ERDC-EL

Moderator: Courtney Chambers
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12:57 pm CT

Courtney Chambers: Okay. At this time I'd like to give you today's speakers on the Retrospective Evaluation of Completed Corps Aquatic Ecosystem Restoration Projects. Justin Gardner currently works in the Department of Business Operations at the College of Southern Nevada, and is a PhD candidate in the School of Environmental and Public Affairs at the University of Nevada, Las Vegas. He has seven years of public sector program management and process development experience, including three years at the US Army Corps of Engineers' Research and Development Center. And while at ERDC Justin was integral in the conceptual development and implementation of the Retrospective Evaluation of Corps Aquatic Ecosystem Restoration Projects database which he'll be speaking about today. He coauthored two recently published tech notes that detail this development process, and assisted with the design of the project web site. Currently he is conducting an evaluative investigation on high school to college transitional programs with special attention to social policy issues.

Our second speaker or co-speaker today is Erynn Maynard, and she is a Field Research Technician at Washington University and a Contract Ecologist with the US Army Engineer Research and Development Center. She has nearly a decade of experience in ecology with her main research focus in invasive species control and native habitat restoration. Currently she is managing a large scale project exploring the relationship between invasives, which is qualified using the population growth rate from demographic modeling and phylogenetic and trait based novelty. She is also studying potential underlying

mechanisms of such a relationship including burning, herbivory, competition and pollination.

Additional information about our speakers can be found in their bios posted on the Learning Exchange along with today's presentation and recording of meeting. We're very happy to have y'all with us today. So at this time I'm going to give you the presenter rights, enter listen only mode and then we can begin.

Recording: All participants are now in listen only mode.

Courtney Chambers: Okay Erynn, you should be ready to go.

Erynn Maynard: Yes. Thank you, Courtney.

Courtney Chambers: You're welcome.

Erynn Maynard: I'm Erynn Maynard and I'm here with Justin Gardner, David Price and (Craig Fischenich). And I'm going to talk with you today about the Retrospective Evaluation of Completed Corps Aquatic Ecosystem Restoration Projects.

This map you're seeing here is showing you - each circle represents one of the restoration projects the Corps has completed. They're color coded for authorization, and the size of the circle corresponds to project cost. So a common theme for restoration which was highlighted by the National River Restoration Science Synthesis NRSS effort is that despite the money spent on restoration efforts, there is little or no data to assess performance of ecosystem restoration projects which is also true of Corps restoration projects.

At the start of this retrospective evaluation there was no master list of Corps restoration projects, which really inhibited the ability to document value to the nation of ecosystem restoration. But we now have identified 260 completed Corps projects under eight different funding authorities that you can see depicted here. So our objectives were more than just a master list. Our first main purpose was to determine if these projects were delivering the environmental benefits they planned to deliver, what those environmental benefits are, are project's meeting stated objectives, and are these objectives ecologically based?

Another purpose of this project is to address monitoring. How much monitoring is being done? Is monitoring designed to evaluate project success? And is that based on the objectives from project documentation or ecologically based or both?

And we also wanted to address performance. Are there particular restoration features and techniques that have higher success than other features or techniques? And is that only in certain habitats or geographic ranges or at specific project scales? So basically what are our strengths and what might we not want to repeat the same way again?

Our first activity was to review data and information from analogous programs such as the National River Restoration Science Synthesis effort I referred to a moment ago. And our second activity was to hold a workshop in October of 2009 with a group of academic, interagency and Corps district experts to help formulate and/or find the focus and direction of the retrospective study. And that helped us formulate database structure as well as with reviewing some project documentation. And then we contacted activities as far as compiling the information that we gathered through contacting

district and division experts and project managers for that information and compiling it into the database.

Our fifth activity was to summarize, synthesize and analyze the data that we compiled. And then our final activity has been technology transfer, and that includes this webinar today.

Other forms of technology transfer, ourproducts. We have a tech note that has our project overview, a tech note part two that's got the database content and data entry guidelines, and our tech report that's going to be a lot of the same information that I am presenting today. And then the web database that Justin will be speaking out in a little bit.

So first of all, we'll go through some background information on the restoration projects that we have gathered this information on. So like I said, we identified 260 completed Corps restoration projects. Two hundred and seventeen were included in the database. Forty three of the identified projects didn't have sufficient project documentation to include in the database.

So this is showing projects by ecosystem type,and there can be multiple ecosystem types per project which is why the percentages in Column 2 - sum to greater than 100 and number greater than the 217 in the database. So the numbers in Column 2 are normalized in Column 3 by dividing by the total number of ecosystems represented through the 217 projects which is 309.

