

Sitka Sedge Technical Team Notes and Follow-up Questions from Meeting 3 on November 13

21 people in attendance

Public Comments

Mike Sears: (Third-generation landowner in Sand Lake Estuary) He would like to petition for the restoration of Beltz Dike and the tide gate. He has observed chinook salmon at the tide gate and coho salmon in the estuary.

Isabel Gilda: The TDM community isn't asking for special consideration for—or protections against—climate change/rising sea levels, but we do expect OPRD not to make decisions that will bring more water into--or create new flooding in--our community. There is more than just a vacant lot on Roma Avenue: there are established homes on the south and north sides of Roma Avenue. We just don't want to be flooded.

Check-in with Team Members

Celeste asked for introductions. Since we have so much information to cover since the last technical team meeting, Celeste asked if we could add one hour to the end of meeting 4. Everyone agreed. Therefore, the December 4th meeting will be held from noon to 4 pm.

Following the last meeting (October 24th), Noel and Celeste discussed the spreadsheet ranking and the difficulty of distilling information from each presentation to determine ranking scores for each scenario. To help with this part of the process, we have asked each presenter to prepare a summary sheet that briefly describes the impact that each scenario will have on the resources that are being discussed. York prepared a one-page summary for water quality, and Noel met with Erin Peck to prepare a summary of her presentation on sediment accretion in estuaries. Both documents were handed out at the meeting and have been added to the Google Drive folder. Going forward, all presenters will include a summary slide at the end of their presentation, listing each scenario we are exploring with a short narrative on the changes that would occur to the resource(s) of concern.

Celeste reminded everyone of the ground rules that we agreed upon for the Sitka Sedge Technical Team meeting—specifically, our goal to stay open. It is important to remember that the role of team members is not to advocate for a particular restoration approach. The technical team is not a decision-making body. Our job is to gather information and explore all possibilities. We want team members to feel safe enough to share all ideas and thoughts related to restoration approaches at Sitka Sedge State Natural Area.

Regarding information-sharing, all information that team members are sharing with the group should be confined to data that are factual and able to be corroborated with a fair degree of certainty. If team members are sharing observations, that information should be identified as such when comments are being made.

And lastly, Celeste reiterated that technical team members were chosen based on their expertise in a resource/field of study, and agency personnel were not chosen to represent the agencies they serve. In addition, several of the team members have extensive knowledge and experience working on restoration projects that have included each of the scenarios we are exploring: (a) modern tide gate, (b) dike breach, and (c) setback dike.

Presentations

Greg Apke, Oregon Department of Fish and Wildlife (ODFW), State Fish Passage Lead.

Please refer to the Google Drive for Greg's PowerPoint presentation.

Below are some of the comments, questions, and answers generated in response to the presentation:

An artificial obstruction (AO) is something that precludes or prevents the passage of fish where there has been historical evidence of native fish. It is the policy of the state to provide passage for native migratory fish whether they have status under the Endangered Species Act (ESA) or not. The state is required to provide fish passage for native migratory fish, even if they are not listed as threatened or endangered under the ESA.

Owner operator of a tide gate (i.e., the person who owns and operates a tide gate) must comply under "trigger events." Trigger events are construction, a fundamental change in the tide gate, abandonment, and/or cumulative replacement of over 50% of the gate or the fill material associated with the tide gate. For example, if just the gate on Beltz Dike needed to be replaced, then there would be a "trigger." To clarify, "cumulative" means over the lifetime of the gate. ODFW doesn't get involved until a "trigger" takes place.

At the very least, a tide gate creates a delay for migrating fish—for hours or days—and disrupts all habitat-forming processes. Even the newer designed tide gates present a problem for fish passage (e.g., making fish vulnerable to predators while waiting to move through the gate, daily limitations for when fish can move through the gate). Modern tide gates constructed with a side-hinge gate decrease the impact of tide gates on fish passage compared to older tide gates constructed with a top-hinged gate.

ODFW is working on new rules for tides gates, which will be coming out later this year. ODFW's goals are to optimize the length of time a gate is opened, to maximize water depth, and to minimize water velocity.

It's important that the ground elevation on both sides of a newly installed tide gate match (are aligned), so that one side is not perched (i.e., higher than the other side), thereby creating a barrier to fish passage.

