

Online NOAA Custom Chart Application
May 20, 2021

Julia Powell: Hello, everyone. I'd like to welcome you to our third webinar in a series of webinars, on the future of NOAA charts. This webinar is on the online NOAA Custom Chart application, and it's being presented by Christie Ence who's the chief of Marine Chart Division's Chart Standards Group, and as the project manager for the NOAA custom chart application development, and also by Colby Harmon, who's one of our lead cartographers and as a project manager on the Marine Chart Division staff. Next slide please. So a couple things to note, I think, as you heard, this webinar is being recorded, and you know, we in about a month, copies of the presentation slides, the video recording, and a transcript will be posted on the Coast Survey website. The presentation and demo will take about 50 minutes. And please enter your questions into the webinar questions box at any time during the session, after the webinar, after the presentation, we'll try and answer all the questions that have been entered and anything that we don't have time for, we'll follow up when the materials for the webinar are posted. And also note, we have two hours scheduled for this webinar because we recognize that there is a lot of information. So about the first 50 minutes is, presentation. And then we have up until about three o'clock, scheduled for questions and answers. Thank you very much. And I'd like to turn it over to Colby.

Colby Harmon: Thank you, Julia. So next slide. So today we'll provide you with some background on the development of the NOAA custom chart application and some related programs I'll present some chart fundamentals Christie will then show you the various NOAA custom charts settings, and demonstrate how to make a chart with the application. Then I'll review some of the components of the NOAA custom chart output. And as Julia said, we'll answer questions at the end. Next. So the NOAA custom chart application as part of a larger future of NOAA charts initiative, the note in November, 2019, NOAA announced that it would sunset its traditional paper and related raster chart products by January, 2025. This is enabling NOAA to devote a considerable resource resources to improving its premiere nautical chart product, the electronic navigational chart, or ENC, although traditional print on demand or POD paper charts full-size and booklet chart PDFs and raster navigational charts or RN C's will no longer be produced.

Colby Harmon: The NOAA custom chart tool will provide a way to create a paper charts directly from ENC data, okay, related or raster chart services such as the RNC tile service. And the RNC viewer will be shut down on October 1st, 2021. And the seamless RNC services will shut down on January 1st, 2022. Next please. Rescheming the ENC product suite will replace the current hodgepodge of a thousand irregularly shaped ENC charts cells compiled and over a hundred different scales with a regular rectangle rectangular grid of ENCs, compiled and only 11 scales. Usually at a larger scale older ENC data that is being replaced sometimes had abrupt changes and scale up contour intervals and sounding density. Since NOAA custom charts are created directly from the latest ENC data, rescheming ENCs will provide a seamless uniform chart coverage. They will make better custom charts as well as providing better data for electronic chart displays and other navigational systems. Shown here are the hundred and seven newly rescheduled ENC cells in Lake Superior.

Colby Harmon: These gridded one to 80 and one 40,000 scale ENC cells replace the mostly one to 120,000 scale ENC coverage and paper chart coverage, which they were, from which the

ENC cells where first they digitized decades ago. Next. ENC data is organized into usage bands. It's correspond to the intended usage uses common to traditional paper nautical charts that is overview, general, coastal, approach, harbor and berthing. Smaller scale charts and ENCs show less detail over a greater area, such as this image of Cape Cod while larger scale charts and ENCs show more detail over a smaller area, such as the bottom image of Provincetown at the tip of the Cape. Generally you should select the all data sets for the intended uses settings. Within the custom chart application, the application will select the most appropriate ENC data to use for the scale chart that you are making size. Paper size also affects the size of the area that a chart can cover.

Colby Harmon: The NOAA custom chart tool provides a variety of paper sizes to choose from. These include the North American or ANSI standard sizes, such as eight and a half by 11 letter size up to the ANSI E or 34 by 44 inch sheets. The international or ISO sizes from A0 down to A4 are also available. Each paper size uses a different template to position the elements of chart marginalia within the available space. A few sizes that will be added soon include legal eight and a half by 14 and ledger or tabloid 11 by 17 paper. Next, the NOAA custom chart application also enables users to customize their chart based on their vessel's draft. As you know, the draft is the depth to which a deepest part of a ship extends into the water. Prudent mariners always add an additional safety factor to the draft in determining which areas shown on the chart are safe to navigate over. This draft plus the safety factor value can be entered as the safety setting in a NOAA custom chart tool. The application will then select the depth contour and the available ENC data that matches the safety setting depths, or if the next deeper or the next deeper contour if no exact matches available. This becomes a safety contour for which in the chart, and it is depicted with an extra thick line the next side. You'll see how that looks on a chart.

Colby Harmon: Christie will show you how this works more completely in a demonstration, but we're talking, taking a moment here to explain some of the details of the depths zones. Here are safety setting of six meters has been entered in the depth control tab of the display settings control panel. You can see that the application has found a matching six meter depth contour in the ENC data, and it displays it with an extra thick line used to portray the safety contour. Users also control the display of a blue tint that's placed over areas of shallow water here. The user is entering a shallow value of four meters and a deep value of 10 meters. In this case, there is a depth contour. In this case, there are depth contours in the available ENC data that exactly matched the values. If there were wasn't the application, when select the next deeper contour to use for the tinting areas, if the four color depth shade option is selected a dark blue tint area from the shallow water setting to the shoreline to successively lighter shades of blue tint area between the shallow water setting and the safety contour, and between the safety contour and the deep water setting. Water beyond the deep water setting is white.

Colby Harmon: If the tow shade option is selected as shown in the bottom areas shallower than the safety contour or tinted blue and all others are white next, please, several resources are available to help you get the most out of the NOAA custom chart application. Click on the help document documentation icon to find the two page Quickstart guide, a more detailed 14 page user guide, a video tutorial, and a hundred page guide of NOAA's symbology called U.S. Chart 1. Next slide please.

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Colby Harmon: Early versions of the NOAA custom chart application output charts, exclusively with this symbology on electronic chart display and information systems or ECDIS navigation systems. This is shown in the right column of Chart 1. Each new version of the application is migrated closer and closer to the more familiar symbology used on traditional paper NOAA charts as shown in the center column. This particular page shows the differences between the NOAA boundary symbols and symbolized boundaries and ECDIS symbology next, please. So now Christie will show you the various NOAA custom charts settings, and demonstrate how to make a chart of Yaquina Bay, Oregon.

Christie Ence: Thanks, Colby. Hold on, let me make sure that we have what we need here. Okay. So, Colby, before I begin, can you see the, Office of Coast Survey website?

Colby Harmon: I can.

Christie Ence: Okay, perfect. That's exactly what I want. Okay. So good afternoon, everyone. And thanks Colby for covering some of the basic concepts behind creating custom chart products. In this segment, I am going to do a demonstration on the NOAA custom chart application, how to navigate the app, talk about the display settings and what they do and create a custom chart. Further on in the presentation. I will discuss future improvements that you can expect to see. To start off. I'll navigate to the the NOAA Office of Coast Survey website. The address is nauticalcharts.noaa.gov. Under the Products and Services column, which is the second column, you can go to the General Use Charts column.