Most USACE restoration projects recorded in this database address fresh water systems. So you can see that riverine ecosystems account for the majority at 60%. And non-title wetlands and reservoir or lake projects account for 28 and 27%, respectively.

And then we have the saline ecosystems - the estuary entitled wetlands at 16 and 11%, respectively. And then finally we have 1% of our projects that incorporated an upland component, which is two projects.

The 217 projects are funded under eight different authorities. Several of the funding authorities for these projects are regional in nature. So I'll go through them a little bit, in case we all don't have a background on funding authorities for Corps restoration projects.

The upper Mississippi River Restoration Environmental Management Plan which I'll refer to as Upper Miss is regional in nature like it sounds - focused on the upper Mississippi River.

The Coastal Wetlands Planning Protection and Restoration Act, which I'll refer to as CWPPRA, is focused on the Gulf Coast of Louisiana mostly. And the Missouri River Restoration Program, I'll refer to as Missouri River. Those are all regional in nature.

And there's other regional funding authorities for which we had no completed project documentation identified. Examples are the Columbia River Channel Improvement Project, Comprehensive Everglades Restoration Program, Puget Sound and Adjacent Waterways and Puget Sound Near Shore.

And then you see WRDA up there. That stands for Water Resources and Development Acts - I'll refer to as WRDA. That contains several sections funding restoration projects that are of a more broad nature, and that's including Section 1135 which you see at the top of this table - Project Modifications for Improvement of the Environment. And that's the most common one we found in the database at 39% of projects were funded under that authority.Then another broad funding authority under WRDA is Section

204 - Beneficial Use of Dredged Material,nd then Section 206 is Aquatic Ecosystem Restoration. Also Congress can specifically authorize projects outside of what of I've covered so far. And there were, I think it was eight - five - five authorities have been included in the database that were specifically authorized.As you can see there's also the one project that was funded under the Estuaries and Cleans Water Act of 2000, and that was Section 104.

So most completed projects - about 80% of the projects in this database are funded under those first three authorities - Section 1135, Upper Miss and Section 206.

In general from project documentation, CWPPRA and Upper Miss are federally funded with the exception of operations, maintenance and monitoring costs funded by the sponsor.

And then projects that are specifically authorized as well as Missouri River, 1135 and Section 204 are generally 75% federally funded. And Section 206 is 65% federally funded, with the remainder of the project costs covered by the cost share sponsor or sponsors.

Several of the Corps ecosystem restoration authorities focus on specific ecosystems. So you can see 100% of the Missouri River projects have a riverine component. And 89% of the Upper Miss have a riverine component which isn't 100 because there's a big focus on side channel habitat with that funding authority. So that would fall under non-tidal wetlands.

And then there are other authorities which have a bit more spread across ecosystem types. For example you can see 1135 - that's project modifications for improvement of the environment.

So just as authorities focus on particular ecosystems, there's a strong relationship between particular divisions and regional authorities such as CWPPRA species. All the CWPPRA projects are in the Mississippi Valley. And then Upper Miss are also in the Mississippi Valley division. And then Missouri River are all in the northwestern division.

And again showing the more broad nature of WRDA projects, there's eight divisions. All eight divisions have completed at least one project under both Section 1135 and Section 206.

The projects are broken down into four size classes here that differ by an order of magnitude. The spatial scale of Corps restoration projects is highly variable so that it ranges from about 0.1 acres to just over 2 million acres. The projects are typically from 10 to 6000 acres though. And then only 6% of projects are over 6000 acres.

We'll look at size and authority. The continuing authorities - Section 1135 and 206 - have a large proportion of the smaller projects - less than 100 acres. Upper Miss projects are mostly in the middle size classes. And Missouri River fell mostly within that 101 to 1000 acre size class.

Specifically authorized projects have a disproportionately large percentage of projects in the 'greater than 10,000 acres' category at 40%, considering that only 4% of all projects fell above the 10,000 acre range.

So if you look at the bottom row of Cost by Size class, the average cost for the 200 projects that had cost information available was about 2,800,000 with a standard deviation just over 4 million. With that huge of a standard deviation, we can tell there isn't really a large amount of variation in project cost, and average cost won't be very informative.

So this table was then separated by size class to attempt to see a pattern in size and cost. But there really isn't one. The R squared value for the trend between size and cost is only 0.08. So that means that 8% of the variation in cost - only 8% of the variation in cost can be explained by size.

This isn't really too surprising because we expected only a weak positive correlation between size and cost because there is such a high variation in the types and corresponding costs in scales of restoration activities that the Corps implements.

