ERDC-EL
Moderator: Courtney Chambers
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1:00 PM CT

Courtney Chambers: Okay. This time I'll give you today's speaker. She's going to be providing an overview of the Regional Sediment Management Program.

Ms. Linda Lillycrop is a research hydraulic engineer with the Coastal Hydraulics Laboratory at the Engineer Research and Development Center. She's the Program Manager for the U.S. Army Corps of Engineers Regional Sediment Management Program, a principal investigator at the ERDC Dredging Operations and Environmental Research Program -- known as DOER -- as well as at the Flood and Coastal Storm Damage Reduction Program. And she's also the Army Corps of Engineer's liaison to the U.S. Integrated Ocean Observing System Program -- and that's led by NOAA. Ms. Lillycrop's work experience is multi-disciplinary in the coastal arena including numerical modeling, coastal field data collection and analysis, shore protection design studies, navigation and dredging, beneficial use and wetland creation, and oversight of the development of tools and applications for managing and visualizing dredging information and data. In addition to working for the ERDC Coastal Hydraulic Laboratory, Linda spent ten years working for the Mobile District's Operations Division and Engineering Division.

More about Linda can be found in her bio posted with the presentation and recording of today's meeting on the DOTS webpage for your reference.

We're very happy to have you with us today, Linda. So now I'm going to give you the presenter rights. We'll enter listen-only mode and then we can begin.

Recording: All participants are now in listen-only mode.

Linda Lillycrop: Thank you, Courtney. I appreciate the opportunity to present the Regional Sediment Management Program on the webinar today. I'll give an overview about the program in general and then focus more on the tools and capabilities that we use for implementing regional approaches.

So first I want to go over, you know, why regional sediment management.

Well, currently the Corps of Engineers has managed our projects in our sediment on individual or local projects role rather than managing the regions that encompasses our sediments and projects. And this approach may not address the impacts of our local actions on our adjacent projects as well as the overall region.

I apologize having a little bit of difficulty (unintelligible) webinar.

This approach also doesn't optimize the use of sediments across our regions. And additionally we're challenged by our budget people being flatlined or (unintelligible) while our customer can (unintelligible) project (unintelligible). So we're learning to do more with less and a few more with our sediments (unintelligible).

To address these issues the Corps of Engineers implemented the Regional Sediment Management Program in 2000. The goal of RSM is to request management practices for more efficient and effective regional sediments managing the projects across our watershed environment.

Courtney Chambers: Linda, I have a request. Can you try speaking directly into the handset? I'm sorry. It is coming through a bit muffled now.

Linda Lillycrop: Okay. I hope everyone can hear me better.

Courtney Chambers: That is better. Thank you.

Linda Lillycrop: Okay. So, RSM or Regional Sediment Management strives to support sustainable solutions which benefit the Corps primary missions of navigation and dredging, flood risk management, and environmental restoration. You know, RSM is about moving sediments from the sources to where they are needed.

So before navigation and dredging we kick off a few of these optimizing (little material) that's dredged from our channel. You know, placing material in ways that use it more beneficially and while reducing cost.

For flood risk management, we place material along our shoreline which reduce the shoreline erosion and assist with storm protection. And then our actions result in enhancing the environment and ecosystem.

So early in the program we developed these RSM operating principles. We recognize sediments as a regional resource rather than a local project resource and we work together across the Corps and with our partners to prioritize the use of sediments across the regions.

And instead of using the least cost alternatives, we work to link together multiple projects which may allow us to better use sediments and optimize operational efficiencies or use national processes. And these (unintelligible) achieve our overall cost the same or in some cases it can even reduce cost.

And doing something better cost more. Our stakeholders, our partners of other projects will assist by providing additional funds to do something better.

We also consider the impacts of our local project actions on adjacent projects in the overall system. And we monitor it to ensure we're giving the expected results. And if we're not we modify those actions through adaptive management practices.

We use state of the art technologies to understand the coastal processes and to share our information in our data and tool with our partners as well as within the Corps. And then the key to successful RSM is more coordinating and communicating within the Corps and with our stakeholders and partners.

And this slide shows the participation on our RSM program over the last 14 years. So RSM works collaboratively with our Corps of Engineers Districts and their partners as well as the different research and development program. And we work with plenty of the Coastal Districts and part of the Inland Districts across the Corps.

We work with the R&D programs to utilize their technologies and models to better understand our regions and to identify opportunities for improving the uses of sediments. We also work with the programs to enhance our tools for regional approaches.

And then, while we've been working across the Corps I just want to give one example. In the Jacksonville District we've been really successful with implementing RSM.

And this slide shows Jacksonville District's Northeast Region. It includes three counties -- the St. Johns, Duval and Nassau Counties.

And so they first began working in the St. Johns County region which includes several local projects in the St. Augustine Inlet.