There are different requirements for the specifications of a tide gate (e.g., size of tide gate closure setting) if there are fish-bearing streams present above the tide gate.

Q. How does a muted tide work compared to old-school tide gates?

A. Old tide gates have a top-hinged door that relies on head pressure. A modern tide gate has a lighter side-hinged door with a flotation device that responds to the elevation of water behind the tide gate. The gate will open on an ebb tide and can be set to adjust to whatever closure setting one is looking for to prevent flooding. The gate itself must be sized appropriately to account for water velocity.

There are over 1,200 tide gates up and down the coast.

Estuarine habitat is critical to salmonids like coho. No matter what type of tide gate is in place, it will present a challenge to native migratory fish; however, modern tide gates are open longer, so they do provide an improvement over older tide gates. ODFW has not been able to monitor any of the recently installed modern tide-gate systems to determine how fish or water quality are impacted by them.

Q. How long does the door need to stay open?

A. The door needs to stay open for 51% (over half) of the tidal cycle and at a velocity that is appropriate for fish passage. Meeting the velocity criteria is accomplished by sizing the doors correctly for the system.

Q. How do you size the tide gate closure setting for a tidal system? Do you use bank flow or the sheet flow of the open tidal water?

A. We look at daily hydrographs for bidirectional flow. We do not look at extreme lows or highs. The flow must fall between 5-95% of the exceedance flows.

Q. How are federal fish-passage rules different than state rules? Will we need to check in with NOAA?

A. NOAA has their own fish-passage criteria, but do not have tide-gate design criteria. Typically, state and federal requirements align.

Q. What are federal “triggers” for fish passage?

A. Federal fish passage “triggers” are governed by the Endangered Species Act (ESA) and are identified during the permitting process.

Chris Knutsen, Oregon Department of Fish and Wildlife, Tillamook District.

Please refer to the Google Drive for Chris’ PowerPoint presentation.

Below are some of the comments, questions, and answers generated in response to the presentation:

ODFW does not want to see flooding of or negative impacts to the community of Tierra Del Mar. ODFW thinks we can find a win-win solution to provide fish passage and reduce any impacts to the community of Tierra Del Mar.

Coho salmon, coastal cutthroat, lamprey, and estuarine/marine-dependent species (e.g., starry flounder, shiner surfperch, black rockfish, Pacific sand lance) are all species to consider at Sitka Sedge. Please review the presentation to view summary slides showing how each species or group will respond to the different scenarios we are considering for restoration work around the dike.

Q. What would happen if we changed the alignment at Reneke Creek so that it flowed into the estuary outside of the dike and we installed a modern tide gate on the dike?

A. Realignment Reneke Creek in addition to investing in a costly modern tide gate wouldn’t be a good investment. What would be the point? Chris states that he is supportive of a setback levee. It provides a good compromise by allowing for fish passage and eliminating any impacts to the community of Tierra Del Mar. Setback levees can provide a substantial percentage of ecological benefits.

Q. Does temperature impact marine species?

A. Temperature requirements are based on salmonids. Not much is known about the temperature requirements of marine species.

Noel Bacheller, Oregon Parks and Recreation Department Botanist.

Please refer to the Google Drive for Noel's PowerPoint presentation.

Below are some of the questions, answers, and comments generated in response to the presentation:

Q. If we are trying to establish more Sitka spruce (e.g., shade) to mitigate for increases in water temperature, which scenario would be better?

A: The most drained (i.e., modern tide gate) condition will result in the most potential for woody vegetation to establish (i.e., mostly shrubs in close proximity to open water).

Noel used a 7-ft tide gate closure setting for the modern tide-gate scenario. The PGG/ESA hydrology study did not generate complete time-series data for multiple tide-gate closure settings. A 7-ft tide gate closure setting is what was used, but the vegetation modeling could be easily adapted to any other closure setting for which time series data were to be developed.

The presentation included comparative maps showing the duration of tidal inundation expected under each scenario. Because of the realization by team members that the gate/door closes fully with a modern tide gate and allows less estuary tidewater influx during that closure period than the existing (older) tide gate, the water quality assumptions described in the water quality presentation during the previous technical team meeting could change. There is a need for further assessment and possible revision of the comparison of water quality between the existing tide gate and a modern tide gate. York will review the surface water model results and submit an update to his water quality summary if needed.

