

## **Electronic Navigation Workshop Discussion: Response from the Towing Industry**

MR. DAGGETT: I want to thank all the speakers and the vendors here. Workshops can be several different things. Sometimes it's just a bunch of presentations. But in this case, we wanted this workshop to have some interaction. So we thought we'd start with some presentations, and then end it with some interactions and a summary.

So, we're at a point now that we're basically through with the presentations, unless we get through with the discussions and have a little bit more time and some of the vendors want to come up and talk a little bit more. And I know it was really tough, and I'm pleased that they all accepted and came here, knowing that they were being limited to ten minutes. That's really tough to put a vendor in that position. So, I really do appreciate it. I thank everybody for their cooperation.

I'd like to turn this back over to Tony and let him conduct the discussion part and see what kind of reaction and feedback we have to what's been said so far. Tony.

MR. NILES: Okay, welcome back. And now we get into the things that have not been said. And we do have the very critical segment, the users. We have Shelby and Bruce who are here. But anybody involved with industry, the towing industry either directly or indirectly who is very familiar with issues in that area, please go ahead and introduce yourselves. I know Shelby.

MR. HOUSE: I'm Shelby House with American Commercial Barge Lines. Currently we have operations in North and South America, Venezuela, Argentina, Puerto Rico, Paraguay, Brazil, as well as the United States. And I've worked with electronic charting systems for four years at least. I can see a few issues I'd like to talk about here shortly. Thank you.

MR. NILES: Thank you, Shelby. Bruce, welcome back. Introduce yourself, please. Let us know which company you are with.

MR. HASSELL: I'm Bruce Hassell. I'm a Port Captain with America River Transportation Company out of St. Louis. We operate thirty tow boats, and we have the PinPoint System on board. I'm really interested in the new digital charting.

MR. NILES: Thank you. Who else from the industry? We have two representatives.

MR. WILLIAMS: Hi, I'm Clay Williams. I'm from Market Transportation, and we also operate on the Mississippi River. We've got 27 boats that run from New Orleans to St. Paul. And like Bruce, I'm very interested in the digital charting.

MR. GECK: I'm Tony Geck with Artco. I work with Bruce. I'm the IT Manager. I'm here from a technical standpoint because I have to maintain these navigation systems long term.

MR. LINGER: Yes, I'm Rodney Linger, and I'm an Engineer with Louis Brothers. We're out of Columbia, Illinois, and we operate on the inland waterways from the Great Lakes to the Gulf and now down to Florida.

MR. NILES: Others? One more, we have Ken Wells from the American Waterway Operators. Ken, if you'd like to introduce yourself. And, Ken, I'm going to go ahead and throw out a subject that maybe you could speak about, and that's AIS on the inland waterways.

MR. WELLS: Gee, thanks. I'm Ken Wells of American Waterway Operators. We are the national trade association for the towing, towboat and barge industry. On the subject of AIS, it's been something that for about eight years now has been my responsibility. And through that, it sort of warped into some responsibility for our position on electronic charting.

Tony had asked me to make a couple of comments. I apologize because they're going to be somewhat confused and disorganized. Part of that is because I was not prepared to speak, but most of it is because the entire subject at this moment is confused and disorganized.

So, what I can give you are some observations. The Coast Guard is in the process internally of writing a notice of proposed rule making, which the commandant has told them they will have out this summer, with a final rule predicted for the end of this year if they can meet that deadline which would set the rules for AIS carriage requirements in the United States.

At the same time Congress is debating a port security bill, which would require AIS. The Senate bill didn't have anything in it. The House does have something in it. The House bill, which is probably going to go to a full house next week, would require AIS in VTS ports by the end of this year on tow boats pushing tank barge vessels by next year, midyear, and on all inland waterways by 2004.

Can the industry meet those deadlines? No. Can the manufacturers provide enough units? I see a couple of heads shaking. I won't put you on the spot to say that publicly because I'm afraid you'd say yes. But my guess is that the industry cannot provide the units by then. So, we have a problem on our hands.

One is if we are sincere about AIS, we need to come up with some realistic deadlines. Probably VTS ports by 2004, maybe putting the entire Gulf coast is a realistic deadline, at least a starting place to talk about.

