Physical Processes – Charette #3
July 14, 2020

Meeting Participants (from chat box):
Sara Azat, NOAA National Marine Fisheries Service
Tessa Beach, SPN
Todd Bridges, USACE
Hal Cardwell, Corps of Engineers Collaboration and Public Participation Center of Expertise
Edwin Draper, Port of Oakland
Scott Dusterhoff, San Francisco Estuary Institute (SFEI)
David Eller, Gahagan & Bryant Associates
Sarabeth George, San Francisco Bay Regional Water Quality Control Board
Brenda Goeden, San Francisco Bay Conservation & Development Commission
Erin Hanford, City of Vallejo
Jim Haussener, Executive Director, California Marine Affairs & Navigation Conference
Ryan Hernandez, Contra Costa County Water Agency
Jim McNally, Manson Construction (Dredging Contractor)
Jim Merlo, San Mateo County District, Harbormaster
Mel Orpilla, Office of Congressman Mike Thompson
Wendy Rocha, Foth Infrastructure & Environment
Brian Ross, EPA
Renee Spenst, Ducks Unlimited
Jessica Vargas, USACE Acting Chief Dredge Material Management Office
Will Wallgren, Dutra Group
Roselyn Wang, Assistant District Counsel, USACE

Meeting Organizers/Helpers:
Stu Townsley – USACE (Deputy District Engineer for Project Management)
Brian Gerrity – USACE SPN (Meeting Host)
Tawny Tran – USACE Project Manager
Priscilla Ouchida – Nikkei Environmental LLC (Facilitator)
John Guenza – Adanta, Inc. (Facilitator)
Libby Claggett – Adanta, Inc. (Note Taker)
Joe Schwennesen – Adanta, Inc. (Timekeeper/Note Taker)

The charette began at 8:30 AM PT. Priscilla Ouchida welcomed attendees to the meeting and began the presentation. Stu Townsley spoke about the purpose of the charette and gave background information. Priscilla Ouchida then provided with an overview of the meeting protocols.

Tawny Tran provided an overview of the comments that will be discussed today. Comments received that were similar in nature were combined into the comment that was viewed in the presentation.

Discussions on Previously Submitted Comments

Comments Related to Sediment Transport

Sediment Transport Comment 1:

> A hydrodynamic model of the bay that includes sediment transport, organic carbon production, contaminant fate and transport, and bioaccumulation is fundamental to understanding the environmental impacts of this dredging project. The model must identify and account for all external sources of contamination. These sources must include known sources of contamination such as sewage treatment plants and permitted industrial discharges as well as non-point sources of contamination such as Superfund and RCRA sites, urban runoff, and landfill leachate. The

contaminant classes considered must include PCBs, dioxin/furans with 2,3,7,8 substitutions, organochlorine pesticides related to DDT and chlordane, PAHs, and the metals cadmium, mercury, and methyl mercury. A fate and transport model of the bay is only as good as the data provided. An extensive sampling program is required and way overdue.

Jim Haussener asked if some people on the line, especially from the Corps, would speak about the fate and transport models already in place and how much more is needed (what are the data gaps). Jim Haussener thought the extensive sampling program was supposed to be done by SFEI and that there were data gaps and asked what additional work needed to be done.

Brian Ross added that there is a lot of data available; however, more model specific to sediment transport and placement in different sites in the Bay needs to be done. Sediment transport for clean material and modeling for contamination are different. Modeling for contamination is a lower priority given that sediment that is to be dredged must go through testing anyway.

Brenda Goeden stated there are a couple of good transport models, but there are significant data gaps especially around suspended sediment. Modeling is only as good as the data inputted. There was modeling done recently and in 2014, but more information is needed. Brenda Goeden agrees with Brian Ross' comment that tracing of contaminant is a different process.

Scott Dusterhoff agreed there are a variety of great models out there, but they were built for specific questions and currently providing different needs. A more unified model is difficult due to funding and logistical reasons. Hydrodynamic modeling between the bay and the marshes would also be beneficial. The Bay RMP Is focusing funds for hydrodynamic modeling.