The vegetation model is an estimate of what vegetation types will develop in a relatively short time frame (maybe 5 to 10 years?). It is based on an analysis of probabilities that correlate habitat types and hydrology to represent expected conditions in the near term; e.g., after the initial hydrology changes but before climate change/sediment accretion/erosion or other long term changes are expressed. Thus, it does not include any adjustments for sea level rise (SLR), erosion, or accretion. However, based on Erin's assumptions and the predicted SLR at Sitka Sedge, sediment accretion may keep up with SLR, and predicted vegetation patterns could last longer than for just the relative short term, at least under some alternatives.

Q. Do we need to consider the impacts on ground water for interdunal wetlands?

A. Wetlands that fill up in the winter are fed not just by ground water, but also precipitation. PGG predicted a maximum of up to a 2-inch drop in ground water under extreme storm conditions very close to the marsh. Under more average conditions, groundwater could rise by up to ¼ inch in close proximity to the marsh under a breach scenario or 1/8 inch under a modern tide gate scenario. Most of the dunal wetlands are much higher than the surface aquifer water table or are too far away to be significantly affected by the effects of marsh surface water on dunal groundwater. Interdunal wetlands that are close to the marsh might have the water table drop by up to 2" under some alternatives and conditions, but the amount of drop would be small and would diminish with distance from the marsh. We might be able to make some inferences about effects to the interdunal wetlands where they are very low and tied to groundwater rather than perched/accumulated rainwater. Some of the wetlands are low enough to be influenced by increased tidewater through the water table, but that's more of a hydro-geological question. Also, it would appear that the interdunal wetlands are driven in large part by stormwater rather than tidewater since they are only wet during the rainy season--and not wet during high tides in the summer.

Vanessa Blackstone, Oregon Parks and Recreation Department Wildlife Biologist.

Please refer to the Google Drive for Vanessa's PowerPoint presentation.

Below are some of the questions, answers, and comments generated in response to the presentation:

There are 29 at-risk species that utilize the habitat being considered.

Q. What is meant by winners and losers?

A. The concept of winners and losers can depend on one's point of reference. "Winners" refers to species that would be expected to benefit/increase from a scenario. "Losers" are species that would decrease as a result of a scenario. We are looking at changes relative to what is here now at Sitka Sedge, rather than what may have been there in the distant past.

Q. Are there any endangered species using the interdunal wetlands?

A. We have not found amphibians in the interdunal wetlands at Sitka Sedge, but neotropical migratory birds and mammals—all freshwater species—would use that type of habitat.

Q. Are we understanding correctly that a dike breach is more negative for terrestrial species?

A. Yes. Estuarine waters provide significant benefits to aquatic species, but terrestrial species are important too. Freshwater wetlands support more terrestrial species than do saltwater estuarine habitats.

Q. Is there a way to value or characterize how important any one of these alternatives is for species within a region? Is it possible to look at the importance of the Beltz Marsh or the Sand Lake Basin within a regional context—particularly for migratory species?

A. This would be an excellent analysis but would require significant time and effort to delve that deep into each species' needs.

It was pointed out that previous studies for Reneke—and in Chris's presentation—that the production potential for Reneke Creek in its current condition would be 118 summer parr/km, which is low. Chris clarified that the aquatic habitat information he presented was based on Reneke Creek only and does not include the production potential of summer parr in Beltz Marsh.

Q: Why are coho salmon the driver?

A: Coho are not the sole driver, but they are one of our priorities to consider when evaluating restoration actions. The reason OPRD received funding to acquire the Sitka Sedge property was to provide habitat for coho. Even without funding considerations, coho would rise to the highest conservation concern over any other species due to their increased rarity, declining populations, and loss of functional habitat regionally.

If we have only so much money to do restoration work in the Sand Lake Basin, is Reneke Creek worth restoring? Is the cost worth the benefits that would be achieved for restoring habitat for coho? There are areas outside of the Beltz Marsh that are already being addressed for the restoration of coho habitat.

Q. If we are going to look at winners and losers and Reneke Creek is our best habitat for salmonids at Sitka Sedge—though it isn't as good as some other creeks in the estuary—can we look beyond the boundaries of Sitka Sedge? Can we take money we would spend at Sitka Sedge and, instead, spend it in the Sand Lake Basin where we may be able to have a more significant impact on fish?

A. The tide gate on Beltz Dike will need to be replaced at some point. The best time to get grant assistance is before a “trigger” occurs at the tide gate.