The second problem now is cost, and that will probably be coming up a little later. But as we talk about costs, you as software and hardware manufacturers need to be aware that in the industry's eyes AIS, electronic charts, are metamorphosing into the same beast. And so your efforts to provide a product at a reasonable cost are going to be tied up with the AIS manufacturers' desires to make an absolute killing. And I'm not going to accuse

anybody of trying to push up the price of electronic charts. We have been telling people based on what we have heard from industry that \$8,000.00 is a good starting point for discussion. Some of that comes from breaking down the pieces of it. A PC is a couple of thousand dollars. A digital radio is one to five, but let's say three. And the rest of it is basically software, from what I can gather.

I've heard a figure for the St. Lawrence Seaway that they are providing AIS for their units for -- and jump in and correct me if I'm wrong because I heard this yesterday-- \$24,000 to \$26,000.00 a year. I work for a trade association. I can't float that number by our members without this thing being dead. \$24,000 to \$26,000.00 will kill it. \$15,000.00 will kill it. Eight is what the industry has been expecting. It's probably a little more realistic.

So, it's going to be incumbent upon us as operators to make sure this is as strict of a standard as we possibly can make it and still be a safety security tool, which means a lot of the bells and whistles that are talked about at the international level are not going to survive.

Now, I'm going to contradict what I just said. There is enough concern over stressing the guy in the wheelhouse that the company that can come up with the best working radar PCS overlay probably wins. They do not want to look left, look right, out the window to look at basically the same information.

The final thing I want to leave with you is that the National Academy of Sciences had a meeting in New Orleans two weeks ago on AIS. NAS is studying AIS. We heard two days of presentations by AIS experts and other human factor experts. And I was sitting there on behalf of an industry that brings 4,500 to 5,000 vessels to the table, combined passenger vessels with our vessels, inland passenger vessels are up to 6,000 or so. Add all the pilot carry-on units, and I bet that's another 1,000. The domestic market, in other words. It bothered me that in two days I didn't really hear anybody except for Mark Stevens talk about PCS inland operations.

This is going to go to a one-man wheelhouse. It's going to go to the guy who does not want to spend a lot of time going through fields on his computer, updating anything, even doing more than glancing at it in passing, and that's the market. And based on costs and based on the complete focus, and what we're seeing on the international community, I'm afraid you're going to see this industry digging its heels and saying if you want this market, come to us with a product that's built for this market.

And I know that a lot of you are light years ahead of this. You already know this. And you're working on a PCS level to do that. But again your future is now intertwined with AIS, and it's going to be seen as one-and-the-same product before very long.

I guess I would say that some of the deadlines we're seeing and some of the costs make this thing a nonstarter. So we need to get over those humps to make sure that this project has a life. And I won't say that it's dead; it's not. You know that it's a good

product. You know that it's a good safety tool, but getting over a couple of these humps is very difficult, and that's my story. Thank you.

MR. NILES: Thank you, Ken. Well, we have the government chart producer. We have the regulatory authority. We have the electronic chart and the ECS vendors, and we have the users here. So, let's go ahead and let the dialogue begin. Questions? Larry, I'll give you back your four minutes.

MR. DEGRAFF: Over the last couple of years, I've been riding boats up and down the river working with one of my customers that operates a fleet of boats. And it's become very apparent that to produce what the operator of these vessels needs is not to create a product based on a previous product.

The point that Ken made was very good. There are two issues. The way chart data is used by the user in the rivers is totally different than the way data is used by the blue water sailor. My background basically is a blue water sailor. And having the opportunity to ride with pilots and talk to them about the way they use the data, it's clear to me that the data structure is going to have to be constructed, although not necessarily in a different format, but differently than we would normally construct a navigation chart for a ship.

A lot of us vendors have been kind of talking on the side. And it appears to me that we're all pretty much on the same page, that we all realize that the charts and data that are coming out for the rivers is going to be different than the charts that are coming out of NOAA. And then we have to develop a special system that the tow boat operator can use that gives him the ability to access the information that he needs from the river chart and do it in a very quick, very fast method.

One of the things that I've seen is that the operators rarely have their hands free. You know, they're running multiple rudders, and they must be able to access the information from the chart quickly. He can't go through several levels of menu to get the information that he needs. He needs it. He needs it fast. And that means that we really have to develop a special application software set.

Now, Dick earlier presented his solution, which is a special river package software that deals specifically with the river needs. Transas will be developing a similar type of software to address these issues. But we need from the Corps and from the Coast Guard and from the data people a format that we can begin to work with.

In other words, we need to get a clear definition of how we're going to structure that data, what data is important to the mariner in the river, not to the blue water mariner, but what data is important in the river, and then how, once you define the file, we can then build the object presentation libraries. Presentation libraries are relatively easy to do compared to the actual Corps data.