Christie Ence: Products listed in this column are intended for general use, but do not meet US Coast Guard carriage requirements. The link to the NOAA customer chart application is the first on the list. Yes, the NOAA customer chart tool is a web map application powered by the ESRI maritime chart service. It allows anyone to generate a custom paper nautical chart derived from NOAA ENC data. Originally the NOAA customer chart used electronic charts symbology, or S-52, but we are slowly updating the application to use NOAA symbols. As Colby mentioned, in addition to symbols, we will also eventually address text labels earlier the spring release, we released version 1.0 and see the version number in the upper right-hand corner. This means the tool is capable of producing a chart with components of a traditional paper, nautical chart. This includes data, quality diagrams and chart notes.

Christie Ence: And Colby will talk more about the, the customer chart components after my demonstration. Initially at the, and the application windows starts centered on the contiguous United States, users can zoom in and out using the mouse wheel. I want to demonstrate that, or, or they can choose to use the plus minus buttons in the upper left-hand corner, so that that's located here. So I'll show you this, this will zoom in at a fixed rate. That's programmed into the application. So I'm going to zoom in real quick here. The next navigation button is the default extent button. This is located under the plus and minus buttons in the upper left hand corner. This icon is indicated with a home

symbol and when you click it, you can go to the, the home extent of the application. To pan, you can use either the left or the right mouse buttons to click and drag the map around on the screen. And finally, there is a button called my location, and if a user has location services enabled on their device, they can use this, my location button to zoom to their location on the map. However, I cannot demonstrate this because I do not have location services enabled on my computer. Okay.

Christie Ence: But if I need to navigate to a specific place, I can use the search bar to type in an address or a location name. I'm going to go ahead and do that since we were making a custom chart of Yaquina Bay, scoot my keyboard here, type in Yaquina Bay and the search box and the, the search box will give a series of options to click on. So I am going to navigate to the Yaquina bay lighthouse. So once I click on that, it zooms the map zooms to the location that I've selected.

Christie Ence: In addition, a pin and a popup will pop up that will show all information included in the location. Once I've, once I've determined the location for my map, I, you can close the clear search and the pin and the pop up will, will disappear. And the final button in the upper left-hand corner is the identify tool. This tool, when activated allows the user to query the underlying S-57 electronic chart data, this can be used for understanding the charted area better. For example, in the entrance to Yaquina bay, there is a large restricted area. Let me pan to that area.

Christie Ence: This area is indicated by a magenta T dash line with a no- entry pattern, every four ticks, it's this area right here, if you can follow my mouse cursor. But what is this? I'll use the identify tool to, to get more information about the feature. So you click up the, the indentify tool looks like a, an I button for information, and I'm going to click on an area. So to view all of the identify results, you can click the next button and the pop up header looks like a play button, and you can see there are multiple feature selected, in the one pick that I've clicked. So you can scroll through. And as you are stepping through your selections, you will see that the selected features are highlighted in a light blue color.

Christie Ence: But right now I'm interested in this, this restricted area. So looking at the information it's telling me that there is a regulated navigation area and it refers to Code of Federal Regulations or CFR reference title 33 part 165.1325. Now, if I read the CFR section listed, it tells me that the regulations for it tells you the regulations for the area in this case, it is, it is allowed to the allow the Captain of the Port to regulate passage across the bar and to Yaquina bay. And this is for safety reasons for response to weather and sea conditions. This information is also available in the companion US chart, US Coast Pilot for the region. So I recommend using the Coast Pilot and any other relevant navigational publications in conjunction with a NOAA custom chart product in future, in a future enhancements of the tool, the information about regulations, well, such as this will be provided as a, as a feature label or a chart note, depending on the situation when done using the identify tool, close the pop-up window and deactivate the tool by clicking the icon again. So you can see that when it's deactivated, it's no longer highlighted moving on the lower left-hand corner of the window shows the running coordinates, which this display allows you to see coordinates of the mouse cursor in three different formats.

Christie Ence: And as you can see, it defaults to degrees, minutes and seconds. However, users have the option to select either decimal degrees or degrees decimal minutes. Note, this only affects the readout on the screen. This does not affect the format, the format on any of any coordinates shown on the app. Okay. Now let me show you the, the menu bar. This by default, the menu bars collapse to the left hand side of the window to expand, you can click on an icon, or you can click on the expand button at the bottom of the screen. Okay.

Christie Ence: Alternatively, you can, you can click the collapse button if you wish to collapse the menu bar. The first icon in the menu bar opens the help documentation tab here. You will find the helpful links that Colby mentioned earlier in the presentation, including the quick-start guide user guide, a short video and US Chart. No. 1. Okay. The second icon is the display settings tab, and there are two tabs under the display settings. There's the depth contours and the miscellaneous tabs. I'm going to start with the depth contours tab today. And what, what this tab does is what Colby showed you earlier is it allows you to adjust the depth zone shade extents. The NOAA custom chart defaults to a four color scheme with a shallow water tint as the darkest blue. So that's the shallow water along the shoreline. The deep water is indicated as white and that's offshore here to the, to the left of the screen. Depth zone shades indicating the safety contour or shown as medium tones of blue.

Christie Ence: So those are the medium. This darker line here is indicating the safety contour. This is the default, which is currently 10 meters right now. The tool only allows users to enter depth zone values in meters. And this is because the tool is based on the ECDIS display. And they've been the primary unit use just meters. We will be doing research on how to develop the setting to be user defined. So foot and fathoms can also be used. It is also important to know that if a charted area does not have the exact depth value entered into the shallow safety deep settings, the next deeper curve will be used right now, the default setting for the shallow contours two meters, because there is no two meter depth contour. The tool selected is using the 3.6 curve.

Christie Ence: For the extent of the shallow water tint. I will suck the shallow contour to five meters and click apply. One can do that with all of the depth contour shades. And when the controls are set to a four, when this controls are set to a four color scheme, if one chooses to use a two color scheme, the only active control is the safety contour. YThe miscellaneous tab contains the rest of the display settings. Data extents their symbolized as red rectangles that you'll see throughout the map, zoom out. So you can see that, you can see this one, the 10,000 that's what I'm talking about. These rectangles represent the minimum bounding rectangles for NOAA electronic chart products. These MBRs are not identical to the data coverage of the cell. Some NOAA ENC's are irregularly, irregularly shaped, and the MBR indicates the furthest geographic extent of the chart product. You can see the example of how the MBR can differ from the cell data coverage in the NOAA custom chart users guide.

Christie Ence: The intended uses selection allows users to filter data by usage band usage bands or descriptions of scale ranges. As mentioned earlier by Colby user bands are characterized by purpose overview charts are the smallest scales because they are intended to show a

large area where berthing charts use largest scales, because they are intended to be used for small berthing areas. Application works best when the default all data sets is selected. This will minimize gaps in your chart. The depth unit selection allows the user to configure depth units for the custom chart. The default is meters because that is the native unit for electronic chart data.

Christie Ence: The other options are feet and fathoms. It is very important to understand the depth units, the depth units selector does not change the units on bridge and overhead obstruction clearances. The output PDF also includes this reminder in future version of the application. We hope to address this issue. So the depth and height labels are shown in the same unit. The display settings also allow the user to determine whether depth contours are labeled or not. So I'm going to show an example here. Let me zoom in here. Yeah, the tool defaults to having labels turned on. However, if you find that the depths contour labels, which are differentiated from the sounding labels by a bold white halo, that's how you can tell the difference between a sounding and a depth contour. So if I don't want to show the depth contour, I can click on and off. You can see how they, these five, four labels are disappearing.