We also need to consider if the benefits to the “winners” (including 1 listed species) will outweigh all of the species that will lose habitat. We need to figure out how to rate/value each group or species.

Q.: What is more important? Fresh or saltwater habitat? Currently we have a unique opportunity to view both types of habitat.

A. If you think about the federally listed species, coho salmon are the only species that would occur in this habitat and should be the focus of our considerations.

Estuarine habitat only occurs where fresh and salt water come together. Opportunities to benefit threatened species and estuary habitat are limited because there is a very small amount of land where the mixing of fresh and salt water take place. By comparison, opportunities for restoring freshwater habitat can occur in many more places and at many different elevations. You can't create estuarine habitat, but you can create freshwater habitat.

On the coast, species that are specific to estuarine habitat are migratory waterfowl (sea ducks), shorebird migrants on the coast, and neotropical migrants that look for habitat with willows or alders.

Chris Laity has worked on a lot of culverts and fish passage projects. The dike will trigger fish passage requirements no matter what. It is better to decide ahead how to restore fish passage than to be in a position where OPRD has to react/respond to a “trigger” event.

Ranking Spreadsheet

Q. Is the levee recognized by the Army Corps of Engineers?

A. No, it has not been inspected or assessed by the Corps.

Wetland mitigation would only be required for the setback dike option because part of the freshwater marsh habitat would be filled to build the new dike.

Q. Will OPRD select the scenario that has the highest score when totaling all of the ranking spreadsheets together?

A. This effort is a qualitative way to gather and clarify information. The high score won't necessarily predict which scenario is chosen. The ranking spreadsheets will provide OPRD with as much information as possible so that we don't miss any “red flags” (areas of concern that have been overlooked).

Q. What if we ranked the plant communities and assemblage of associated wildlife species together as defined by “habitat type”? Should we keep coho separated? They could be included in the regulatory section.

A. Celeste will work with Noel and Trevor to finalize the spreadsheet and send it out before the next meeting on December 4th.

Public Comment

Isabel Gilda:

Q. Are coho going to be delisted by NOAA?

A. Coho have been listed and delisted several times over the years.

Q. Would this change anything?

A. No, we would still have to meet fish passage requirements. The state is still required to provide fish passage for all native migratory fish regardless of whether they are listed as threatened or endangered under the ESA or not.

End-of-Meeting Discussion

Once Noel has run his model with an 8-ft tide gate closure setting for the modern tide gate scenario, York will review his water quality summary and revise if necessary.

Vanessa will create a cheat sheet for each habitat type to show which species would benefit or not benefit from changes to that habitat type.

Q. Could we change the way we operate a tide gate for certain times of the year?

A. OPRD may not have the capacity to operate an adjustable tide gate. The design of the tide gate will need to be specific for fish and for the site. We shouldn't need to adjust, but in theory you can keep it open as much as you want or dial it back.

Finding the maximum amount of tidal exchange is best. When PGG looked at the tide gate closure setting, they were looking at water storage. The 7- and 8-ft tide gate closure setting worked without predicted increased surface water or groundwater impacts south of the marsh. A 9-ft tide gate closure setting might be pushing it; a 10-ft closure setting could be too much.

Sediment accretion and scour (erosion) are factors we need to consider.

Q. Would any fish benefit from having more freshwater habitat? Would fish do better if we had better quality freshwater habitat?

A. No, it's the mixing of the freshwater and saltwater habitats that is the most valuable habitat for migratory fish. Fish need to have access to the mixing area to be able to move to where the water quality provides the best conditions for them.

In the absence of time in this meeting, Noel will work with anyone who wants to follow up to explain why the modern tide gate might result in less estuarine water input than existing conditions under certain conditions. Briefly, the reason is that the current tide gate is leaking and the gate never fully shuts, so tidal water keeps flowing into the marsh at times when the modern tide gate is closed.

Water quality in the summer is the most important consideration.

It seems like there is a lot of sand filling into the marsh. Sand dams can limit tidal exchange. If we open up the tide gate, then we may create a tidal channel.

Sitka Sedge Technical Team Follow-up Questions

Comments and questions from Tierra Del Mar Homeowner's Association 11Nov19.

The TDM community isn't asking for special consideration or protections against climate change/rising sea levels as announced by OPRD at the October 24 meeting, but we do expect OPRD not make decisions that will bring more water or create new flooding into our community.