So, if we can define what the needs of each operator are, like how many contour lines do you need to have, what should the distance be before you re-draw banks of the river, for example? How do you deal with the presentation of a revetment? That's the stuff that we can do, but you guys have to put all that information in a file that we can access. And that's what we're looking for.

If we have those things, we can build a product. We're getting closer; all of us are getting closer to meeting the needs. I have some new software where all the menus disappear. And basically the only thing the guy looks at is the chart. If he takes his hand off, and he moves his mouse, and he clicks on an object, he'll get information on the object. It pops up on the screen. A lot of these towboats operate with small pilot houses. They can't use large displays. That means that you've got to make the buttons a little bigger so that the guy can hit it with the mouse. There are a lot of issues. We can do all of these things, but we need the fuel. Thanks.

MR. NILES: Larry, let me ask you one other question before you quit. Concerning the data, would you recommend that we strictly follow ENC specifications? I know that that would make it easier for you folks to read the data. But like you just pointed out, there are differences, so there are trade offs.

MR. DEGRAFF: I believe that we are going to have to modify the S-57 ENC data structure. Earlier this week I talked with a fellow that I worked with who's going to Europe. And he's taking a list of things to Europe for an internal discussion relating to the German river requirements. And we're going to be looking at or basically doing the same thing that you in your presentation said that you were going to be doing. And that is, we're going to look at what the customers in Europe have asked us for to see if it's compatible with the river information here.

To tell you the truth, I think it's going to be significantly different. I think their requirements are going to be not nearly as wide ranging as our requirements are. You know, what we do to control water flow in our waters compared to let's say, for example, the Rhine River, that it's light years different. And so I don't really think that we're going to be able to come up with much compatibility between the European requirements and the U.S. requirements.

And I actually believe that the U.S. requirements are going to be more detailed. And if that is the case, then maybe we should be inviting what the Europeans do. Because if their requirements are less, we can incorporate them in what we're doing here.

MR. NILES: The only problem is they have a big jump on us.

MR. DEGRAFF: Yes, but I don't believe there's a solution yet.

MR. NILES: Thank you.

MR. DAVIS: Dick Davis here again. First of all, I want to address the ENC. As Fred defined an ENC, an ENC has to be produced or authorize someone else to be produced by a hydrographic office. The Corps of Engineers is not a hydrographic office even though it's got the best available data for harbors on the coast for the inland waters. Their data doesn't qualify as an ENC because it's not a hydrographic office.

And Tony has dubbed his terminology, what he's going to be producing is IENC. IENC data does not qualify for an ECDIS, so we should forget this whole term ECDIS. We're talking ENC. And along with some of these other standard working groups, what's going to be required here in the United States for coastal navigation which includes tow boats is Class II ECS Specifications coming out of RTCM and 109.

Likewise 109 is being beefed up to qualify as a back-up for ECDIS as a Type I, but you guys will be Type II. And it will allow private sector produced databases, but we will be producing our databases derived from the official authority. Now in this particular case, Tony is and the Corps of Engineers is an official authority, but it's not a hydrographic office. So, it doesn't qualify for an ECDIS, but it does suffice for ECS and is the best available data. You know, I just wanted to mention that one.

Now, there's one other thing that I wanted to mention. I mentioned this to M. K., and I addressed this issue at St. Louis. That was a couple of weeks ago. Your budget is \$4 million dollars over ten years, and you've got about one-fourth the money you need to accomplish this. Now, the guys that used to work for me are now producing the S-57 data for NOAA right now. And they're light years behind where they really want to be at this time because of the nature of the beast of doing pure S-57 ENC specifications. It just costs too much even for a hydrographic office. And believe me I've been around the world. I've seen hydrographic offices. Tony has a hydrographic office because you are really, even though you're not quote a hydrographic office according to the IMO.

We have NOAA, NMA, and the Corps of Engineers. And I'm even going to throw in the U.S. Coast Guard, which falls under the Department of Transportation because they do the navigation, text and floating aids, and it's very critical. These are the things that are important on the river. And here again, too, your first couple of years you're basically going to be producing exactly what I'm reproducing right now anyway. It's the existing chart books.

And there are two types of accuracy, informational accuracy and horizontal positional accuracy. And I'm giving back to all the drivers right now exactly what you guys are publishing. And a guy, a towboat driver called me up; they were running up the Cumberland River. And he said, "I'm up in a corn field." And they wanted me to fix the chart. I said, "No, that's the Corps of Engineer's chart. I'm not going to change it." I said, "Are you safe to pass the track?" They said, "Absolutely." I said, "Come back the same way. Go up on that corn field because that's where the river is." And that's coming from the Corps of Engineers' chart book. You follow me?