Christie Ence: Additionally, if you, if you, actually, if you turn off the depth contour labels, you can see that the safety contour is always, always labeled, that is handled through the second toggle and called label safety contours. So you can turn those off as well, turn them on real quick. Cause I want to keep them on the death zone shades setting, which is here, adjust the number of blue tints that the custom chart shows the default is for shades. But for simplicity, one may choose to display only two.

Christie Ence: Okay. When two deaths zone shades are selected, the dark blue tint highlights, the safety contour, deeper water is shown as white areas, symbolization, I'm zooming here around. So you can see some of the different types of areas, symbols areas symbolization allows the user to change between complicated symbolized boundaries to which is the default and simplified ones. For example, note the regulated area limit that we discussed before, which I'm going to highlight it in here along this line right here, it is symbolized with a magenta T dash pattern with a no entry symbol. Sometimes the area can become cluttered with too many line patterns and you may wish to simplify your symbology. And that's what this setting allows you to do.

Christie Ence: So you can see I've, I've turned plain boundaries on and now the symbols are, are now dashed line, simple dash lines over here. And then finally,, the compass rose, this toggle allows users to control whether or not their custom chart displays traditional compass roses. In some cases, the output from the NOAA custom chart has too many compass roses. This is because the points for the compass roses were taken directly from NOAA paper charts. However, in this customized environment, these positions do not always produce desirable results. So I'm going to, in this particular case, I'm going to turn them off. Now I can see when compass roses are turned off, the generic ENC magnetic symbol displays with the variation value. In this case, the variation is nearly 15 degrees east and the variation label reflects that value. I'm going to turn it back on and show you that it is also 15 degrees east.

Christie Ence: In the future, we plan to update the text for magnetics and other, in other types of texts to magenta to allow better eligibility between types of features. Now let's make a chart. So I, I'm going to skip over to the next icon, which is the print settings tab. This tab allows you to enter the scale, the page size and the page orientation for your custom chart product. I'm going to zoom out just a hair so you can see the entire area. So the existing data for the Yaquina Bay is one to 10,000. You can tell that by looking at the, the red rectangle, then the minimum, a bounding rectangle, and the scale is set to 10,000.

Christie Ence: It's always a good idea to create your custom chart at or near the compilation scale of the data. This reduces the likelihood of producing illegible output such as overlapping labels or gaps in the data. So I will create a one to 10,000 scale chart on an ANSI E sheet of paper, go here and type in. And in addition to scale and paper size, one must selected orientation. Portrait orientation is taller than it is wide. Want to show you an example of what that looks like, okay. To create a new extent, press the create new extent button. I will choose a general place to place this extent, which it did. Sorry. I'm reading from the script. Note, it takes a moment or two to generate the chart extent rectangle. This is because it's creating this shape on the fly. So it has to do calculations for the rectangle. It has to apply map projection. It takes a couple moments to process that information.

Christie Ence: So, however, Yaquina Bay lends itself to more of a landscape format. So I'm actually going to create a second product. Okay. Okay. There you go. It took a second. Notice the position of the chart extent is not the best location for a chart. I will use the move. Oh, see, it happens to all of us, duplicate features. So I'm going to select one of these and wow. Okay. I'm gonna move over here and delete the extra charts. So, moving ahead, I've created extra charts that I did not expect to create. When you click on and select a chart extent in the export queue tab, it zooms to the extent and it flashes like click it again. It'll keep flashing. I know I don't want this one and I don't, I know I don't want chart two or three and I want to keep three of these charts selected and I'm going to click the delete extent and up in the top part of the screen, and it will say, are you sure you want to delete these products? And I click. Yes. And it's it deletes the, the selected charts that I did not want. So, okay. So when I was, I was, as I was saying before, this, this position is not where I want the chart. So I'm going to use the, the move chart extent. This move chart extent tool is actually found on the export queue tab and also on the print settings queue. So it's the same tool. So I'm going to drag my AOI to about here.

Christie Ence: Okay. Okay. Skipping ahead. The default name for this chart and it's it basically what it does is as you create a new chart extents, it gives you, it gives them a temporary name, say chart one chart two. However that in the real world is not very useful. So you have the ability to name your custom chart, whatever custom name you want, preferably something meaningful. So this area is of, Yaquina Bay, OR, I'm going to type that as my title, now that I have my title and I have my chart extent in the right place. I am going to highlight and click the export charts button. This process usually takes between one and two minutes. Okay.

Christie Ence: But I will save us a time and open up a version of the chart that I've created previously. So this is the way it looks. And Colby is going to go into the additional features of a

custom chart. However, I wanted to show you the output, some features of the output. So as you can see, we have several compass roses, because of the nature of the AOI, the very top, most compass rose was cut off. And here you can actually see the difference between the compilation scales. For instance, this is a, this is a one that's 10,000 scale compilation scale, and it drops off to a much smaller scale. And that this is actually introduced because of the, the difference between chart coverage and the minimum bounding rectangle. For example, there's multiple panels on this particular paper chart.

Christie Ence: And that, that second inset is further south. So it introduced a, it made the, the extent of the chart look larger than it actually was. So this area is from the next smaller scale of the area. Some other features to look at once again, I had changed the depths to feet, and you can see here, the clearance for the Yaquina Bay bridge is 39.3, which is in meters still. So those are things to keep in mind. And then from then I'm going to let Colby takeover. So thank you very much and I'll see you soon.

Colby Harmon: Okay. Okay. Thank you for you to bring up the next slide. Okay.

Christie Ence: Hold on Colby. I have control now. Okay. Okay.

Colby Harmon: Well, while that's going on, I just say that I'll, I'm going to show you the traditional NOAA chart existing. NOAA chart. And then we're gonna do a little comparison with what Christie has presented still awaiting to swap control here. There we are. So next slide and the next, so here's the traditional NOAA chart, 18581, as available now. And I just wanted to point out a few, a few things to look at before you look again at the NOAA custom chart, the various notes that I'll show you in a second are scattered over the land portion of the chart and various locations selected by cartographers. When this chart was compiled. Also the source diagram, you can see a white and blue box, just west of the river, about a third of the way up from the bottom of the chart, the NOAA chart, a custom chart application, places, these elements outside of the chart on separate pages, output from the PDF.

Colby Harmon: So if you look at that here, you'll notice again, the NOAA custom chart that there was notes are not over the land. And there is no source diagram. So next chart, I'll go through some of the elements around the margins now. So this is along the top here, and the top left corner, you'll see depths and feet. This is whatever units you selected your chart to show the depths in and the top, right? It shows a datum ENC data, and I'll know a custom chart charts are a use the WGS 84 datum. And as Christie just showed you, you can enter your own chart name, which is displayed at the top center of the chart. So in the next slide, you'll see again, the information about the datum and also shows the scale verbal textual version of the scale at the central latitude, where the scale is exact, and it also resides to our, our scales at and different units.