There is also the lack of even a weak positive correlation between size and cost. And the large standard deviations could potentially be at least partially due to unclear source documentation. So it wasn't always clear whether or not certain things were included in the construction cost such as maybe land acquisition, planning, design, O&M and monitoring.

Here's the map from our first slide again. So the spatial distribution, cost and authority of the Corps restoration projects are presented here with each circle again representing a project. And the color corresponds to authority, and the size to cost.

So you can see the bright yellow color is Upper Miss, and they're all centered up on the Upper Miss. And that maroon, darker purple is Missouri River, and the lighter purple down on the coast of Louisiana is CWPPRA. And then the more regional Section 1135, 206 and the green specifically authorized - so orange, blue and green - you can see scattered more across the map.

So that's some basic background information about Corps projects in general - the completed Corps restoration projects that we've compiled. And then we'll

start to talk about some of the planning information that we were able to put together.

So the majority of project sponsors - 52% on the left there at the top - are state entities. Partners include any group identified as a project partner or participant that was involved in advocating for or planning the project, assisting with implementation, monitoring, etc., but didn't function in a cost share capacity like the sponsors actually do.

There were anywhere from zero to 23 partners for a given project, which again explains why the value to sum greater than 183. Seventy five percent of all partners for Corps restoration projects are from two categories - federal, 39% and state, 36%.

In the project overview section of the database, this field captures the major environmental resource issues related to the project. And that's explicitly stated in project documentation, so they're not inferred. But since there is generally more than one environmental resource issue per project, the percentages here sum to greater than 100. But 82% of projects are dealing with the issue of habitat loss and fragmentation.

And then if you look further down, about a third deal with sediment management, and it's in descending order. Twenty six percent have a component of water quality as an issue - erosion, fish and wildlife populations and communities, native plant communities and so on down the line.

When you see 'Other' down at the bottom, that's actually specified in the database that Justin will be showing you later. But it didn't fit into one of our predetermined categories.

Sorry - I'm looking at the Chat questions I have over here - I guess we'll address at the end.

In addition to a more descriptive summary of the goals and objectives that are in the database, there is also 15 categories that we call Restoration Intents field. And it comes right from source project documentation, and it wasn't inferred or interpreted from restoration practices which were captured in different field - Restoration Practices Employed.

But in any case the intents match up nicely with the issues from the previous slide. So here top intent is aquatic habitat improvements. And then there's water quality management and aquatic or wetlands plant management.

And then the first four issues from the previous slide were habitat loss and fragmentation, sediment management, water quality and erosion which you would expect that the issues brought up in project documentation would pair with the restoration intents.

So at least one model was used in 55% of the 217 projects in the database. Sixty projects used one model, 44 projects used two models, and 16 projects used three models. The most commonly used models were hydraulic and hydrologic, and also habitat suitability indices, both multiple and single species.

This is just a summary table of more details on the specifics of these models are recorded in the database - for example the specific species used for habitat suitability index or what type of hydrologic model was implemented.

Here we're looking at planning model use by size class - projects larger than 100 acres, those bottom three rows - utilize planning models more frequently

than smaller projects - that top row - which makes sense logically. Larger projects might have more uncertainty involved, and planning models would be of more assistance.

Projects funded through CWPPRA, Upper Miss and specific authorizations are slightly more likely to use planning models. Sixty four to 80% of projects when compared to Missouri River and WRDA, Sections 204, 206 and 1135 projects which is 30 to 54% of projects.

The projects with slightly higher documentation of planning models contain the authorities for which federal funding covers most costs. And the slightly lower models use authorities require a little bit of cost sharing.

But model use was identified for only 56% of projects overall. And that's much lower than we expected. So it's likely that more projects used planning models, but we may or may not have been able to capture this due to lack of documentation of model use.

And then in terms of implement - project implementation, this pie chart represents the 260 projects that we know about. And to sort of address some of the questions that have come up, we found these projects by contacting district and division employees and practitioners, and tried to get project documentation information on completed projects directly from the people implementing them.

So it was done through contact - lots - several months and even years of contacting people and obtaining this information. But 17% - that light gray - so 43 projects didn't have adequate documentation to include in the database. These are projects that we knew about that were completed or were told about that were completed but didn't have much information on.

And then 92 of the 217 projects - which is the dark gray - were lacking post implementation project documentation. So they had all their planning documents - potentially planning documents - but nothing post implementation. So we weren't able to determine if the restoration practices were actually employed or successfully carried out or not.

Given that for 58% of projects that we know about, both the light and the dark gray area, we didn't have adequate project documentation to determine the outcome of restoration projects. You can begin to see why we haven't really been able to address all of our objectives pertaining to environmental benefits, monitoring and performance.