And that's what's critical. And they blame the chart producers. I know Transas makes data. C-map makes data. The customer is the most important part of the system. It does not come back to the government. It comes back to the guy who supplies the charts, and they're his charts. They're not the government's chart even though I'm just reproducing in a derived format government data, but the government data is wrong.

So, what I'm going to make a proposal and a suggestion. Unless you know somebody that could get you more money, why don't you change your goals, because you'll never finish it. And the more data you collect, the more you're going to have to maintain. I brought this up in St. Louis.

Why don't you try to modify IENC collection working with the U.S. Coast Guard as a hybrid raster and vector. Those things that you know that are critical and high up on the list like the range lines, the floating aids, the fixed aids; those things that under the MOU of the U.S. Coast Guard provide you. Get those and make them available. And then at the same time focus on the existing chart books, for example, the upper Ohio, the Tennessee, the Allegheny, the Arkansas has got some good stuff up there, but I haven't seen it from the guy out of Louisville.

I want to say this again, data manufacturers make most of their money not from the commercial guy, but from the recreational industry. The recreational industry here on the inland waters is really picking up. And at Ten Tom it's very popular. And that area needs to be re-surveyed and re-compiled.

And you may get some support out of Congress, I mean here again just that great association has 2,500 members, and they use that religiously. Believe it or not, I was basically able to put the Ten Tom pretty good. Some of it is all right. I used tricks to put these things that are uncontrolled by you on your surface and, using standards 90 percent of the time I'm okay, but there are those things that just don't make sense.

What I'm going to suggest is an overlay process. Get the upper Ohio guys, get the guys coming out of Huntington and Pittsburgh, and hurry up and get a good up-to-date paper chart in raster, take the aids off, make the aids available. And make the chart books look alike. I like the way the guys out of Louisville do it because it looks more like a coastal chart; Tennessee, Cumberland.

If you can get that all to look alike while you're making the paper charts, take the aids off, make all the aids of navigation available, virtual aids make them available upon the Internet, you suck them down, you put them on there, you can update them, you know, and it gets you there.

Spend your money wisely to provide the best product as cheap as you can as fast as you can. Get that resurvey work done, and then build from that. Think of the paper chart, think of the aids. And as you're doing that, then build this total vector set because vector does have its benefits over raster.

Now as every towboat driver, every towboat company here and every decent electronic chart manufacturer of software, these guys create their own vector, their own alarm zones, their own everything that's built into their own system. They save it and then use it.

So, the government, I know if they need vector to do what they have to do, they make it themselves right within the ECS system, and they save it. But it's just something to think about, you know. I can talk more with you afterwards, but maximize the dollars, the U.S. taxpayers' money to get the biggest bang for your buck and say to the navigation maybe don't use this ten-year plan that you have, and modify it a little. That's all because you don't have enough money.

MR. NILES: Well, Dick, thanks. As far as the funding goes, the length of development is basically to fit the funding. Right now we believe that we're going to be at about \$4 million dollars a year, give or take a little bit.

So, with the task that we have ahead, that will be over about a ten-year period. If Congress sees fit to give more, then of course that process would be accelerated. As far as bang for the buck and products we should be doing, we are doing that right now. We did not commit to make a new paper chart to the National Transportation Safety Board after the Amtrack derailment. We committed to fostering electronic chart technology. A new chart book isn't going to do that.

As we have heard from these guys and others from the industry, they're not looking for a new chart book. They'd like to see an updated one, but they also want to be able to use the electronic chart technology. Keep in mind at the end of this year, we're talking about initial vector chart coverage for over 70 percent of all the tonnage on the inland waterways. Now, that's pretty good bang for the buck.

Now, we still have some work to do on the whole system. And you saw how long it's going to take, but the products that we're going to have out are going to be at least as good and in most cases better than what we have right now on the paper charts. But thank you for your support.

MR. HOUSE: I only have a few comments. This is Shelby House. I have a few comments. Some of these are addressed to everyone, some mostly to the charting vendors. Some of these have already been made. Maybe I'll say it in a different way. All we're really talking about is the base data. And I think, you know, Dick, kind of hit on this a few minutes ago in his comments.

When we have an electronic charting system, we start with a base set of data or base chart, but there are quite a lot of things that we do and things that we need to do with the charting system after, that are actually overlaid on the base data, even some things that do not necessarily have to do with navigation. A lot of the demonstrations I have seen show nothing about annotating the charts. That's a very important feature. You know, that would cover a lot of ground.