Colby Harmon: Next slide please. So the coordinates of the Southwest corner of the chart are shown inside the chart frame here and above seal is the date in which you've created the chart. A few important notes are shown here, that are worth mentioning also charts output from the NOAA custom chart are, especially useful for recreational boaters or others who want a paper chart has a backup or for planning purposes, wherever these charts

do not currently meet US Coast Guard, carriage requirements for regulated vessels. So that note is noted here also, although ENC data from which NOAA custom charts is produced, and is carefully compiled and reviewed by NOAA, the rendering of the data on the NOAA customer chart is an automated process in which some over printing of texts, for example might occur. So just keep that in mind, the output has not been reviewed, and also a reminder that all heights and overhead clearance is shown on NOAA customer charts are in meters, regardless of the units selected by the user through display depths. Next slide, please.

Colby Harmon: So here again, the depth units are shown also underneath the map frame shows the length and width and millimeters of the actual frame itself. And there's also a scale to help you convert fathoms feet and meters easily. And also the web address to the Coast Survey ASSIST form that I'll talk a little bit about later, next slide. So a standard six inch scale verification bars printed on every custom chart. And this is useful to confirm that the chart has been printed at the correct scale. If you don't have a ruler handy, you can hold a dollar bill up against the line. And a dollar is just four millimeters longer than the distance from the left edge of the paper. So if you look just one more time there, we'll see what this looks like. So the dollar bill is just a hair wider is in this line. And if you look at the distance from the far left edge of the paper, to where the image of the dollar stops, that's about six inches. If you want a quick confirmation that your chart has been printed at the right size, next slide please.

Colby Harmon: So in addition to the chart itself, there's other components on separate PDF pages output from the NOAA custom chart. And I'm going to go through some of those right now. So on the next slide, you'll see the, the zone of confidence diagram, which is based on the ENC data and is comparable to the source diagram. That's shown on traditional paper charts on this case, the darker blue tints indicate areas that have been surveyed more recently, and with more precise tools. Lighter shades for the opposite older data, usually with a sometimes lead line technology. Next slide.

Colby Harmon: Also all those notes that were dispersed on traditional paper charts are collected and grouped on eight and a half by 11 sheets on separate sheets after the, after the chart diagram itself. And next slide. So we're always interested in getting feedback from you on what's been what your experience is with the NOAA custom chart. So, you can get to that by clicking on the feedback icon and the, and then within that panel, click on the document icon that's linked to the Coast Survey's, ASSIST feedback tool. You can use this to ask a question, may suggest, make a suggestion or report an error concerning no custom charts or any other application. And with that, I'll throw it back to Christie. She's going to go over some of the upcoming improvements to the NOAA custom chart application.

Christie Ence: Alright, if you don't mind, can you continue controlling the slides? Okay. So, so before we started handling questions, we wanted to describe some of the future plan updates to the application. So, some of the, the enhancements you can expect on the NOAA customer chart include, the additional additional paper sizes, including eight and a half by 14, and in ANSI B, which is the 11 by 17 inch size paper. In addition to that, we're looking into expanding that to include plotter paper sizes for large prints. So we're

looking at a 36 inch plotter roll size and a 42 inch plotter roll size. This is to help facilitate the print on demand agents, to be able to produce large format charts, similar to the ones that are published today. In addition, we, we plan on improving more symbology on the NOAA custom chart, right now for version 1.0 we've targeted many points features including aids to navigation and hazards such as wreck, rocks, and obstructions.

Christie Ence: Further improvements will be addressed to lined symbols and two areas symbols to make them look more like NOAA paper, traditional NOAA paper charts, and one of the largest, more exciting upgrades would be the enhancement to the labels where we would enhance advance, excuse me, improve the way that the labels are displayed such as adding different font, sizes, styles, slants and, colors, so that that's targeted with the, the display of text. Additionally we plan on improving the way that the compass roses are displayed. We're looking at several options on that to improve the way that, users, see the compass roses on the chart product. And then finally, we're, we're looking into creating a subscription service where users will be able to download, it created chart extents and reuse those, extents over time and build in a notification system that will compare subscribers' chart extents to existing NOAA ENC's, and notify the subscriber for when a particular custom chart has updates and that we can go to the next, and now we'll be opening our webinar for questions.

Christie Ence: So, just to remind you, we will have the webinar posted, this is being recorded currently, currently, and the presentation will be posted online with a transcript.

Geoff DiPre: All right. Well, thank you both for fantastic presentations. As Christie said, we now have time for a number of question that you have already submitted. And if you would like to submit a question you can do so using the dashboard on your right under the questions tab, we have until three o'clock, so we'll try and get through as many of these questions as we can until then. And of course, as a reminder, this is being recorded and this will be available with the presentation slides and transcript within the next month. All right. So to start off, Colby at the beginning of the presentation, you provided an example of rescheduled charts over the Great Lakes. And the question is, how does this match up with Canadian ENC's? Is it seamless or are there gaps?

Colby Harmon: Well, we, we, as we do with all our adjoining countries coordinate the, the overlap or the inter interface between our ENC's and their ENC's it's the, the overlapping of coverage within the same scale band is prohibited. So, we do indeed coordinate on where those borders are. Sometimes they cover some of the US waters. Sometimes we cover some of the Canadian waters, so that there's a clear trade off or a transition between those points. So at any particular scale certainly at the largest scales that only cover harbors, there isn't continuous coverage, but at the smaller scales, there certainly is a continuous coverage just as there is now. Whether it's been rescheduled or not.

Geoff DiPre: Great, thank you, Colby, for the full-size PDF, is there one central place where the full-size PDF's can be downloaded, all at once while they are still available?

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Colby Harmon: I don't think that's available now. You'd have to go to the chart locator, which you were, you can get to them one by one. I will say that once the chart is canceled, that those charts will always be available on the historic charts website that NOAA hosts as well.

Geoff DiPre: Great. Okay. In regards to chart numbers, a couple of questions here, we currently have predefined paper chart numbers, but how will this be affected by the move to custom charts? How will a customer asks for a chart and will there be a predefined NOAA chart set up based on what the details were that used to be on the paper charts?

Colby Harmon: So, so first of all, NOAA custom charts do not have numbers. The intention of the application was that a customer can provide, build a chart, wherever they wanted to. Christie picked an example that, overlapped an existing traditional NOAA paper chart. But, as I said in the beginning of the presentation, NOAA is in, in a process of canceling all those traditional paper charts and numbered paper charts, and, and those footprints will go away and, users can build a chart wherever they want to. I don't know if that completely answers the question. Can you, can you just repeat that real quick just to make sure I got all the parts of it?

Geoff DiPre: Sure. It's, will the pre-defined paper chart numbers be affected by the move to custom charts? And as you said, those are being canceled. How will a customer asks for a chart and will there be a predefined chart set up based on what the details were that used to be on the paper charts?

Colby Harmon: Right. So, part of this question, leans towards our, our continued coordination with existing print on demand vendors who now, you can go to and order, a traditional paper chart by number, and we're working with them so that once customers create their own custom charts, add whatever location they would be able to coordinate with print on demand chart agents and have that particular chart printed. There's also some chart agents who are starting to develop their own suite, if you will, of predefined, custom charts that they will provide for customers to purchase without having to build their own chart. But that's, that's something that's still in the works and has not been implemented yet.

Geoff DiPre: All right. Thank you for that information. For the custom charts, is it possible to export height labels to a table and XYZ table,

Christie Ence: No, you cannot. When you export the NOAA custom chart, it is a PDF. You can, you can look at the, you can, I didn't know, you can isolate the, the text data if you so choose. However, there is no way of exporting that as in any kind of a text file.