Jim Haussener requested that Brenda Spentz, Brian Ross, and others provide to Tawny Tran a listing of all the modeling that has happened in the recent past as well as current studies along as to what they believe needs to be done additionally.

<u>Sediment Transport Comment 2:</u>

Study sediment transport flows and mechanisms to help evaluate the carrying capacity to better understand future dredging needs for USACE. Need to reevaluate whether or not the LTMS 20% in bay placement limitation and 40% ocean disposal allowance is the most environmentally sound approach.

Brian Ross clarified about the wording. There is not a 20% in-bay placement; there is a 20% in-bay disposal limitation as a target. The actual disposal volume limitations (in place by the state) may not be 20% in any one year. The LTMS are long-term, cumulative targets. If it is beneficial reuse to place the material in the Bay, it is not counted as disposal.

Brenda Goeden stated the 40% ocean disposal allowance is an allowance, but the main point of the LTMS is to maximize beneficial reuse. The ocean disposal is a stop gap measure and is a cost issue more than anything else. A focus should be addressing the cost issue and working with the dredging community to improve beneficial reuse and continue to work the federal standard issue. The 40% allowance the maximum and is not a target for the LTMS agencies. Beneficial reuse is the focus, and Brenda feels the RDMMP should also focus on beneficial reuse.

Edwin Draper said the cost of dredging has increased dramatically lately. Ocean disposal is twice the cost of in-bay placement.

Comments Related to Beneficial Reuse Sites

Beneficial Reuse Comment 1:

> SF Bay is a priority landscape for ecosystem restoration, especially habitat restoration for waterfowl. Ecosystem restoration provides many social, economic, and environmental benefits. Waterfowl habitat should be prioritized with the RDMMP.

Brenda Goeden requested clarification on the use of the term waterfowl. Waterfowl is specific to different types of ducks and asked if the comment was generalized. Brian Gerrity stated the comment was generalized. Brenda Geoden said the marsh species need to be called out since they need to the most marsh material. Renee Spentz agreed with Brenda Goeen's comment.

Todd Bridges asked 1) Does the LTMS explicitly include a goal about "maximizing BU". 2) Does the LTMS explicitly include "climate change" and "resilience" as challenges and goals that can be addressed through sediment management? Brian Ross stated the thing to remember about the LTMS is that there is a 1998 document and a management plan in 2001. Since then, there was a 12-year review. Discussions on the 12-year review included sea level rise, beneficial reuse, and strategic placement studies.

Brenda Goeden stated that beneficial reuse is described in the LTMS and includes statements about restoration and maintenance. It also calls out construction projects as examples of where sediment is capable of being used in lieu of deep ocean disposal. One interesting reuse is when there are projects with over 80% sand, the material is used to help the sand transport issue. The LTMS agencies are open to different types of beneficial reuse, but the challenge is strategic placement. Will need to be able to show that there is a benefit.

Jim Haussener asked is there a definition of "Beneficial" concerning dredged material? Brenda Goeden said there is wording on "beneficial" in the LTMS Management Plan. Jim Haussener asked what the Program Managers thought beneficial is. Will the Ocean Dumping Act be used? How does one determine something that has not been done in the past as being beneficial? Brenda stated they have not sat down to hammer out the answers to the question, but the efforts going forth under the 1122 Proposal determined that it is appropriate to move forward. The idea is to move forward with the first phase and monitor the target area to understand what domestic community is, do a small placement, and either potentially model or trace the sediment, and then look to the placement location and monitor how much sediment moves into the target site.

Brian Ross added that the LTMS expressly and on purpose defined beneficial use very broadly. The issue is when do you decide something is beneficial reuse enough to be counted as beneficial. Detailed policy discussion will have to happen; however, modeling will have to happen to kick off those discussions.

Jim Haussener said of 10% of the material makes it to the marsh but the impact of the other 90% going back into the bay has not been discussed, that could appear to be beneficial. Need to consider if the 90% that did not make it to the marsh has a negative impact to the environment.