But 38% were implemented as planned and designed, which is the blue area. And 10% were not. And the most common reasons that projects weren't implemented as planned and designed include cost increases, additional features that were realized during construction, some features were deemed unnecessary and land ownership issues.

The restoration practices employed field captures restoration measures implemented for a project in the categories. And the top occurring practices are summarized here. The top is dredging and excavation. Forty seven percent of projects incorporated dredging and excavation, and then a third had native plantings and re-vegetation.

And then a little less than 30% had channel creation, restoration, earth stabilization, dyke and levee breaching construction removal, habitat development and improvement, water control inflation and modification and shore and erosion control structures.

And then finally for what we've learned about monitoring and success - we were able to identify monitoring plans for roughly half of the projects. The presence of the monitoring plan doesn't guarantee that a monitoring report was or will be completed. But 60% of projects with a monitoring plan - down on the bottom, darker blue - 60% of those that did have a monitoring plan did not have any monitoring reports.

And then you can see also that very frequently when there was a monitoring report, we ended up having monitoring data. But in some cases, even if there was a monitoring report, there wasn't necessarily monitoring data.

Success here is based solely upon project documentation. But because few projects were a total success or a total failure, we used a general guideline that 'yes' is mostly greater than 80% successful, 'no' is mostly unsuccessful - less than 20% successful - and 'partially' is anywhere in between.

Only two projects - 1% - were determined to be unsuccessful. But success was not determinable - that's the ND - for 70% of projects overall. And this is for the projects that we had sufficient information to be included in the database - the 217 projects.

The districts reviewed our entries for 101 projects as part of our QA/QC for data entry. And of those, 31 provided feedback regarding our success determination using what you see here - the Society For Ecological Restoration's Attributes for Restored Ecosystems.

Reviewers assessed project success by scoring these categories that you see from one to five. One is little to no extent, and five is being to a very great extent. The average success score given by district reviewers for our projects was 3.7.

Reviewers tended to actually give little bit greater success to their projects than the database authors. For projects that we scored yes, reviewers gave an average score of four. Those that we scored - which is what we would expect.

And then for partially, reviewers scored 3.8 and for ND - not determinable - they were given an average score of 3.4 which is probably because reviewers know more about the projects than what we're able to glean from the project documentation that we get. So a lot of the projects that are not determinable probably - that we have labeled as not determinable - may have been successful and just not documented.

Projects with and without planning models don't differ much in their success. And you can see about half did have and half (54%) had planning models used and 46% didn't have any documented planning models used. It may be that smaller projects or familiar projects tended to not need a planning model in order to have similar success to larger or more complicated projects with planning models.

Roughly half of the projects had a monitoring plan which afforded an improved ability to determine success. So if you look at the blue area here for projects assigned ND, are not determinable, there's a 27% increase in our ability to determine success with the monitoring plan which is pretty straight forward.

We also found a strong relationship between authority and the presence of a monitoring plan. The continuing authorities 204, 206 and 1135 and Missouri River projects had monitoring plans in less than half of their projects. Well, Specific Authorization had a monitoring plan in place 60% of the time which is greater than the average for all projects at 49%. Projects under Upper Miss

and (CWPPRA) authorities had monitoring plans in place a great majority of the time, 89 and 86% respectively. Some authorities we know like (CWPPRA) and I believe Upper Miss require more documentation than the others which is probably what's reflected here. The percentage of projects for which no determination could be made reflects a boarder pattern within the restoration community at large.

The lack of project success data and monitoring data inhibited our ability to draw as many conclusions as we would've liked from our objectives but we did find some interesting trends here and the web database that Justin is now going to show us should be an invaluable resource for practitioners to use and potentially keep updated. So, Justin can start.

Courtney Chambers: Okay Justin. You should be the presenter now and can proceed to share your desktop.

Justin Gardner: All right. Bear with me now guys as I share my desktop so we can move to the video. Basically, this is the web address assigned to the database and we had a link embedded in here so now I'm going to move over to that link and we'll transition to a YouTube video recording of the database demonstration. So, as you can see, the Corps Aquatic Ecosystem Restoration Projects really range across the country in scope and in size. We're going to go through a couple of items we find on our website homepage for this project.

First well start with the web address. Again, you can see it displayed at the top of the screen here as cw-environment.usace.army.mil/retro/index.cfm. You all can access this database for project review and as you're planning projects and other things like that. It has a lot of information about the expansiveness of the Corps Aquatic Ecosystem Restoration Project or Program and there are a series of things you can learn about completed projects.