The red circles represent the beach nourishment or shore protection projects and the yellow circle represent the borrow areas for those projects. And then the green circles represent the GIWW and the plan in maintenance dredging that's conducted in that area.

When they want to implement one of their shore protection projects or the beach nourishment, they're unable to obtain a permit for using material on the ebb shoal. So what the district is trying to do was take a regional approach and look at all the sediment sources in the region on where the sediments are needed and leave all these efforts together to better manage all the sediments in the region.

So they are able to work with their stakeholders and come up with a solution. And what they've done was they're now using the material that's dredged - the (unintelligible) material dredged from the GIWW and place that material on the beaches. And the beach projects are paying for that material to be placed on the beaches.

And by working this one effort they were able to combine several permits into one permit action and then reduce mobilization and demobilization cost saving several millions of dollars. It also created environmental habitat along the beaches and shoreline.

Then we move up to Duval County which includes Jacksonville Harbor. So they are working to include regional approaches into the Jacksonville Harbor Deepening Study.

Initially material that was dredged from the harbor, some of the material - the beach (unintelligible) material was placed in - along the beaches, but the majority of the materials are transported up to the (unintelligible) to shake that material out the system and also change how to transport the materials in several miles.

So here in the analysis they found that they can be placing more materials along the shoreline in the nearshore placements and then there would be use of material to restore the Great Island Marsh which would increase the ecosystem habitat. By placing the material in the marsh area it reduce the transport distance and therefore it reduce the transport cost, and then also I believe engines with smaller dredge was also reducing cost.

So this effort reduce cost and then improve the (unintelligible) material, enhancing environment, and then improve the shoreline region along the beaches.

They're also working up in Nassau County where they take the material that's dredged from the (unintelligible) through October and rather than taking the material to the ocean disposal site that's 14 miles offshore (unintelligible) about 70% of the material along the Nassau County beaches. (Unintelligible) advertisers are $40 million using that material on the beaches for (unintelligible) for the shore protection project.

Now I just want to review some of the tools and capabilities that we use for better understanding our region and doing an analysis to identify opportunities for (unintelligible) sediment. And I did want to mention that, you know, RSM works collaboratively with the districts as well as the R&D Program so we show an effort with, you know, the R&D Program.

So first off, one of the key tools for RSM is developing regional sediment budgets because sediment budgets provide us with the understanding of the sediment resources and things across the regions as well as sediment transport patterns and pathways.

So the coastal lands and - the Coastal Inlets Research Program originally got the Sediment Budget Analysis System or SBAS which is a PC Desktop version. And the RSM program has been working to trade a GIS arch map base version of SBAS.

And we're also developing a sediment budget repository. All the sediment budgets are across the U.S. and then have them do a web-based viewer so that we can all have a better understanding about sediments around the U.S.

The RSM program has been working closely with the National Coastal Mapping Program since we initiated RSM. The National Coastal Mapping Program is managed by the Joint Airborne LIDAR Bathymetry Technical Center of Expertise or JALBTCX.

The National Coastal Mapping Program provides high resolutions, regional bathymetric and topographic survey using LIDAR technology and they also collect hyper-spectral image which correlates the LIDAR survey.

The data is valuable for our (unintelligible) because it provides us with high resolutions morphology so that we can understand the morphology not only along our coastlines but along our inlets and channels as well. And we set information for calculating volumes and transport rates for our sediment projects.

Another capability of the mapping program is they link together the LIDAR data and the hyper-spectral imagery to identify land covered types and then they use the LIDAR data, again, with the imagery to identify submerged aquatic vegetation. And through those tools we can, you know, better handle the landscape over the region as well as around the vegetation and then we can identify opportunities for improving environmental habitat.

So in recent years they've been developing the regional process and analysis tool or RPAT -- which automates a lot of the process for extracting the morphologic features -- for example, you know, the ebb shoal -- and then understand the sediment transport and morphological changes across the regions. And that is the capability to correlate this data to meteorological and oceanographic data if you can understand the (forcing) which is causing those changes along the shoreline. And then it also reduces the uncertainty in our estimates for (unintelligible) budgets.

So I mentioned the data. It's also being used to better understand how our project and actions are impacting for our ecosystem functions because they've been using the landscape data and they're developing metrics correlating with the changes. And then this information will be used to develop more of which can predict the changes to the ecological processes and landscape pattern.

Just showing there's a technical report that's been published and that's available on the RSM Web site.

So when we first began the RSM Program we started working to obtain datasets across the region. You know, rather than using our data on the local show we need to capture data across the region in order to develop a regional sediment budget.

We found it was difficult - not only difficult to find and access this data because it was on individual desktops and servers or even hard copies. And once we did obtain the data we found it was difficult to manage a large part of the data that we have. So we developed eCoastal on RSM -- a data management in GIS system -- to help us manage the data and databases as well as visualize - develop tools to visualize and analyze the data.