Todd Bridges asked what constitutes "beneficial use" is a very important topic of discussion for San Francisco Bay Stakeholders. What constitutes sufficient evidence of "good" or "benefit"? What logically follows from this is what is a reasonable level of investment to produce that "good". Todd added this is an important topic and the stakeholders of San Francisco are not the only people discussing this issue.

Beneficial Reuse Comment 2:

> The USACE should include habitat restoration, wave attenuation, and endangered species benefit into the cost benefit calculation of beneficial reuse.

Brenda Goedin, Brian Ross, and Sara Azat agreed this is important for the region and nationally. Sarabeth George stated the Water board agrees too; the cost savings of not having to import upland fill should also be included in the cost benefit calculation for beneficial reuse of dredged sediments.

Jim Haussener asked offshore berms using dredge materials to protect the marshes would be better. As the berm dissipates from wave energy, it could be replaced (every 5 to 10 years).

Peter Dahling asked are if the three items included in the statement new to the practice of cost-benefit analysis for beneficial reuse or is this a reiteration of existing policy? Stu Townsley said that the benefit-cost ratios are interesting and really do not apply to the dredging program. The Corps must validate that there is more benefit than cost for dredging, which is easy to do in the Bay. Civil Works projects have different benefit-cost ratios because of construction and long-term operations and maintenance costs. The cost of fill is extraordinarily difficult for the region (i.e., South Beach Shoreline), and cost-benefit ratios are calculated. Wave attenuation in addition to the ecosystem benefits are calculated. However, given the set of rules the Corps is dealing with, the cost-benefit ratio is not necessary.

Jim McNally asked are there not parallels with nearshore disposal as a means to provide shoreline / beach restoration nationally. From a policy perspective, hasn't the Corps had to deal with this in the beach world on the east coast (nearshore is cheaper than on beach but how effective is it relative to putting it directly where you want it?)

Brenda Goeden asked Stu Townsley how can the USACE use the benefits of beneficial reuse, habitat development, wave attenuation, etc, in the benefit assessment for the federal standard, in the environmentally acceptable category?

Brian Ross stated that it seems like we are being too literal re the wording of the question and that what counts toward the Federal Standard calculations may be more the point. Stu Townsley said the comment is appropriate and huge issue is the Federal Standard relative to beneficial reuse. In-bay aquatic disposal is currently the cheapest way. Unless there is an environmental requirement driving the Corps to do something different, in-bay aquatic disposal is the choice based on cost. Brenda Goedin's statement of incorporating wave attenuation, etc. in a way that allows to think differently about the Federal Standard and valid because a more wholistic benefit calculation with respect to the dredge material should be addressed in the DMMP. However, without change to the statute limits the San Francisco District.

Todd Bridges stated it might be useful here to take a step or two back from benefit-cost mechanics to think about how to develop the "value proposition" for BU, then how to use that value proportion to develop the partnerships needed to advance BU. There may be more straightforward ways to think about beneficial reuse and reduce annual dredging costs.

Jim Haussener asked if the federal standard goes away - either 1) how much more money is needed or 2) what projects no longer get dredged? How much would it cost to take all the material to Montezuma (for example) or some of the smaller projects. Will smaller projects no longer be dredged because beneficial reuse is too expensive. Stu Townsley said that is the main question. The dredging program should be looked at from the perspective of the San Francisco District; however, it is currently being looked at from a national perspective, and some of the lower use ports will be impacted and no longer dredged. The DMMP process should address those kinds of difficult policy questions even though they cannot change the policy.

Brenda Goeden ask of Stu Townsley or Todd Bridges, do you have any suggestions on policy language that would improve the federal standard such that these benefits can be included in the calculus (i.e., including benefits to other USACE business lines, such as ecosystem) in the consideration for navigation projects. Brenda Goedin added that this is why we need to include the benefits in the analysis to provide the support for the additional funding.