Also, I did not hear a lot about support for these systems. And that's something that I think we all need to plan on. This cannot be a nightmare to support it and maintain on board the vessels. I hope everyone understands the nature of how these systems will be used. We're going to tear it up. We're going to sit on the keyboard. We all have fat fingers. We're half blind. When you put us in front of a computer screen, we're going to find all of the system files and rearrange them, delete them and spill coffee in the keyboard and so on. We'll have crumbs all over everything. It's going to be a pretty tough environment.

That's how it's been with computers in general on board the boats. This is what we're finding. It's a dirty environment. There's a lot of vibration. It's going to break. And especially software-wise, build in something that is easy to repair, and is easy to troubleshoot. At least you know what's going on. You can isolate it between hardware and software; that kind of thing. I guess I'm kind of skipping around here, also.

Another thing I would like to touch on is that most of the charting systems I've seen are blue water oriented. And we're talking about coming inland and specifically to the Mississippi River system. I'm not an expert on the S-57 by any means, there's a whole lot I don't know about it, but I don't see a way around making some kind of a super set of the S-57 standards.

There's a lot more of a vertical component. You're not dealing at just sea level anymore. You're going to have several vertical tables. I think Larry touched on, what does the vertical resolution need to be. I would suggest one foot. That is twenty years down the road. I know Tony is about to choke.

And that's not necessarily derived from the two RMOs, the GPS, and that kind of thing. This is going to come from river stages and so on. And, like I say, you've got to keep it simple to get something started. And down the road we'll probably get there, but I think that's what we're talking about. I just wanted to state what I think the goal ought to be. You know, we're talking about one big giant docking chart, for lack of a better term.

Training is another issue. Documentation, help files, that's going to be important. A lot of these guys haven't worked with computers before. Keep that in mind. It's going to make a difference to whether this lives or not.

MR. DAGGETT: How can this be integrated into some of your training that you're doing now? Is there a place to integrate some of this?

MR. HOUSE: Sure. And we have done that. I've had a group of South American pilots up there, and it works pretty well. And that could be developed further. However, keep in mind that some of the best training grounds or the best training environment is on the river while you're underway. This could be done say with, besides help files or context sensitive help, training videos, specific exercises; that kind of thing. There's a lot that could be done that way. That's mostly it.

The other thing is frequency of the updates and the data. I'm not sure if there's really a standard or a de facto standard for a time period on updating the charts. But if it's anything less than about one day, we're likely to need some facility to make our own updates to these charts whether it's our own survey equipment that's integrated within a system for real-time updates or what have you. There's going to have to be some kind of facility.

I don't see how the government agencies are going to be able to provide this kind of real-time data. And I think it's going to take a lot of work, and this is the work ahead of us between the government agencies and industry to define exactly which data needs to be updated in real-time as well as what could be left to say a quarterly, monthly, or some other period. That's still kind of ahead of us, but that is going to be an issue. And keep that in mind.

So far and I haven't looked at some of the other systems in detail yet, please keep in mind when we talk about these symbol libraries or the display libraries for some of the aids in navigation, we have our own stuff maybe that come inland on the western rivers, and most of these are not in the set that I've seen so far.

Hopefully maybe RTCM can define a standard set as far as the U.S. Coast Guard Volume V. There are two colored plates in there. And there's a set for intracoastal that I know of and also for the western rivers, and these symbols need to be included. You know, a lot of systems are compatible internationally, but you get a little bit different as you come inland, you know, intracoastal and the western rivers. Those symbols need to be included. Thank you for your attention. That's all I have.

MR. MYLES: I'm M. K. Myles from regional headquarters. Could you expand on -- you did mention intracoastal and up the Mississippi.

MR. HOUSE: Right.

MR. MYLES: Could you break some of those comments down between those two? Are they exactly the same from New Orleans over to Galveston, or from New Orleans up? Is it two different situations from your perspective?

MR. HOUSE: As far as the symbol library or --

MR. MYLES: Any of the things that you mentioned. You mentioned document charts, frequency of updates, users adding their own survey data, symbol sets; all those things.

MR. HOUSE: I'm not sure that frequency would be as much of an issue on intracoastal, as it would be on the Mississippi or western rivers. Intracoastal I would think is going to have a lot more to do with, for example, your sea level and your tides. That's not going to change like levels and flows on the Mississippi.