Public safety should be elevated to share equal footing with Coho fish passage as OPRD's #1 priority/focus. The hierarchy of the list appears to tie into the history of OPRD's inconsistent public message about plans for Beltz dike. Am I reading the list incorrectly?

The proposal made by a member of the technical team (unnamed in the associated OPRD minutes) to completely remove Beltz dike and install a setback dike has prompted OPRD to consider raising affected property owners land elevations (Roma Ave & Sandlake Rd.) via a wetland fill and/or purchasing adversely affected adjacent properties has TDM neighbors and myself concerned, particularly since some property owners have now felt the need to seek legal representation.

OPRD's recent discussions with property owners identified as being adversely affected (Roma Ave & Sandlake Rd.) suggests that a full dike removal is being preferred, and that by mitigating these very significant adverse impacts now, OPRD gives the impression it is willing to go extreme lengths in order to justify a full dike breach instead of installing a new fish friendly modern tide gate.

The new setback dike scenario will bring more water and flooding closer to TDM and managing a larger amount of water in a smaller area will be more difficult. Also, increasing flooding and frequently within 100 feet of homes, regardless of property elevation, just seems like a bad idea and no one should be forced to face this type of situation simply to enhance Coho fish passage.

There are concerns that the more frequent flooding the setback dike scenario brings may have an impact on FEMA's FIRM maps and flood zones. Could parts of TDM be required to be rezoned by FEMA if more water is pushed into the area and flooding occurs more frequently? Who will protect property owners if it turns out OPRD models are not accurate and they find themselves with new flooding issues or a compromised septic system due to persistent higher groundwater levels? What are OPRD's plans for post-dike alteration monitoring and mitigation?

Whose responsibility is it to invite FEMA into the conversation or have they been approached already? We've asked this question on several occasions and OPRD hasn't been able to provide a clear answer other than it should be the Tillamook County Department of Community Development's responsibility, and yet after several years of project modeling, this department hasn't been included in any discussions that we know of.

The TDM community has previously experienced negative bias from USFWS and their opinion that we shouldn't be included in the decision-making process. In October 2018, Scott Nebeker from OPRD told the TDM community that USFWS funding would not to be an option due to their negative sentiment exhibited to the TDM community. Has OPRD's sentiment regarding USFWS funding changed? At the September technical team meeting USFWS and OWEB were mentioned as potential sources of future funding.

1. Has any discussion taken place by OPRD/technical team regarding the potential de-listing of Coho?
2. Why was lamprey added to the priority list with Coho at the Oct 24 meeting?
3. The “preferred alternatives” term is used a lot in the OPRD notes, but what does it mean?
4. The decision to not make the ranking spreadsheet results available to other technical team members or the public doesn’t align with transparency and note-sharing.
5. The Sept 24 meeting minutes mentioned that a decision will be made this winter about what land management approaches will be implemented. Who will decide on the “path forward” and what will that decision-making process look like?
6. The term “winners and losers” has been used a lot by OPRD without any background provided as to what the term means and why this understanding was determined so early in the decision-making process.
7. Michelle Dragoo mentioned the importance and value of addressing and conserving the current condition, although not completely natural, it’s still important and needs to be included. What discussion regarding this scenario is being considered?
8. How will OPRD manage beaver dams and what will happen when there is an increase in dams and their movement in the future?