Sarabeth George added the following to clarify her comment: Rather than comparing the cost savings, what about assigning an economic value to the sediment based on what people are willing to pay for upland fill

material used in shoreline projects. The upland fill costs would be a surrogate to assign the monetary value but would not be included in the evaluation.

Sara Azat stated that she knows this is out of the context of this question, but what about working on lowering the cost of moving sediment to beneficial - investing in offloading infrastructure that would lower the beneficial reuse cost. Brenda said that Sara had a good point, and the USACE started an effort to purchase an off loader or build one that could be used regionally, but it was stopped in its tracks with no explanation.

Todd Bridges stated that Jim Haussener's question cuts to the heart of why there is a tandem need to focus considerable effort on ways to dramatically reduce the costs of BU.

Comments Relating to Dredging Practices

Dredging Practices Comment 1:

> The USACE should use clamshell dredges in all bay channels. USACE is not prohibited by the federal standard to beneficially reuse sediment or from using mechanical dredges in all in bay channels.

Stu Townsley said the first statement that mechanical clamshell dredges should be used in all bay channels implies this is preferable over hopper. Given the push to use mechanical, there are no comments being added during this meeting.

Jim Haussener said he did not comment because there were two opinions, and both are wrong. It is not known what the true impacts are of mechanical clamshell dredges. It is known that is takes longer to dredge a channel with them. The second statement is correct that clamshells are not prohibited but did not add any value to the discussion.

Brenda Goedin one of the reasons of the concern of hopper versus clamshell is because there are limited sample sizes of entrainment on marsh species.

Renee Spenst stated the use of clamshell or hydraulic should be evaluated in context of biological resources. This should also be weighed against need for beneficial use and wetland restoration. There is a recognized need to protect biological resources and to understand the impacts of clamshell versus hydraulic, but there needs to be a broader assessment for habitats in the area.

Brenda Goedin agreed the hopper dredges do not currently have offloading capability.

Jim McNally stated that nearly all contract hopper dredges nationally have offloading capability. The Corps dredge does not. Jim Hauseener said there are four hopper dredges working the west coast right now. In terms of using a hopper dredge for offloading, water depth and water distances are needed. Some sites are not accessible for an off loader. Jim McNally said that every dredge is distance and have limitations where boosters must be added. The distance can be between 5 and 25,000 feet, depending on the dredge.

Todd Bridges added that there is a very long list of trade-offs, economic and otherwise, related to different types of dredging equipment and operational practices. Prescribing certain types and operations without recognizing the full range of these trade-offs can lead to a host of problems.

Dredging Practices Comment 2:

> Ports are concerned about maintaining dredging for operations, given the increasing cost. Agrees with the importance of implementing better beneficial reuse to help protect from sea level rise. Would like to stress importance of early engagement with other LTMS agencies.

Jim Haussener stated that the ports are concerned with maintenance dredging and spends around $3M per year for their own dredging and costs are rising. They would like to see mechanisms to reduce the costs or to ensure the benefits are with the cost. If costs are increasing and no environmental benefits are not received, there needs to be another look at the process. Regarding "better" beneficial reuse, what does "better" mean?

Todd Bridges noted that he is curious about what stakeholders think the opportunities are for dramatically reducing the costs of dredging in SF Bay. Jim Haussener added in-bay placement would be an opportunity to reduce the cost of dredging.

Brian Ross reiterated that this is not a new issued. LTMS agencies and stakeholders have discussed this yearly. The Corps did a VE Study about 10 years ago. For the most part, the good ideas tend to get shot down being limited by policies or funding. Brian Ross would like to the RDMMP show the goals of what needs to be done and what is holding back the goals.

Dredging Practices Comment 3:

> Mechanical dredgers have been used at Suisun Bay Channel due to endangered species entrapment. Mechanical dredgers make it easier for dredged materials to be transferred to beneficial reuse sites. Dredging practices should be given consideration into the PMP.