So, we'll go to the about tab and you can see there's a background section and there it lists the project that are included in this database. The 217 total projects from the different funding authorities. You also see the sites resources we used to build the database. There's also the how to add a project section so you can see as a submitter you can list your name and email as displayed on the screen here and basically this will prompt you through some submission information for your project to get it included after it's been completed in this database after you click next on that screen as shown.

This database, we hope, you guys will utilize to add projects to so we can continue to build this body of knowledge. Under the useful links tab, you'll see there are a series of websites that are related to ecosystem restoration including the restoration gateway. Each of these will open up in a new tab in your browser or a new window so you can review information related to ecosystem restoration projects and programs. You can see there are also other gateway sites if I can find the video -- there we go -- that relate to other civil works environment gateways. So, this is, again, information for you all to review that you're probably fairly familiar with.

There also is a link included for the engineer regulations. These engineer regulations, pamphlets, manuals and circulars were all access and utilized as we built this database looking at authorization information as well as related information to ecosystem restoration. There's also the EBA website which is the Environmental Benefits Analysis and this is an (ERDC) Program that you all can review about environmental benefits and what (ERDC) is doing in those areas.

We've also included some ecosystem restoration related databases that were used in project planning including the National Estuaries Restoration

Inventory held by NOAA and the database talked about earlier by Erynn, the NRRSS database, National River Restoration Science Synthesis which was paramount in our planning efforts as we built this database for rollout and inclusion of project related information for the Corps Projects. So, now we're going to transition to a couple of different features here. We'll go ahead and go back to the home screen.

You can see there's a detailed map of projects and costs and this takes you to that map that Erynn started off with and gave a little bit of information about and then back on the home screen we'll go through the different search parameters that we have available for you all to search for projects. We'll start with the drop down menu. As you can see, this is zooming in and if you hit that drop down menu, you can scroll through the vast number of projects, all 217 including the database, and for this example, we're going to scroll all the way down to the bottom, towards the bottom, and look for a project from New England district that was Sagamore Marsh. This is one of our projects we used in the pilot testing of the project review.

So here, you can see the database as we built it to include a project home screen with some background information and project purpose and basically each of these links that you see on the side, project options, like the general information, are included in the database or information we gathered. So here you'll see additional location information including coordinates and project size. The project overview gives you the project purpose, problem description and other related information like project features and resource significance. Again, these are all gathered from those documents we were able to acquire.

You'll see the partners section has project sponsor as well as partner information. The project planning goes through those fields included. Restoration Measures and Engineering talks about what was done, if it was

done, if it was implemented in the plan that was designed and if there were changes, what those changes were. There's also a restoration monitoring section as well as project evaluation where we use project documentation to populate these fields.

We included adaptive management fields like operations maintenance manuals and also the project review that Erynn talked about at the end with the district's ability to fill in some scoring information on this attributes of a restored ecosystem scale to give us an idea of how they think the projects are doing. We also see a series of references that we were able to gather for each of these projects and then the Corps information is a restricted area where you can -- as a Corps personnel -- you can actually access more information about this project behind that firewall protection.

So now we're going to go back to the home screen and we'll look at some additional search options. If we look at the -- I believe it's going to be the simple search -- you can see there's a series of different drop down menus available to search from. So you can select any of these areas. We'll start with district and if we scroll down again you'll see that there are projects from all the districts across the country that we were able to gather information from. We start with Rock Island District, we can go in and look at some upper Mississippi River projects and other Rock Island Projects.

There's a Google map that you can actually zoom into and see project information and location information and then, if we click on one of the projects, we'll see, again, the same display of the congressional authority district information, again, stepping through the database to include the timeline under the general information of the project implementation and rollout. The project overview, again, where we see project site descriptions and project features, any recognition that the project receives.

Again, you'll see the project sponsors and partners or any stakeholders. The project planning would cover those planning models used. Conceptual models, other planning type things. You'll see the restoration measures and engineering again and then in the monitoring, you can see if things were - if different metrics were utilized and what the performance targets were for that monitoring and under the project evaluation, this is where you see this explain the site source which is gathered right from documentation we were able to receive.

For this example, you can see this came from a project fact sheet which you can also find in the references. You'll see the adaptive management again and whether a plan was repaired or an operations and maintenance manual is prepared and then the district review that we were able to gather from those district project managers and you'll see, again, we have the references that we used for each of these projects and then back into any links. For example, this project has two links. One from the Wildlife Refuge site and then one from the actual Upper Mississippi River Project site and then again, the Corps restricted information for you all to access.

