things.
[Laughter] I haven't really ingested it either what you've written. So let's discuss that tomorrow.
Okay so I think Lynn should we target 20 more minutes of discussion? Does that sound about right and break at 10 to?
Okay 15 minutes because what we want to do is run up to our rooms so that we can put our laptops in our rooms change shoes, clothes, whatever anybody wants to do and then meet back down at the bus. So let's have 15 minutes of wrap up discussion. Why don't I go around the room here Regina you don't have to throw everybody's picture up. We're just going to have a very informal discussion here. And Mike, I'm just going to start with you and feel free to chime in any comments today and keep the letter to the administrator in mind too. Go ahead.
>> Nothing more to add. I made the point about the datum that was really what I wanted

to do.
Thank you.
>> Okay that was a great comment.
>> Thank you, Julie was very nice, very informative panel definitely. My only comment is I think we see their suffering right I mean the pilot need to push his ship in the -- or in the port or something. And we don't really want them hang in that reality of data update for example, with our Corps of Engineers or NOAA or somebody else. They need a solution. So but also we likening it to the standards which is great to have the standard but they have -- they have issue today. They can't wait until we finalize the -- is great and I'm a big advocate of specification and sender. But we need to work with them. With their technology provider and that's what we need with this app for the -- for what they use on their tablets because and I always bring the example of NGS and Julianna what they did with geo summit and workshop they used to bring us every week every year -- sorry -- their software developer or whoever doing things company and they give us everything you want.
You will have access to IPs of things just to make it easier on the end user who using NGS data.
And that's what I mean my invitation to Julianna to follow that example because like I said, we can wait 2, 3 years for the sender but those people they need to use something useful, right. So we need to give them intermediate solution. That's all of my comments to Julianna.
Thank you.
>> Great. Andy, go ahead.
>> Yes, thank you. I just would like to thank Ann and Julia for the great session and I was just taking notes as fast as I could here during the presentations today and really a lot to absorb. And I think I'll need a little more time to absorb.
>> That's fine. We're all in that mode right now, I think.
Okay. Nathan.
>> Yeah, sure. I really enjoyed that session that was great. A couple things that I heard out of it were datums and increased real time coastal monitoring. I'd echo what your comments earlier about datum unification being a priority in the letter and I know with the B datum program that NOS has going Alaska and Hawaii I believe are two regions that don't currently have coverage through that program. And then I think my only other -- well I enjoyed it was I forget who made the comment but it was about the cost benefit analysis trying to pursue federal grants for the harbors here in Hawaii and they can't compete with the larger harbors, that's definitely hits home you know with a Alaska we deal with the same challenges.
>> Right. And that ties in a little bit with the ports discussion about you go with economics or safety or -- and underserved up like where do you put your federal dollars, and I think that's a big challenge.
Nicole.
>> Yeah. I agree. Thanks. So the question that kept coming to my mind during that excellent session thanks, Ann and Julia for that was probably one that I will show my

naivety in dealing with now, just learning but was the what and to be kind of a need for a national gap analysis of kind of where you know we have all the weather data that it's going in there you have multiple layers of weather data going in but then you have what appeared to be kind of limited inputs on the other hydrographic information like water level bathymetries, surveys currents.
So I know this is a lot and probably requires a lot of coordination across all of the different departments but you know where are we in terms of where do we have sufficient data where do we need it, is there any kind of like overarching person or entity or department looking at that gap. And I'm sorry if that's a very --
>> That's already.
>> Question, I think it is.
And my second comment is related to our trip this afternoon. So really excited about visiting the fish pond. And just wanted to mention that one of the prototype water level sensors or actually a couple of them are installed at this fish pond. So we'll get to see those I think as we go out there. And it's going to be a great afternoon because the all of the topics supply chain and Indigenous Peoples will kind of all come together out there with sort of that like hydrographic data collections. So look forward to that, thanks.
>> You know, regarding the gap analysis let's call it I know through -- oh my gosh it was like every year we were doing a gap analysis, and it was coming out of our heads but Rich from your perspective do you have a good handle? Is I mean were you surprised by any of the comments that they -- I know that's what I thought. I think you're pretty familiar with the ports, and I know that within NOAA they've done lots of gap analysis for one way or the other.
>> Well actually that's kind of the point of the ports assessment we're going to be contracting.
>> Right.
>> Is what is the end point, when have we fully built that system.
>> Okay.
>> We don't really know what that is. Now, for we did a gap analysis and know we have 210 stations.
>> Right.
>> But that's constrained providing a vertical reference framework for the nation datums, you know and sea level rise.
>> Um-hum.
>> It doesn't take into account tsunami or habitat restoration or all the other application who drive a much different answer.
We had to really constrain to the statutory requirement for the [inaudible] and there are other gaps analysis of course now, there's no one overchargng one you know but and you always try to take a quantitative approach but also can get pulled over into almost a qualitative assessment as well. So --
>> All right. Larry.
>> I thought it was really helpful session for me. I think from the same perspective as Andy