Jim Haussener said there are three different items in this comment. Mechanical dredgers are part of the federal process going on in the Bay channels. Jim Haussener said that mechanical dredgers does not always make it easier. There are numerous restoration and upland sites that can be included where hydraulic dredgers could do the work and pump the material to the appropriate locations. Should dredging practices even be included in the PMP? Stu asked if Jim H. believed that dredging practices are extraneous to a PMP. Jim Haussener said he is concerned that everyone's concept will be added to the PMP, and the goal of the document (where to put the dredge material) will be missed. Off loader situations involve barges and some contractors believe the clamshell dredging will be less costly; thus, private contractors want the opportunity to try to deliver what the Corps is requesting. Offloading is doable, but where will you place 250M yards of dredge. Need to look at the cost implications as well.

Peter Dahling said he came into the policy area a couple of years ago, and the comments are highlighting what have been sticky issues for quite some time. The development of the DMMP as an opportunity to answer some sticky questions is recommended by Peter Dahling. An approach the DMMP might use as a basic goal making sure the Corp has appropriate capacity to place the fill dredged over the next 20 years, there is a greater desire to for the beneficial reuse of the sediments. How much will have to be placed an in what way in order to reduce costs and what kinds of equipment or procurement methodologies are needed to reduce the goal. Peter Dahling said he would like to support the RMMP process to the extent possible so that the same conversations are not held over and over again.

Todd Bridges added he has observed nationally that people who do not have a lot of experience and may even be an engineer can for strong opinions on how dredging should happen. The process needs to be treated respectfully and consider the people with the experience should weigh in as opposed to those who have no engineering experience. Brenda wanted to provide support for those commenting that are not engineers. Regional goals were requested by the USACE and using different types of equipment are part of the regional goals.

Jim Haussener said regarding the conversation being the same over time, this has been his experience and participation in any dredging program in the San Francisco Bay. While stakeholders want things to be cheaper, it detracts from the greater good (real solutions).

Discussions on New Comments

Jim Haussener said he sent Stu Townsley an email regarding meeting number 5 and asked when people are going to get all of slides from the meetings and asked what sort of meeting notes are available that can

be reviewed over the weekend. Jim Haussener also asked if there were any thoughts that came out of meetings 1 or 2 that brought about some type of consensus to maximize Charette #5. Tawny Tran said the posting of the Charettes 1 and 2 were posted on the website yesterday. The meeting minutes for both Charettes are anticipated to be posted by tomorrow. The goal is to post all Charette minutes by the end of the week for review and comments. Any comments to the meeting minutes can be sent to Tawny Tran.

Peter Dahling stated that he has not received any sides yet and wants to make sure he has the right link to find all the information. Tawny Tran stated the links to the website will be posted at the end of the presentation, and Brian Gerrity provided the link in the chat box, which is below.

https://www.spn.usace.army.mil/Missions/Projects-and-Programs/Regional-Dredge-Material-Management-Plan/

Closing Remarks

In closing, Stu Townsley wanted to ensure that Jim Haussener was okay with the discussion regarding meeting notes and presentations. Jim Haussener would like to know on a 1, 2, 3 basis what is most important to the Corps. Stu Townsley said when the schedule was first mapped out, he was thinking that people would have Monday to look at the information. Stu Townsley felt today's discussion was good. Looking forward to the future will be an important factor to determine how much material will need to be managed over the next several decades.

Regarding the 40, 40, 20 guidelines, even if you think you are doing well, you need to validate that you are doing well. The guidelines do need to be incorporated into the guidelines unless it is proven they are not the correct guidelines to reduce costs.

Stu Townsley also liked the discussion on what is "beneficial". It is hard to separate cleanly the benefits each group sees are actually beneficial. It will be hard to balance the competing needs, but that part of the PMP process.

Longer dredging times and those impact need to be reviewed regarding hopper versus clamshell dredging.

Entraining fish should be investigated.

The RDMMP should provide goals regarding the placement of material over the next 20 years. There are a lot of factors external to the Corp that must be considered to understand as part of the way dredging is viewed long-term.

The big issue is the tradeoff question on having a vision and how to pay for the vision. Through the planning process, the tradeoffs will need to mapped out.

The meeting was closed at 11:09 AM PT.