Geoff DiPre: Okay. For these custom charts, what is the datum used? Is it always WGS 84, or is it variable based on the area that you select?

Christie Ence: All, NOAA custom charts are based on the electronic chart datum, and the electronic charts are based in WGS 84. So the, NOAA custom chart will produce WGS 84 products, which for, in most, in most situations is considered equivalent to say the North American Datum, 83. So yes, this is only WGS 84.

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Geoff DiPre: Thank you, Christie. Okay. If a chart is a scale, is at a scale of one to 10,000 and the user chooses one to 10,000 as the scale, why does it not cover the entire map sheet?

Christie Ence: It doesn't cover the entire map sheet. If you saw that there, when I, when I created the, the chart extent, it did not cover the entire chart footprint that or MDR, that was drawn on the no custom chart. And that is because I was creating a chart that was an ANSI E format, which is a 34 by 44 inches. However many, traditional NOAA charts are larger than that. So, in this particular case, the AOI that I selected was not quite large enough.

Geoff DiPre: All right. Thank you for clearing that up. Is there any compatibility or connectivity with the Navionics app available or is that anticipated in the future?

Colby Harmon: So Navionics is a digital chart, display technology and NOAA customer chart is meant to be used as a paper chart. And the output is not intended to be input into chart displays or navigation systems. So the answer would be, no.

Geoff DiPre: Thank you. Can you plot a mark or multiple marks on a custom chart and be able to print that and will that show up when you print it? And can you save your custom marks for later usage?

Christie Ence: Not currently. There is some research that we're doing with, at having value added layers where, where one can add a user defined data, however you know, for the sake of creating a navigation product we're limiting that rightly so. It's unlikely that we would allow that functionality, unless it was extremely limited.

Geoff DiPre: All right. In the future will bridge height units be changeable?

Christie Ence: Yes, we, we, we were working, we were working on, along with the, the text label enhancement we were working on where we will also build in the ability to change the units for the entire chart. So for example, if, if one shows meters, they would have information and meters and decimeters, if a person chose fathoms, the depths and depth contour labels would be in fathoms and the heights would be in feet. And similarly, if, if the person shows feet, they would be, everything would be in feet. So, yes, we do plan on doing that in the future.

Geoff DiPre: Great. On the charts themselves, what do the depth subscript numbers signify

Christie Ence: If you're looking at the, the metric soundings, the, the subscript is referring to the decimeters. So if you see, for example, a 11 with the subscript five it's, 11 meters and five decimeters.

Geoff DiPre: Good to know. Thank you. Since the chart notes are on separate pages, do you anticipate there being any issues with the chart notes being lost?

Colby Harmon: Well, the chart note, that is a good point, but the chart notes are labeled with a name that you select for your chart. So, if you have a couple of different charts that are say at different scales over the same area, it would probably be prudent to name those slightly

differently so that the associated chart note pages can be identified exclusively within the chart, at the particular scale. So that's the problem. That's the solution that we've come to is because as we say, the data is compiled automatically and presented, in the NOAA customer chart, map and notes on traditional nautical charts are placed there by human cartographers. And that is not a process that you have the resources to do for NOAA custom charts. So the easiest thing is to take them out of the map all together and then put them on separate pages.

Geoff DiPre: Great. Thank you, Colby. Two questions here, both getting at just the compliance with Coast Guard, carriage requirements, essentially both are asking. Is there any plans to update the carriage requirements that allow for the use of custom charts?

Colby Harmon: Well, a couple of things are happening the Coast Guard, for one in 2016, put out an, announcement that said that ENC's could be used in lieu of paper charts. So there's always that option. Also the Coast Guard is about to release a notification of a proposal to make rule changes related to the use of ENC's and paper charts for regulated vessels, which is a long process, but that's just starting underway. There's also a chance that NOAA custom charts will meet carriage requirements, although that's not guaranteed. So all, all those things are moving at various various paces. But right now, as I said, NOAA accustomed charts do not meet carriage requirements for regulated vessels.

Geoff DiPre: Okay, good to know for the actual information that can be included on the custom charts, are there any plans to include tidal data such as mean tidal level levels, panel, or tidal current?

Christie Ence: The short answer is we do, we do refer people to the CO-OPS tides and currents website. I, I don't think we're going to duplicate efforts and put additional information on the NOAA custom chart when you can go users can go to another NOAA sponsored site for that information.

Geoff DiPre: All right. One attendee asks, how can I continue to print a chart of the same area scale location as a traditional paper chart?

Colby Harmon: Well, as a, as a earlier question, sort of indicated if you, you have to have the same size paper, or at least same or larger size paper than, was used for the traditional paper chart and use the same scale. And then if it's the same size paper and scale, the footprints will match precisely, but any small deviation from that is going to be a different footprint,

Christie Ence: Right? And that's why we're looking into increase including the 36 and the 42 inch size plotter paper, because the larger the paper, the larger the AOI, and the more likely that you're going to be able to capture the same area as a traditional paper chart.

Colby Harmon: Another thing to keep in mind is, as I said earlier, we are rescheduling all of the ENC's and the ENC suite, previously, essentially the ENC's covered the same footprint of the charts they were digitized from and were compiled at the same scale. So as we're rescheming, we're detaching that connection between the ENC data and the legacy,

traditional paper charts that are being canceled. So, for example, in Lake Superior there, the existing traditional charts are at 120,000. The ENC's that are replacing those are at 80,000. So if you were to go to that same footprint of 120,000 scale chart, and try to put an 80,000 scale data that's available there, you wouldn't be covering the same space. So, sort of looking forward, the connection between those traditional numbered paper chart, footprints and the data, which is going to be generally larger scale, it'll be harder and harder to produce those same exact charts because the data underlying data, will, sort of over support the, the footprint that you're trying to make a chart of, it would be better to pick the custom size custom location yourself based on the available ENC data and the data you want to navigate in.

Geoff DiPre: All right. For the generation date, does that include all the LNM critical corrections applied to the chart area that the attendee is choosing, Can you define LNM, for those that aren't?

Colby Harmon: Right. So, first of all, the date that I showed you in the bottom left corner of the NOAA custom chart is just the date at which you created it and your time zone. So that's, that's just one thing to note also, when that chart is created, it, it takes all the existing updated, latest ENC data to use, to compile that chart. So all the, all the notices and all the other updates, for hydrographic surveys and shoreline surveys have been applied up to date on that ENC. So one could say essentially, that's up to date as of the date that, that chart's created. I don't know if you have anything to add to that Christie or

Christie Ence: No, The NOAA. Custom chart takes the most recent ENC data that has already had the local notice to mariner applied.

Geoff DiPre: Okay. Will custom charts download to open CPN?

Christie Ence: I would say no. Because we do not use that.

Colby Harmon: Yeah. Well, like I said, the intention is that it's a paper product and not to be used, you know, they're digital systems, if that's the implication we have other ways. I mean, we have, for example, we have ENC direct, data that's available in our website where you can download ENC data into GIS or other digital applications..

Geoff DiPre: Okay. Yeah. And that leads right into the next question of, is it possible to export geo-referenced images of custom charts, for example GeoTIFF, so that they can be imported into external GIS apps?