So, we go back to that simple search page again from here. We can search ecosystem type as well. You can search from any of these different drop downs. So you click on the ecosystem type and we select - let's say we'll go with tidal wetland and then hit search for projects. This will give you a list of all projects meeting that ecosystem type and you can see there are quite a few of them and if you zoom out on the map, you'll see that the projects range from the pacific northwest to the gulf coast and California to New England. So it shows those wide range of projects and again, you can select an individual project for review.

If you're back on the home screen, we're also going to show you the advanced search. The advanced search just gives you some opportunities to combine different search parameters so you can customize your search as you need or as you see fit for your project planning purposes or research purposes. Finally, we'll go back to the home screen and we're going to look at the maps tab and here you can just see a Google map of all the projects that the Corp has done. This really shows the impact to the nation.

The Corps of Engineers has implemented ecosystem restoration projects from Alaska to Florida and California to Northern New England truly impacting the entire nation. It really shows the breadth of the Corps Ecosystem Restoration Program. So I'm going to stop sharing my desktop now and we're going to go back to the final slide and wrap it up here.

So, on this last slide, with in mind all the stuff that Erynn talked about, all of the different results that we were able to find, the documentation we were able to gather and the database we were able to construct, Corps planners and practitioners now have access to a wealth of completed project information and summaries to produce robust cost effective designs and better predict long-term consequences of various restoration actions.

Given the breadth of Corps Restoration Projects, this study provides strategies to improve project success and promotes the Corps reputation as both an innovator in ecosystem science and a leader in mid-scale and large restoration projects and we really hope that you guys continue to use the database through the update and add project information link. So, this database continues to be a resource for the Corps and demonstrates the Corps restoration program. So, now we'll, I guess, turn it over for questions and thank you all for attending today.

Courtney Chambers: Great. Thank you both so much. At this time, we're going to enter interactive mode.

Recording: All participants are now in interactive talk mode.

Courtney Chambers: Okay. So, at this time, you can individually unmute your phones if you have a question and speak up or you can continue to utilize the chat feature as many of you have already begun to do. Thanks. To get us started, I'll reference a few from the chat box. Some of them were during (Erynn's) portion of the presentation and I believe you covered a lot of them. We did have a question specifically about projects that weren't included such as many of the Columbia River Projects or even the Chesapeake Bay and I believe you clarified that Erynn but if you would just touch on that again. It was based on your availability of the information and the fact that they were completed projects. Is that right?

Erynn Maynard: Yes and it's what our contacts at the districts and divisions across the nation gave us information on and Justin actually probably has a little bit more to say about this than I do. He did a lot of the interacting with district and division people.

Justin Gardner: Yes. We did a lot of searches on district and division websites to try to locate as many of these projects as possible if we didn't already have them on an existing list of projects. So, once we compiled a good list off of website information and existing projects that the original project lead (Dave Tazik) was able to get from district representatives, we then started to contact district project managers to either try to get additional project information or to get new projects that have been completed that we didn't even have knowledge of.

At the end of the day, a lot of it came down to where we spent an extensive amount of time trying to gather as many resources as possible and we had to get to writing the reports and getting to some amount of analyses that we could present to you all. So hopefully this spawns again that and encourages participation to add projects to this because I know the Corps is completing projects yearly. So hopefully that answers your questions.

Courtney Chambers: Great. Thank you Justin and thanks Erynn. I did have a question also about the time you were talking about the different model use Erynn - we had just a general question asking about the difference in HSI and HEP models.

Erynn Maynard: What the difference in those models are?

Courtney Chambers: Yes. I guess in your classification. Yes.

Erynn Maynard: It was based on what they cited in the project documentation.

Courtney Chambers: Got you. Okay. So however they identified their model either HSI or HEP. Okay.

Erynn Maynard: Yes.

Courtney Chambers: Excellent. Thank you.

(Rod): Courtney this is (Rod).

Courtney Chambers: Hi (Rod).

(Rod): My question is are you saying then that the data from the projects wasn't available or didn't exist or was it too tedious and untimely together and get transferred to...

Erynn Maynard: We did tedious and untimely. We definitely - we got...

Justin Gardner: Yes. We spent a lot of time trying to gather that stuff and we needed to move forward. So we went with what we had and as much as we could include we did and like Erynn said, there's a lot of stuff that didn't have enough information for us to really do anything with but those can certainly be updated through the update a project link.

(Rod): Thank you.

(Jeff Trulick): This is (Jeff Trulick). So, to put them in that link, what was your definition of completed? Is there a milestone in the civil works process that you used or what's your definition?

((Crosstalk))

Erynn Maynard: I think once an (O&M) manual was created then that's what we went off as it's completed.

(Jeff Trulick): Did you find (O&M) manuals for the 217 - for 50 - I noticed on the one pie graph there's 52% of the projects had no information or no post implementation information.