because we live in the research community to hear the needs so well articulated. I think it's something we constantly have to do wherever we go. Sometimes they're the same but sometimes unique ones.
I appreciate you guys went the day before to talk to the folks so they came here quite prepared and those needs to all of us.
And I guess I was very very encouraged to hear where we've come with precision navigation and I think I kind of have this feeling we're on the cusp of actually needing a lot of --
meeting a lot of those needs but not quite there. It's a big --
it's a big step. But I think we also -- I noted this comment from somebody about software package I hadn't heard of aqua map and I think we hear lots of that kind of stuff. And I think we can't ignore that. And we have to really understand what's going on outside there and in terms of better justifying the NOAA efforts, understand that fundamentally NOAA is providing the data behind almost all of these third party tools but where the differences lie and why something like precision navigation may take things a quantum step closer to what the user really needs then products like this. So I think we just can't ignore that kind of thing.
>> Okay great. Linsey I just realized we have been B five minutes left so that's one minute per person for all of you that are left but we will capture your thoughts tomorrow.
So if you can't get out what you want to say we'll get it in tomorrow.
>> Trying to be really quick I was really impressed actually I think standards in the work that's being done that Julianna presented is it's sort of hidden and we don't see it.
>> Thanks.
>> But that's the foundation of what we need to build on. I was also interested the comment that the admiral made about you know that question about what should the government be doing and how do we work with industry? I think that's a really -- that's goes across the whole use of services and I did have one caution about -- and I'd address to Rich but I'd like to say that here as well is like it seems like the prioritization maybe this is my naivety too seem to be prioritized and how do we deal with currently the people all the organizations that have money and albeit get the port systems but out here we're kind of how do you address that across the remote areas and the equity, and the impact here will be much greater if there was a problem. That was just a general problem and how it integrates with those numbers.
Thank you.
>> Yeah, that's a big challenge. Ann.
>> Hi. With the precision navigation I'm just so impressed and the expediential progress that's being made on that. I think that the state of Hawaii would really benefit from a state-wide port system that's integrated to include all the islands and agree with the other comments on equitable analysis of you know, where systems should be deployed and perhaps not just based on you know, the ability to pay.
>> All right. Dave. Thank you, Ann.
>> In the interest of time I'll pass it until tomorrow.

>> Okay.
>> And I'll get my comments in.
>> Great.
>> Thank you great presentation from Julianna precision navigation amazing stuff. I thought regarding the port administration the arrival needs to be explored that's an opportunity other ports have done it. That's it for today.
Thank you.
>> All right. Rich.
>> Yeah, thanks. One thing I'll say is I think I could speak for all the government people here public services [inaudible] satisfaction from providing services and seeing the benefits you know from commercial to recreational across the whole American public and I personally get a little depressed for the ports program and I can't really help.
>> Right.
>> These people because of the cost share.
>> You can't --
>> [Multiple speakers].
>> So any way I'll just stop there.
>> Okay. Alex.
>> I just want to say Hawaii is not alone.
>> I know.
>> [Laughter].
>> See we're going to see the you same thing down in Puerto Rico.
>> We have the same circumstances same logistical problems from day-to-day, exportation and recovery like is happening right now. Similar problems with other smaller ports which are even difficult than big ports. And also on the PPU part I've been doing some research on that, and really the pilot have their hands tied to the manufacturer whatever they sell is whatever you get. So some are more complex some are less complex. So it really depends on the budget.
>> Right.
>> They could be very unexpensive to very expensive, but it's really tied up to what the manufacturer says.
>> Okay.
>> Thanks.
>> Thank you. Sean.
>> Sean Duffy I'll be very quick and just say that I'm still struck by a comment that was made by one of the government agencies yesterday and it talked about their -- how that agency was known for the quality of their information.
And I see a place in our world where having standard barriers and working together to get things right and having integrity of data we get more and more data it takes a lot of minds to kind of incorporate that properly in the real world and the navigation world. And I hope to be able to help on that end as we move forward. But quality control and leaning forward are two things that I'm left with. Thank you.

>> Great, thank you, Sean.
We're going to go to the people on the phone right now.
Julianna, are you still there, do you want to make a comment?
It just a who? Oh just Ann. So Gary is not on. Okay. All right. Ann.
>> Just I'm still in that mode of getting all of this stuff out to that smaller fleet, and I think I made my points earlier but I definitely would like to keep that on everybody's radar.
>> Thank you. Gary. Did you want to say a comment?
>> Yes. I'm sorry I was in a bad zone. Just a quick comment.
I think for me and I've been to we've heard the issue about datums and I think that should be a very key component of the letter we send out. And structured with NSI [technical interruption] [inaudible] that's the key to this. So great session today a lot of information but we just need to do what we can to help standardize datums.
>> Great. Thank you, Gary.
Appreciate your comment. Ben.
>> Thanks, Julie. This an outstanding session absolutely surpassed my expectations. I have some more technical thoughts which maybe I'll share in the morning reflect on those but really just wanted to thank captain MCIntyre. Thank you.
>> And I would ditto Ben's comments and I'm going to turn it over to Lynn. So let's go ahead and adjourn our meeting for today, okay, officially.
And we will look forward to this afternoon. Ben.
>> Yep for the HSRP members and the staff would you please --
yeah as quick as you can and meet us outside. You're going to walk outside you're going to see a bus you're going to cross the little street you're going to pass a bush turn left two stairs down get on the bus check in with Gayle with your names so we get you back tonight as well.
Yeah. Bye.
.