For one thing, one noticeable change on the Mississippi is that you might have a rise in one location, and a fall in another location, and it might be falling above there. And so you have a rise that's actually coming down the river. That's going to attenuate some, and that's a little bit different I suppose than a regular interval and coastal or intracoastal.

MR. MYLES: Thank you, Shelby.

MR. DEGRAFF: Larry DeGraff. In our company, we have digitized some of the river charts from the books. And from Greenville down, they navigate on charts that we produced that are based on your charts, the vector charts. Once they reach Baton Rouge, we shift to NOAA charts. One of the requests was they said well, we want Corps charts below Baton Rouge. And I said, "Why would you want Corps charts?" They said, "well, on the Corps charts they show the fleeting areas. NOAA charts don't have fleeting areas."

And so I'm thinking maybe we should have two sets of charts, Corps charts down to the mouth of the Mississippi River, which they have in the existing books. And then in addition, you would have a NOAA chart and allow the operator to pick which chart he wishes to use.

MR. NILES: Larry, let me ask you, do you think that it's really as simple as one or two features that's the difference, in which case fleeting areas on the NOAA charts would meet their needs and they'd be happy, or does it go beyond that?

MR. DEGRAFF: Actually I think that you could approach NOAA and have them insert the required elements. I don't think there are a lot of elements, no. We have to ask the operators their opinion on it. Anybody that runs the Mississippi?

MR. WELLS: Ken Wells. Because we have so many operators that operate down the Mississippi and then on to the intracoastal waterways, I think our preference would be for what the Corps and for NOAA is doing to be for them to be working so closely together that it becomes indistinguishable. That may not answer your question.

MR. DEGRAFF: That was very good evasion, but the issue is can you define what is missing on the NOAA charts, the elements that are missing on the NOAA charts that are on the Corps charts that are of value to the tow boat operator from Baton Rouge down and on the intracoastal?

And then we could address a modified layer of S-57 into the NOAA chart or even an add info layer that we could supply from the Corps to our users in an overlay format that they could put over the chart. That would minimize the duplication of effort. But I believe that there are not too many features that are important. One was the fleeting areas. That was the one that was identified to me.

MR. DAVIS: Dick Davis again here. I want to second what Larry from Transas said. He's absolutely correct. His customers are telling us and have told me in Softchart what they want to use. Remember the customer is the most important part of the system. The tow boat industry and the intracoastal industry, those guys like the Kirbys of the world they are mostly coastal, but they do from time to time come up the rivers and want to use Corps of Engineers source material.

Softchart publishes and depends on a lot of customer regions. Where's there an overlap between NOAA and the Corps of Engineers, I publish both. The customer prefers using the Corps of Engineers' chart book information rather than the charts produced by NOAA. You get into politics here, and Tony can talk about it. If it's coastal water, it's the National Marine Service. It's NOAA's responsibility, and the Corps is going to have trouble taking that away from them and getting the funding to do it.

If it's a river, the Corps of Engineers should be doing it. The Corps of Engineers even along the coast is supplying the major source material for the NOAA chart right now by all the maintained harbors and the projects and everything else. That's Corps of Engineers' data just being put on to a NOAA chart.

If anybody should change, NOAA should change to really the Corps of Engineers, not the Corps of Engineers. Or just say, I'm going to publish it, too, even though you guys are. And guess what, NOAA will have three hydrographic offices here in the United States because there's another vector data set sitting out there called DNC. It's called Digital Nautical Charts.

Guess what? It's produced by the U.S. Navy by NMA, and currently it's the best vector data set in the world, and it is more complete. It's worldwide coverage and currently today has better U.S. coverage than NOAA. But guess what? You guys can't use it here in the United States because it has not been published and made available. And both our River Pro and our CAPN software because we are working with the U.S. Navy, it's available to over 1,500 of our customers.

But guess what? They're military. They're U.S. Coast Guard, they're U.S. Navy, or they're contractors. But it's strictly vector data with all those vector data features; turn things on, turn things off. They're day is done. In some cases it's better coverage than what NOAA is producing. And the taxpayers of America have already paid for it, but you guys can't use it. I mean there's all kinds of data floating around. But with respect to what Larry said, the Corps is doing a better job of charting inland waters than NOAA.

MR. NILES: Dick, once again thank you for your support. I think I can put the issue to rest. The Corps and NOAA are not going to make duplicate charts. That's already been decided. It's a done deal. That's not a good use of taxpayer money.