Erynn Maynard: Yes. No post implementation information. Yes. So, I think that we - I think it was actually mostly off of what district personnel the information that we gathered from them whether things were completed and turned off to...

Justin Gardner: It was construction complete dates. Yes. That's what we tried to go off of.

(Jeff Trulick): Okay.

Justin Gardner: If a project manager said this is complete or it was listed on a district or division website as being complete, we then tried to access or contact those folks and get additional information if it wasn't already supplied on our website. So it was in construction complete and then when it moved into that post construction time period, that was the roll-over of these projects. So some of them may not have project monitoring yet because they were recently completed if that makes sense.

(Jeff Trulick): Yes. So if people were going into the database now, they should focus on entering projects only that are post, that are construction complete milestone.

Justin Gardner: Yes. That would be - that would probably be wise and then if they have further information about projects that are in here that they need to be updated with additional reports, certainly contact through that add a project link and see if you can't update some information.

(Jeff Trulick): Okay. Thanks.

Courtney Chambers: Great. Okay. So, a few more that have been entered into the chat box over here and (Chris), we're going to move onto your question. If you'd like to clarify it, feel free to speak up but he wanted to know that if some projects do not use planning models, did you identify alternative means to demonstrate cost effectiveness without using a model to numerically represent benefits offered by alternative Corps measures?

Erynn Maynard: That would be a question for the actual - the people who actually implemented the project. That information we're actually going off of what documentation we received. So, unless they wrote something about using an alternative metric, we don't know anything. We don't know about that and I can't think of any situation where there wasn't a planning model but there was some alternative means to demonstrate cost effectiveness. I can't - can you think of any examples of that Justin from projects that we've gone through? I can't think of any.

Justin Gardner: I can't think of any off the top of my head. Really, the thing we have to stress with this is that we went off of what was included in a project documentation. That's the most important thing to view with this database is that it was based on whatever we could find and whatever we could glean out of project reports and we may have missed stuff. I mean, that's very possible. Some of the reports are really long. So, but yes, certainly you could update that information if you had a project that's in there that used something like that. That would definitely be something that would be beneficial to add to that. I'm sure there's another field in there somewhere where that could be captured.

Courtney Chambers: And you all did provide all of the documents that you used as your resources for each project too so if you wanted to go through that.

Justin Gardner: Yes. Those are listed in those references cites links. You can basically see all the different project documentation we use. So that should help out and then also with the tech notes that we wrote, you actually see the procedures and protocol we used to enter data and collaborate projects, et cetera so that we could define some of these areas and include data that was a standardized feature.

Erynn Maynard: For each - for all the project documentation, at least two of us went over the material because it was long to make sure that we didn't miss much or anything.

Justin Gardner: Yes.

Courtney Chambers: Great. Okay. Then, we did have a question about whether you all utilized the Restoration Business-line Project Database that's populated from P2 and stuff? Did you all reference that site at all?

Justin Gardner: I don't know if we referenced that site officially but I know we did a lot of work with folks up at headquarters to get project information and went back and verified. I don't know if that link, though, is included in our references.

Courtney Chambers: Great. Thanks. Okay. Then the Los Angeles district, they just mentioned that they completed restoration project in 2010 in upper Newport Bay and have completed three years of post construction monitoring. Now, they wanted to know if that project was included. That may be something that they can go explore on the website right? You don't have to have any kind of login -- is that right -- to access this data?

Erynn Maynard: Right. No.

Justin Gardner: No.

Erynn Maynard: When we get on the next to last slide, you can just put into your browser.

Courtney Chambers: Got it. Okay. So you can go and review what's included and again, if it's not included, they're welcome to submit that project is that correct?

Erynn Maynard: Yes.

Justin Gardner: Absolutely.

Courtney Chambers: Great and that's what we want to do right is to further build it?

Justin Gardner: Right. It's now turned over to project managers to use it as they will and hopefully it will inspire some additional dialogue and information about successful projects so that you all can use those resources and project planning and implementation of future projects. That's the hope here.

Courtney Chambers: Okay. That rolls over into the next comment or question. Who's responsible for updating and is there a web master? So, is there an additional step besides districts entering the information?

Erynn Maynard: I think that's still being sorted out to some extent. I know that the link will probably - I think it goes to David Price right now - any information that would be added. So that's still being figured out, I think.

Courtney Chambers: So that it will be then checked out basically, quality control and stuff before made public correct? Is that the idea?

Erynn Maynard: I believe so. Yes. That's the idea.

Courtney Chambers: Okay. Then we had a question. Are projects included in the database that have ecosystem benefits as ancillary benefits as opposed to them being the primary project purpose? I suppose if it was a (nav) project with environmental benefits or something like that.