Colby Harmon: I don't think again, I don't think that's the intention. We have no intention to, to tile or create a raster dataset that would be used in a way that Horan sees or the RNC tile service was in the past. Our goal is to have the best data available is the ENC data. And we're hopeful that eventually users will make more and more use of that. And there's many applications that use the ENC data directly in a variety of price points now.

Geoff DiPre: All right. Is it possible to print the charts, the custom charts at home with a typical computer and printer, or is it always necessary to go through a third party vendor? And

if so, is there any kind of special equipment or program that is needed to print it at home?

Christie Ence: I think the, the capability of printing a, a NOAA custom chart is the act has access to a printer the, the application exports, a PDF file. So you would need to have some sort of either Adobe or open source PDF reader on your computer and the plotter and the paper size that you use will be determined on the size of the printer or plotter that you have access to. So, the NOAA a custom chart will allow you to print on eight and a half by 11 size paper, which any printer will be able to print on a larger sizes. It can be printed either, you know, we're, we're working with the POD vendors to, you know, so they can continue their, their process. However, you know, if you, if you had, if you printed out a NOAA custom chart on a larger sized paper, and there's nothing to stop you from going to Kinko's or some, some other print shop and have, have a printed out yourself.

Colby Harmon: Yeah. This is different than the traditional NOAA custom and the traditional NOAA paper charts that are now available through print on demand, certified agents and the traditional NOAA paper charts do meet, US Coast Guard carriage requirements only if they're printed by a POD chart agent, unlike the identical chart image, which is a full, full format PDF that if someone printed at home, there's no assurance that, you know, the ink is stable, that the paper was at the right size, et cetera, et cetera. Because NOAA custom charts have no restrictions. There was no, there was no carriage certification to meet. And yes they can, if you have whatever size plot of printer or plot or you have at home, you can print NOAA custom charts and use them

Geoff DiPre: Great. And on a similar note, if the area that's needed is at a scale that's larger than what fits on a typical eight and a half by 11 sheet of paper, should the user create multiple charts that does fit well, or does the application automatically create multiple pages to print out the scale that's needed?

Christie Ence: You'd have to set, you'd have to make your own multiple pages if you had, if your constraint was eight and a half by 11 size paper, and you want to create an area, or you want to print, you create a chart of the area that's larger than that, you would have to make several, several, chart extents to, to cover the area.

Geoff DiPre: All right. A couple of questions here, regarding the ability to produce a geo referenced PDF, is there an option to create and download a geo enabled chart, like a geoPDF or geoTIFF, or is there an ENC format for use in plotting software?

Colby Harmon: Yeah, the actual output is a geographic use spatially referenced PDF. Although this, despite the, the, that implies, we still do not recommend that the data be used in a digital way that it's, again, it's not meant to ever be a replacement for RNC data that we're taking down.

Geoff DiPre: All right. There are a couple of questions, regarding recreational boaters and, you know, concerns as to the, the knowledge gap that a recreational boater might have to compile a map. Is there anything on the application or on NOAA's website that we'll be able to

cater to this community or provide the guidelines and steps on how to create the best custom chart for that user?

Colby Harmon: Well, there is a, there is a 14 page user's guide, and we're looking to, you know, always based on questions, we get, enhance that and that I think that's the best, the best place to start and, give some tips on how to choose the best scale. And how do you, make the settings that are most appropriate for what you're trying to achieve.

Geoff DiPre: All right. Concerning training charts, is there any way to create an ENC that duplicates the information that's currently used on training charts and the ones they list are for the Chesapeake Bay, Block Island and Long Island? These are charts from back in the early 1990s. Is there a way to mirror those types of training charts you using ENC data, or will we have to select another set of data to create new training charts?

Colby Harmon: Well, well, depends on what they're trying to do if you want a copy of the 16 training charts said, as you know, have, as they've said before frozen decades ago, those are still available, for many POD vendors directly, as a training charts and are usually, like 10 bucks a pop they're pretty cheap, or they're also always available at the Coast Survey historical charts website. If you go to the Coast Survey webpage and look under the charts menu dropdown menu, I think there's a selection for historical charts or even training charts. And if you select that, it'll open up historical charts website and list those charts that are available. Now, if you just want to see a contemporary chart or over the same area, you can use NOAA custom charts to do that, but it's not going to show, you know, all the aides have changed over time. The symbology is time as changed over time. That is not going to be shown on available for an option and NOAA custom chart. It's only going to show you the contemporary data and the contemporary symbology, but all those papers images, all those images of the much loved and used training charts are, will always be available on the historic website.

Geoff DiPre: All right. Good to know. There's been a number of questions about this and, and one attending kind of summed it up. And if you guys could just provide a few, a little bit more detail. Can you discuss the interplay between scale, paper size, chart area, and the detail on the chart? So just going over that kind of interplay again would be helpful, I think.

Colby Harmon: Okay. So, to start with the paper size that you pick is fixed. So you can imagine that as a window you're looking through, and that's going to constrain the area that you see, depending on the scale. So as you increase the scale of your chart, you can envision just on your, as you're on your computer screen, zooming in and data, the area that you zoom into becomes smaller and smaller in space. You know, until you're just looking down on the dock in a marina, now the level of detail is much greater at that point because you can see the individual slips, et cetera. You know, if you, if you change the size of the paper now to make a bigger window, then you can see a larger area, even at the same scale. So there's an interplay, certainly between the scale that you've selected and the paper size, those are the two dynamics that, that influence the size of that extent box that you click and have to have to wait a moment for it to appear.

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Colby Harmon: So if it's not covering the, the amount of area that you want to cover on your custom chart is a couple of things you can do. You can one increase the paper size, and that's going to, even at the same scale, provide a bigger area, or you can change to a smaller scale and that'll extend the data that's available to fit inside that window because it's a smaller scale. Or if you don't want to do either of those things, you can make two charts adjacent to each other with the same paper size at the same scale. It's something that's when you first started using NOAA custom chart. Even if you're a cartographer, it takes a little while to sort of figure out, you know, how those things interplay and how to get, you know, what size paper you generally want, be it based on a particular scale.

Geoff DiPre: Great. Thank you. I think that was very helpful, for the custom charts, is there any way to use custom overlays, such as a JSON custom overlay?

Christie Ence: I think this is similar to the, the custom points question. We're looking into maybe limited ability to add a feature added layers. However, it will be very limited if we do it at all.

Geoff DiPre: All right. Can you search for locations via their latitude and longitude instead of the name of the location? And if so, how can you do this?

Christie Ence: Lemme Check. It does not appear to be giving me that option. [EDIT: We found that you can indeed enter geographic coordinates into the NOAA Custom Chart search tool, if you use the correct format. Coordinates need to be in signed (+ / -) decimal degrees, with the longitude first. For example, to find 38.681° N, 74.765° W, Enter -74.765, 38.681.]

Geoff DiPre: Thank you for checking. Is there any plan to have any type of pre-generated maps that can be downloaded as PDF?

Colby Harmon: This is something that some of the print on demand chart vendors are exploring. We don't, we don't expect that NOAA at least initially will be building, you know, pre-canned chart footprints for users to select from, we haven't dismissed that altogether, but that's not our first priority. Anything to add, Christie, I know there's, this is sort of a fluid topic.