In the areas of NOAA charts, they have that product. They have that charting authority, and they certainly should be given the chance to make a product that the users want. Now, in the cases where there are a few features here and there that are not in their

charts, I know that NOAA would like to know about those. And if possible, include them in. And if we have the data, then we'll make it available to them.

We haven't done a very good job of that in the past, but that's all part of this initiative, giving them information so that they can improve their ENC. And then in the areas where we have so much information, where it changes so quickly and they just can't handle all of it, but the users want it like the defined channel in the coastal areas, yes, we might produce a product that would be used in combination with or overlaid on the NOAA chart, but it doesn't duplicate.

MR. HASSELL: Bruce Hassell. I believe that you've stated in ten years we'd have all the completed charts. That's what you were looking for, for digital charting. And then, Ken, you were saying in 2006 all companies would have to have it in 2004. To me it's very important that we get these two dates together. The charting system has to come on-line the same as AIS.

Now, I know we've asked for a lot of bells and whistles every time we've talked, things like Shelby just mentioned. Maybe we need to back down a little bit to speed this process up and give us the basics like the foundation of the river, a good survey of the river; something we can build on. Give us all the river systems as quick as you can with the fixed objects, and not so much of what we've asked for, top bank and several different things. Maybe we can get that later.

But when AIS comes on, I feel we need to have all the river systems as correct as we can. On our system that we operate, our navigation system, we expect for every vessel to show up on it rather than radar. As Dick said, we don't want two boats passing in the corn field.

MR. WELLS: Ken Wells. Bruce brings up a point which causes me to ask a question. I'm going to ask you, Tony, but I'm going to actually want the answer from M. K. AIS is being promoted at this point as a security system as part of the need for maritime security. The Corps is very worried about security issues to the point where one part of the Corps is apparently trying to develop a transponder that will go on barges so that the locks will know what's going on with the locks. I'm not sure that that proposal has a leg to survive in part because the Coast Guard would have to be the one to require it. Their focus is AIS.

If AIS is the future for maritime security, and if it is going to be used on the inland system to give us, for instance, our vessels going through locks, Tony, why have you been unable to get more money? Why is this not seen as a charting issue but as a security measure at least partially, and is there a role that we can play in trying to get the word out that AIS is not going to work without accurate charts? And then the question is, isn't that right?

MR. NILES: My boss is going to speak.

MR. MYLES: M. K. Myles, the Corps of Engineers headquarters. It's a good point, Ken. We'll get with the infrastructure security folks when I get back and talk about the E-charts; how they contribute to on-land security. We've talked to them some about that effort. But since it's a separate funding line and since the funding has been tenuous, I guess it wasn't necessarily an attempt to tie ENC's or IENC's or whatever they call these things over to on-land security. We have to discuss that thoroughly.

MR. WELLS: The first part is we as users are not going to reach out in understating maps within the Corps' role that this plays with AIS. The second is I think the President's budget anticipates more money will come for security. We're ready to argue for this being security.

MR. NILES: Right, good point.

MR. BLUME: Alan Blume from the Office of Local Traffic Management, the Coast Guard headquarters. This question of electronic charting has been the subject of a lot of discussion within my office actually since about Wednesday afternoon and longer, but it's the bulletin that was falling down most recently.

But one of the challenges that we've had as many as you know a while back, we did publish a request for comments on electronic charting. And that was a project that since September 11th has been stalled. And as many of you know, probably legally any kind of regulatory project that's not linked to security right now is basically almost on all stops. So, you don't have to worry about all the plethora stuff coming out of the building any time soon other than security issues.

But the challenge that we're facing or the question that we're asking right now is we realize that as of the first of July of this year, the 2000 provisions of SOLAS will come into active force. There are already provisions through IMO resolutions to allow the use of ECDIS as carriage requirements for paper charts with proper back-up, but that will definitely become very clear in the first part of July, 2002. And that's what's going to be happening in the international market in the vessels sailing internationally.

And we suspect that the first response from the domestic industry is going to be, it's good enough for them, what about us? How come we can't use electronic to meet our carriage requirements? You know, we're using them, but we still have to have this piece of paper on board. Those are questions we're wrestling with.

Now, there are some differences of opinion within the building in terms of whether a chart is a piece of paper, or whether a chart as it's defined by the IMO as a piece of paper or the database upon which that piece of paper, the image is generated; what works. That's being discussed. We're talking with NOS and asking them to tell us, as the hydrographer, what the chart is.

The point Ken made about articulating the need for this is something I think I will expand and say articulate it to the Corps, but articulate it to the Coast Guard as well.