And this tool - the GIS we had (unintelligible) began developing the capability to add dredge data and dredging function. That tool is now called the CE-Dredge Data Management with GIS.

As I mentioned it improves our ability to manage, visualize and analyze data. It helps us to develop our regional sediment budgets, facilitates our - the sharing of data and not only across the Corps, but with our partners and then developing tools which access that data. And then it protects our - the many dollars that we spend in collecting data by keep - throwing it in the database (unintelligible) successful for the future and the (unintelligible).

One of the capabilities we developed with CE-Dredge is an online viewer -- the GIS viewer -- to allow you to visualize your data on the regional scale or zoom in on the local scale.

So we're working to access data that's been put in our (enterprise) databases so we can visualize our navigation channels and replacement areas along with the wetland areas -- you know, our beaches -- and to (unintelligible) different (unintelligible) information that helps us to better understand the reason and make decisions.

We've been also developing the CE-Dredge Dredging Histories Tool (unintelligible) the capability to better manage our dredging contracts and

visualize that information. Again, the navigation channels are in place and there is calculate volume, create graphs and information about the dredging project. So this information has been, you know, it's stored in the database so it's accessible for planning future dredging operation.

We also found that we spend a lot of data - we spend a lot of money collecting sediment data for different projects. We found that while we collect the data the products we save are the hard copy reports and the visual data is lost.

So we've been working to develop a sediment database as well as an online tool which accesses that data. So working to get the hard copy data into a digital format into a database and then working to - while we're collecting that data have it put into the enterprise (unintelligible) and then developing the GIS tools so you can visualize the data, perform analysis of the data as well as during search, you know, search for different sediment characteristics.

RSM has been working with the different R&D programs enhancing their model so they're, you know, applicable for regional applications and also working with the programs to transfer the capabilities to the district so they can do analysis opportunities for implementing RSM.

One of the tools we've also worked with the other programs is to develop the Sediment Management Technology or the SedMan tool. And Robert Thomas gave a slide presentation of SedMan in their presentation in March.

Sedman decision support tool is an interactive decision support tool where the user can go in and identify the problem and then provide information about the physical processes and the other details about the issue (unintelligible) like the (unintelligible). And then the tool searches the database and provides solutions with the - ranking it how well that solution meets their needs.

One of the efforts we've been working with, many of the R&D programs and with the district providing better guidance from opportunities for strategic placement of dredge sediments. An example is nearshore berm, more attention, you know, against the resource and guidance and tools for understanding nearshore berm.

And we've been working with the districts to better understand the challenge and opportunities we have with placing nearshore berm. And then once we can understand what the challenges are we can develop tools and capabilities that help address them.

We've been working with those tools which can help partake the dispersion of the sediments and movement of the berm and then methods to calculate the economic and environmental and social benefits of nearshore berm.

And finally I just want to mention that we have - in RSM Web site we have a lot of information available. Fact sheets about the different initiatives the districts are working on, all the publications, information about meeting and the links to other Web sites and other R&D programs which RSM support.

We also have links to the different tools and data, some that I just mentioned today. So that's all. Are there any questions?

Courtney Chambers: Great. Thank you, Linda. We'll enter interactive mode.

Recording: All participants are now in interactive talk mode.

Courtney Chambers: So at this time if anyone has any questions you can take your phone off of mute or utilize the chat feature.

(Ed Creef): Linda, this is (Ed Creef).

Linda Lillycrop: Hello.

(Ed Creef): Are the program you have -- the RPAT, the SAGA, SedMan -- are they up and running yet or are they still a work in progress?

Linda Lillycrop: They are available and you can find information about them on the RSM Web site. You can send me an email and I can take you (unintelligible) to help you reach them.

Courtney Chambers: Any other questions this afternoon for Linda?

I've also received several requests for PDH credit. So if that's something you're interested in and haven't contacted me yet, please submit in chat if you would and I'll put you on our list.

Any final questions before we wrap up today?

Okay. Well, Linda, do you have any closing comments for us?

Linda Lillycrop: No. I just really appreciate the opportunity to present today. And if anybody does have any questions that they'd have later, please send me an email.

Courtney Chambers: Okay. That sounds great.

Thanks, again, Linda, for sharing with us today. It's been a very informative overview and it's been a pleasure having you.

I just want to remind you all to watch for additional announcements for the DOTS webinars from Cynthia Banks. And, also -- one other request -- if you are only able to join us by phone line today due to any technical difficulties with WebEx or anything like that, if you wouldn't mind emailing me or Cynthia Banks. Again, I'm Courtney Chambers and we're both located at ERDC. That way we can just make sure we're getting a good count on our attendance. But we do appreciate all of you taking the time to join us today and we hope you have a great afternoon.

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