Christie Ence: No, we're, we're, we're working on, we have a basic concept for the subscription service where, users preferred extents are stored. So in a way that's a stored AOI that a subscriber could always access. There's, there's talk about how, how we want to scale that up. Do we want to only store the, the, the, the selected extents, or do we want to have a, a batch service that would run an update? Those PDF chart extents on a, any specific cycle? I think it really does depend on, on what, you know, we are able to determine on whether or not we can host that information somewhere in a way that, you know, is feasible.

Geoff DiPre: Thank you, Christie, going back really quick to the, the paper charts and their cancellation, one attendee asks how the light lists and Local Notice to Mariners will reference the affected charts or the cancel charts, once they are retired.

Colby Harmon: Right? So the Coast Guard and other government agencies and other agencies are in the midst of a program called a waterway harmonization project. And that's where the Coast Guard especially is leading the effort to come up with standardized names, often names that are already used on the light list for particular bodies of water and other places. And these would be used not only by the light list, but also by the US Coast Pilot that NOAA produces as well as note the Local Notice to Mariners that references other changes. So, for example, this is an ongoing effort not completed yet, but for an example, if you go to the US Coast Pilot for the Great Lakes and compare the chapter on Lake Michigan, which all which currently references chart numbers, and even ENC, cell names and compare that to the chapter on Lake Superior, which has now all been reschemed, all those references to chart numbers and ENC numbers, ENC names have been removed from the Lake Superior chapter, and it only references bodies of water and passages between ports, for example, to a hierarchical way.

Colby Harmon: So, in the light list and Notice to Mariner is you're likely to see a hierarchical reference with which might start with Chesapeake Bay and then Severn River, et cetera, you know, then smaller portions to give a general reference of where those, where there was aids to navigation, for example, are being changed, and then always as it does now the light list, and they Notice to Mariners has a specific latitude and longitude of the feature that they're referencing and it's in a new, new or current position as appropriate.

Geoff DiPre: All right. Thank you for that. Is it possible to select a standard nautical chart, AOI and export the correct scale and chart size through the custom mapping output? So for example, could you select Yaquina Bay chart AOI from a previous chart, say a previous paper chart and export that using this custom chart tool?

Christie Ence: No. You know, it said that the, those chart limits are eventually going to go away. So, you're going to have to, you know, there, there, there is some thought that maybe we could produce, or provide the, the scale which we already do. So essentially the, the customer chart is to allow you to choose the coverage best for the area, not necessarily try to recreate something that already exists.

Geoff DiPre: All right. For ENC data, does it include Army Corps of Engineers survey data, or is this already incorporated into the ENCs?

Colby Harmon: Yes, it is. So all those, all those maintained channels, that the Army Corps maintains and even the other channels not maintained that they survey all that data is in the hand seas already. And in fact, the ENC data provides the actual minimum or what we call a controlling depth for those channel reaches, whereas paper charts, right now, for the most part, all those channels, only list the project depths, which is the depth to which the Corps can dredge that particular channel, but it does not account for any subsequent silting and filling in for those. So the ENC data is actually the best source for any transits through federally maintained channels.

Geoff DiPre: Thank you. All right. This question asks when a paper chart is canceled, presumably the custom chart quality has reached a certain threshold. So up to the time that the paper chart is canceled, what can we assume about the custom chart quality?

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Colby Harmon: I would say, first of all, that there's no linkage. There's no strong linkage between cancellation of traditional paper charts, which is already underway and the performance of the NOAA custom chart application. We, we, right now believe the application provides an excellent chart, especially for recreational boaters, who want to have a paper copy of a particular chart that may be canceled and we're, under underway and canceling all the traditional paper charts, that will be completed by January, 2025. So we endeavor to make the NOAA custom chart as familiar to traditional paper chart users as possible, and are always working to make it better. But, there's no, we're not tying the performance of the NOAA custom chart, per se to the cancellation of any particular chart, which, like I said, is already, we're already starting to do.

Geoff DiPre: Okay. For teaching plotting on paper charts, would you recommend using a custom chart to replace the old training charts to get students used to this new look?

Colby Harmon: It's an interesting topic for me, because I've always been a little distressed that the training charts, some of which are still using the black buoys that don't really exist anymore. They've all been replaced by green buoys, and other changes to symbology are still being used decades later as a training tool, which are not necessarily bad. Part of the, part of the momentum that has to be, could be early inertia that has to be overcome, is that there's a lot of actual training exercises. There's a lot of tests, questions tied to those specific charts. So, in an ideal world at that of all those different parts of the, training, curriculum could be changed to, apply to a more current charts. And yes, I would say use of a NOAA custom chart would be more appropriate, but, there is a lot of old tests. And that doesn't mean to say that all the same techniques can't be taught, whether if you're navigating on a old buoy that doesn't exist anymore, or has been moved, the classical navigation can still be taught with old training charts. If you wanted to go through the process of updating all that, to use a custom chart. And that certainly is possible.

Geoff DiPre: Thank you. Yeah. Sounds like a very interesting topic that interplay between the training charts, the new charts, and how to teach this. For the custom charts, is it possible for the user to choose a different map projection than the world Mercator map projection?

Christie Ence: No. The, the world Mercator projection is intended to be used for navigation. Therefore, the only exception would be very high latitudes, which of course we're not supporting, which were, you would have to use a different type of projection because of the polar regions. However, most, most of the US does not conform to that requirement. So, no, it's, it's always going to be Mercator because Mercator is the, the only way of preserving your, your bearing lines.

Geoff DiPre: Thank you, Christie. One attendee was looking at Harbor areas and found that the custom chart does not show much unless the scale reaches a certain, a certain threshold. Is there a way to control this behavior so that it's possible to print charts with less detail, but that include Harbor areas at the same level of detail.

Colby Harmon: I think it would be, that'd be useful for them if they could write an ASSIST query to us telling us exactly where they're trying to build a chart and what scale, and maybe we can

work with them to figure out what exactly what their requirements are. But generally speaking, you pick a scale and the, the, the application is going to try to pick the most appropriate scale. It's closest to that scale for a particular area.

Geoff DiPre: All right. Yeah, we'll see if we get any clarification on that, But, thank you. Going back quickly to kind of the overall sunseting of the paper charts one attendee asked what is the motivation behind this whole process and the sunseting of this, and what is the criteria that governs the cancellation of a given paper chart?

Colby Harmon: Okay. So first of all, the, all the charts will be all a traditional paper charts will be canceled by January 2025. We are going through a process of now of determining what a way to prioritize a thousand and seven paper charts to be canceled over that time to get to the rationale and there's information on the Coast Survey website about, about this is that essentially the production of the raster and paper chart products and the ENC products are related, but the there's many components that are different production line altogether. We only have so many cartographers, there's always a desire from the marine community for a larger scale data, more detailed data, more timely data. And we can only do that for one product. The ENC data is being used and is actually required for use by the International Maritime Organization and SOLAS convention to be used by ships international voyages of certain I'm almost all sizes.

Colby Harmon: So they're required to use the ENC data. The Coast Guard is also recognized that ENC data can be used in lieu of paper charts on domestic voyages, by regulated vessels and many chart plotters and other providers are making the transition and now have the availability of people using ENC data. So we see that, as I said at the top, we believe this is our premiere product and, we, we no longer have the capacity to, to build both products and do it well. So that's the motivation, so that by canceling the paper charts, we can provide an even better data set with ENC data.