Justin Gardner: They were specifically from - basically, this project started off as looking at, I think, the 1135, 204, 206 and seven or eight specifically authorized projects and then grew to include CWPPRA, Upper Mass, Missouri River. We looked at trying to get stuff for Puget Sound Near Shore and the Columbia River projects. The Everglades and Chesapeake Bay but really these are restoration intensive. The ancillary benefits of other projects were not looked at. We tried to - I think that's in one of the first tech notes that goes over how the project was formed up. It was supposed to be - I know we got a lot of questions about mitigation projects that have restoration benefits and those weren't included in this. So, there are some limitations there that it was restricted at first and still is.

Courtney Chambers: Okay and then the time period for completing this data effort, what was the timeframe? That was a question -- sorry -- submitted in the chat feature.

Justin Gardner: How long did it take us?

Courtney Chambers: Right. Yes. How long have you all been working on this?

Justin Gardner: About 2009 off and - I mean, for a good two and a half years solid, three years solid and then we've been trying to formalize all the tech notes and tech reports here in the last year or so trying to get things finalized and finished and out for the district folks review but three years from 2009 to end of 2012, beginning of 2013, we were working pretty diligently to gather reports and populate the database and go through -- as Erynn said -- the quality assurance, quality control of data entry and calibration.

Courtney Chambers: Okay and then we had a website question, is it ready to go? Are there still quirks being worked out? That's how I read this next comment. Do you have

to reset the website each time you change your search criteria and things of that nature?

Justin Gardner: No. I mean, that website demo, I basically just went through and clicked on stuff and recorded it as I went so you may - I mean, with any website, you may run into - if you do too much of an advanced search, it may time out on you and you just have to reduce the search down but you don't have to reset anything. Once you go back to - if you go click on search again after you searched something and you do a simple search, once that's completed, if you click on the search button again, it resets exactly to where it was defaulted to select from below.

Courtney Chambers: Great. That's good to hear. Okay and then one of our later comments here. Is that correct that there haven't been any projects entered since 2012? That was the cut off for completed projects?

Justin Gardner: Yes. That sounds about right.

Erynn Maynard: Maybe even a little bit...

Justin Gardner: Maybe even before that like end of 2011, beginning part of 2012 we started to really try to focus on getting some deliverables out...

Erynn Maynard: Yes.

Justin Gardner: ...because we had - I mean, we collected probably 160 projects in the first couple of waves and then spent a lot of time trying to get the project count up above 200 because we realized that some of the projects didn't have enough documentation we entered. So once we got to that 200 to 215 cut off of

applicable projects to be entered, we had to switch gears and try to get some results done.

Courtney Chambers: Great. Thank you. Well, that's the end of the chat questions I have. At this time, we'll take another minute or two to open the phone line up if any one would like to ask a question after removing the mute feature.

(John): Quick comment after...

Courtney Chambers: Is this (John)?

(John): Yes.

Courtney Chambers: Hi (John).

(John): Yes. It's really good that the section 206, there's a lot more there than - I got the indication from the presentation in the website and then the idea - I'm curious if there's going to be any section 206 that were overlapped with section 104?

Courtney Chambers: With section what? I'm sorry.

(John): 104.

Erynn Maynard: 104.

(John): Yes. I'll search that but it's a very good resource.

Justin Gardner: Thanks.

Courtney Chambers: Great. Thanks (John). Okay. With that, Justin or Erynn, do you have any final comments before we wrap up today?

Erynn Maynard: Use the database and give us any comments or feedback through that link if you have any problems or questions or have anything to add.

Justin Gardner: Yes. Certainly please use this resource. We really hope that it inspires additional work to build those logs for existing projects and then future projects that get completed. I really think this can be a great resource if you all use it and we just thank you guys for your attendance here and your interest in our database and hopefully it is useful to you all and as Erynn said, if you have any issues, additional projects or additional information, please don't hesitate to use that update or add a project link to communicate with us.

Courtney Chambers: Great. Well, thank you both for a great presentation and as they both referenced, they have provided the link the chat box so you can click that and directly go to the site or copy and paste it, save it and go explore it further. Okay. Again, thanks Justin and Erynn and participants, thank you very much for joining us. Thank you for engaging in conversation to make this a successful web meeting and please watch your email for future meeting announcements and then one final request, if you did call in as a group -- many of you have done this already -- if you'd just provide the number in your group for a record of our attendance. Thank you all very much and I hope you have a wonderful afternoon.

Erynn Maynard: Thanks Courtney.

Justin Gardner: Thank you.

END