Basically we're trying to figure out how to get around the limitations within which we have to work. And one of those limitations right now is we just do not have the resource, or unless we can put a security tag on something, it's basically going to sit still.

And so the question we're confronted with is how can we legally permit the carriage of electronic charts and their full use, so you can maximize a utility without, creating some kind of friction? So, I leave that to you. But it is an issue that we are looking at, and I talked to Tony. We need to start looking at more and look forward to that. And the whole question of AIS, I'm not going there.

MR. NILES: Larry, let's do one more, and then we're going to have to wrap it up.

MS. CAMBRIDGE: Yes, this is Joedy Cambridge from TRB and the Marine Board. I just want to say to Ken if you do not feel that the inland operators were addressed adequately in the workshop in New Orleans last week, you simply make that known to the committee, and those issues will be taken up. We have a board meeting coming up on May 14th and 15th, and I'm sure that Craig Phillips, who is a member of the Marine Board, will certainly raise that question. But the committee is open to all the information, ideas, suggestions and criticisms they can get, so that we're sure that we address all the needs of all the industry when we prepare that final report.

MR. NILES: Larry, I'm going to pose one question here which was brought up by Cliff out of the Vicksburg district here, and this is an important one for us. Since I have the podium, I have the authority of the last one.

The issue was brought up of top bank. The districts are rather nervous about that feature on the electronic charts. So, I want to put the question to industry. Can you guys give me a good reason for our record here why that feature is so important.

MR. HOUSE: Shelby House again. That feature is important because it really does, as you stated before, change the dynamics of navigation in the river. Let's suppose you have a point way behind an island. The river comes up. Let's say it takes ten feet at Memphis for that to be all wet. The more you get above ten feet on the gauge at Memphis, the more water you have going behind that island. You may not have enough water to navigate there, and it's not the official navigation channel, but it still affects the current velocity. If you've got a lot of water trying to drag you off that way, you need to know about it ahead of time.

One really critical example would be just above Cairo Point on the Upper Mississippi above the Upper Mississippi River Bridge, you know, you have a dike closure there at 26 feet. Once you start getting water above 26 feet, it changes the entire dynamics and what you have to do to make that bridge. Behind the tow head if there's no water running back there, you have absolutely dead water right above the bridge on the left ascending side. Once you get above 26 feet on the Cairo gauge, let's say you have 36 feet, the top ten feet of the river is now going behind that island. Now, you have a cross

current running right immediately above the bridge. And you have to know how to set up for that to navigate through that bridge.

And, yes, it's important information, whether it's behind an island or dike closure or whatever. It changes the way the current runs, and it's important. Thank you.

MR. NILES: Thank you, Shelby. Our bus is going to be leaving in just a little bit. I'm going to end it with two slides here. Where does it go from here? I want to keep the dialogue going. Something we've already done is we did get input from the industry a little over a year ago. You can see the ones who participated gave us the start on our content specifications. Those are the features they said they wanted in there.

And then we've done a demonstration on two industry vessels last September. So, they got their first exposure to a vector chart on the system. We want to keep the dialogue going with industry input on some issues; input for standards related to this. A lot of the details like S-57 may be transparent, but your input will help drive what we do with that.

Probably the biggest thing coming up will be test and evaluations of the initial IENCs we reproduce on the Ohio and the Mississippi at the end of this year. We will be looking to do some structured tests on some industry vessels to get some comments back from the users on those. And you can see a list of some of the standards that this would help us with; our own internal spec., RTCM-109 performance, the database standards, the ISO 19 through 79, and the display standard S-52, latest performance standard RTCM-109 that Fred was talking about.

Right now we don't have anybody from the inland towing industry involved with that standard. We do very well to have a few folks who actually are looking at that and giving some comments on it. Our own content specifications that I mentioned before are on our web site. We encourage you all to pull it down and take a look at it. Not just the features, but those attributes that go behind it.

And then we're also setting up a discussion site. Get on there, post your questions, your issues, keep the dialogue going. Our web site if you want to write that down is [www.tec.army.mil/echarts](http://www.tec.army.mil/echarts). The web site will grow. More information will be added.

Folks, we thank you all for coming. This has been very beneficial. And if you're staying over at the Vicksburg Inn, let's keep the dialogue going. Thank you.

MR. DAGGETT: I just want to thank everybody for their participation. I think it's been a great start. Don't forget there are some handouts up there. We'll have some proceedings on this. I guess it will be probably sent to everybody that registered. And if you have interest in working with this committee, let me know.