Geoff DiPre: All right. Thank you for that. What is the time delay from an Army Corps of Engineers, waterway survey to the inclusion of the bottom contour data into an ENC data set?

Colby Harmon: That'd be something I'd have to get back to you on, unless Christie knows, it depends on where you are.

Christie Ence: I don't know. The workflow is that the Corps of Engineers will take the survey data and serve it up online, and we have a scheduled where we'll pull that information down. However, that, that varies.

Geoff DiPre: All right. Is there any kind of real time assistance through using the custom chart application such as a chat room type of situation or an, you know, a, a real-time chat, that can help the users as they move through the process?

Christie Ence: No.

Colby Harmon: No. I mean, I don't want to open us up to a helpline, but I mean, if you, if you write, if you write into these ASSIST tool and let us know where you're trying to make a chart

and the scale, and any other details that you think are important, we can take, you know, asynchronous, not in real time, a good faith attempt to answer your question. And on occasions, you know, we we've been able to call people up and talk to them on the phone about what their specific, specific problems, they have, you know, we don't have the time or personnel to, to do that for everyone. So we don't have a helpline for a NOAA customer chart creation, but if you're really having a hard time, we certainly want to help you're past that. And if we can't do it with some emails back and forth, then we'll arrange for you to talk to some of our experts on how to work through those problems.

Geoff DiPre: Thank you. How is this effort being coordinated with foreign cartography groups, organizations, or foreign governments?

Colby Harmon: So I, I don't coordination is probably too strong, a word. There are many other countries that are doing two things. They're canceling paper, their own paper charts suites, the Australians just canceled 50 of them or so, and other countries are going along the same path for the same reason. They want to be able to provide the best in digital data and don't have the resources to do two product lines. And there are other countries that are pursuing a similar custom chart or data derive, or paper chart derived from existing ENC data that does not require additional compilation by a cartographer. So we're aware of all these things. We, NOAA participates in many international meetings with the International Hydrographic Organization, the International Maritime Organization, IALA and others that, so they are aware of what we're doing. We've, we've broadcast, this, these various activities to them, over many years and similarly are aware of the activities by other hydrographic offices doing similar things. So, I know it's startling to hear that NOAA charts, you know, founded over 200 years ago by the Coast Survey is not making intends not to make paper charts anymore, but it's not something that we're doing alone. There's many other hydrographic offices that are already starting or anticipating to doing the same thing.

Geoff DiPre: Thanks. And one last question along those lines, or at least with the, the paper chart cancellation, once a chart is canceled is the only option to satisfy Coast Guard carriage requirements an ENC, or is there an another option that will satisfy those requirements?

Colby Harmon: Well, the Coast Guard is reviewing their policies and they hope to come out with more specific guidance to their vessel inspectors on how this works, where when a chart is canceled and no longer available. I know for sure that a canceled paper chart will not meet carriage requirements, that I know they specifically have said that ENC data on a cellular device will not meet carriage requirements. They had, as I said, since 2016 allowed ENCs to be used in lieu of paper charts. And there are very, I wouldn't say loose, but, there there's, they are not requiring for example, the same systems that got large SOLAS vessels use, or other electronic charts systems as specified by the RTCM. There's other chart display options that are certainly within range of how many users that can display ENC data, more specific, more specifically, that's a better question for the Coast Guard than for NOAA, but I'll just give you those broad strokes there.

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Geoff DiPre: We appreciate it. All right. Just a reminder, we do only have roughly 15 minutes left, but we are nearing the end of the questions that have been submitted. So if you do have a last question, please submit it now. But one last question that I have here currently is, is there any plan to include river data on ENC's? Is that either of you know, about,

Colby Harmon: Well, there is another product produced by the US Army Corps of Engineers called the I-ENC or inland ENC that does quite extensively cover up the Mississippi River and many other rivers. So I would recommend you to go to investigate the I-ENC data on the U S Army Corps of Engineers website. [EDIT: Inland ENC (IENC) - US Army Corps of Engineers Inland Charts: <https://navigation.usace.army.mil/Survey/InlandCharts>]

Geoff DiPre: All right. And finally, one last question, going back to the, the Coast Guard requirements, do you know of any link to Coast Guard comments regarding these regulations, that allows the use of ENC's?

Colby Harmon: I'm not aware of they have the Coast Guard has a similar customer comment page as NOAA does, that you can submit questions to and the NAVCEN, the Nav Center. I feel that I would just recommend them to, to probably a Google NAVCEN and see where they are, and hopefully on the close to the top of their page, they have some customer feedback, a link that they can go to. [EDIT: U.S. Coast Guard Navigation Center Customer Inquiries Page: <https://www.navcen.uscg.gov/?pageName=contactUs>]

Geoff DiPre: That makes sense. All right. But at this point we have covered all the questions that have been submitted. So I'm going to turn it over to Julia to conclude the webinar.

Julia Powell: Sorry. I need to unmute. Sign of the times. Thank you very much, Jeff. I did notice there's a few other questions. I think a lot of these are more related to the Coast Guard regulations and how they feel. And there was one question about having a US Coast Guard rep on our next on a future webinar that can answer the questions that we cannot. What we will do is take these questions to our inter-agency working group and say that you know, that these are some of the questions posed. And in looking at some of the attendees list, there is Coast Guard representation on this webinar. So they've been also hearing these same questions that can help formulate their policies also. I think there is one last question I think, may not have heard the answer, but if we can answer the, not sure if you noticed my question on whether it is possible to convert the depth labels to XYZ coordinates, I believe the answer was no

Christie Ence: No, there's, there's no functionality that would allow that.

Colby Harmon: Not within the NOAA custom chart, but I'm I'm, I don't know what functionality is available in the ENC Direct to GIS application, where it could produce a XYZ values. There's also hydrographic survey data, in a more raw form is, can also be downloaded, I think, in XYZ files. Again, not trying to put off, but trying to put, provide the most specific answer if, if the user can submit that to ASSIST with some details of what they're trying to do, we can provide a more complete answer to that question.

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Julia Powell: All right. Well, I want to first thank Colby and Christie for giving us such an excellent presentation with the detail that's required to, how to use the NOAA custom chart application. I think it's a new and innovative thing that we're doing that for both you know, our regular constituents to produce their own charts for their own areas of interest. But you know, I think a couple of the other questions, you know, we are also working with our POD network on how to move forward with a POD 2.0 as I call it. And, and how they can leverage the NOAA custom chart application to serve their own stakeholder community and how that's and how that could eventually become a NOAA product. We are still working on that. So I just want, you know, everyone to know that we do, you know, look at the, you know, take the feedback very seriously as we move forward and, and move moving towards, different types of decisions that we make, and how we continue to improve the, the NOAA custom chart application.

Julia Powell: Um, the other thing is, in about a month, we should, or less than a month, we should have this webinar, posted, for replay on our website. We first have to get it transcribed, and then upload it onto the, our website. Once that's done, we will send out an email via the Go-To webinar, registrant participant lists. So you'll see that I'm noting that it's on posted on the website. So again, I want to thank everyone for attending and have a rest, have a good rest of your day. Thank you.