OPRD response to the above comments from Tierra Del Mar’s e-mail on 11Nov19

- Public safety is ranked as a high priority along with coho salmon on the ranking spreadsheet. There is no significance as to which resource is listed first or last. All resources coded green are equally ranked as a high priority and will be considered as such when OPRD make its final decision regarding restoration work around the dike.
- The setback dike will not bring new tidal water within 100 feet of Tierra Del Mar. Whereas modeling for the dike breach showed that water would reach within 100 feet of the existing home on the north side of Roma Avenue, the setback dike would result in dramatic decreases in tidal surface water in the vicinity of TDM. Regarding, *“The new setback dike scenario will bring more water and flooding closer to TDM and managing a larger amount of water in a smaller area will be more difficult”*: it is true that relative to the existing condition, the setback dike would result in normal high tide water levels in the marsh north of the setback dike – so tidal high waters would be closer; however, the setback dike would reduce water levels behind it relative to existing conditions. Because the location of the setback dike would exclude the inputs of Reneke and Beltz Creeks, the smaller basin size behind the dike was determined by ESA to be sufficient to accommodate the reduced stormwater without increases in surface water or groundwater risks to TDM.
- OPRD has not made any decisions regarding restoration approaches for fish passage through the dike and we do not have any bias toward any of the scenarios that are being considered by the Sitka Sedge technical team.
- Regarding the text, *“The proposal made by a member of the technical team (unnamed in the associated OPRD minutes) to completely remove Beltz dike and install a setback dike has prompted OPRD to consider raising affected property owners land elevations (Roma Ave & Sandlake Rd.) via a wetland fill and/or purchasing adversely affected adjacent properties”*: OPRD has only reported this discussion by technical team members and is not advocating for a setback dike or any other concept at this point. OPRD has not pursued these ideas or approached landowners or regulators about them.

- Regarding, *“OPRD’s recent discussions with property owners identified as being adversely affected (Roma Ave & Sandlake Rd.) suggests that a full dike removal is being preferred, and that by mitigating these very significant adverse impacts now, OPRD gives the impression it is willing to go extreme lengths in order to justify a full dike breach instead of installing a new fish friendly modern tide gate”*: Since the PGG/ESA hydrology study identified potential direct effects to these landowners’ properties under certain alternatives, OPRD met with them upon conclusion of the hydrology study to reach out for their comments, to make sure they were aware of the findings, to answer questions, **to assure the landowners that OPRD was not biased toward any of the scenarios modelled**, and to explain the coming technical team assessment process and decision-making timeline.
- We have integrated FEMA data into our analysis, but have not consulted with FEMA. Rather than engaging FEMA early on in the process with a range of preliminary alternatives, we are choosing to wait until we have selected a preferred restoration approach before setting up a consultation. Consultation with FEMA will help to vet the approach and address any specific design criteria that might be necessary. In addition, based on the last three years of data collection and hydrological modeling, there is no evidence that either a setback dike or a breach in the dike will flood the community of Tierra Del Mar, with the exception of increasing tidal surface water frequency for portions of two properties that are already wetlands and already experience periodic tidal surface water.
- Monitoring efforts at Sitka Sedge State Natural Area will be centered around impacts to natural resources in response to restoration activities on the property. Unless there is a clear need to do so, OPRD does not have the resources or capacity to continue to monitor surface water changes in the community of Tierra Del Mar. And lastly, OPRD is not sure what is meant by mitigation following restoration work around the dike. Wetland mitigation may be part of a chosen restoration approach, but, until a scenario is chosen, we cannot state what the details will be of that effort.
- OPRD has asked Lisa Phipps with the Department of Land Conservation and Development to address local zoning and planning issues that may arise depending on which scenario is chosen.
- Regarding *“Has OPRD’s sentiment regarding USFWS funding changed?”*: OPRD will accept funding from any agency that is willing to fund restoration work at Sitka Sedge State Natural Area as long as conditions of that funding align with our restoration objectives.
- The question of delisting coho was asked at the November 13th meeting. Please refer to page 7 of the meeting notes for more information.
- Lamprey are listed as a species of concern and a strategy species in ODFW’s Oregon Conservation Strategy. Like coho salmon, lamprey are dependent on estuarine habitats for part of their life cycle. Since the November 13th meeting, lamprey have been removed from the ranking spreadsheet.
- Without providing a context for how the phrase “preferred alternatives” was used, we cannot say exactly what was meant by this phrase. We can say that typically the phrase “preferred alternatives” is used to describe restoration approaches that are being considered for a project. In our case, it would be the scenarios we are exploring for restoration around the dike.
- We are asking technical team members to submit their completed rankings spreadsheets to Celeste Lebo by December 11th, one week following the last technical team meeting. Spreadsheets are not anonymous and will be shared with the members of the technical team, but will not be sent out to the public or placed on the Google Drive. We are working hard to create a safe place where all thoughts and ideas are welcome.
- Trevor Taylor will discuss OPRD’s decision-making process and who will be involved at the last technical team meeting on December 4th.

- The concept of “winners and losers” is a way of talking about which resources will “increase or decrease.” For example, under a modern tide gate scenario with a 7-ft closure setting, some of what is currently saltmarsh will likely convert to freshwater types like freshwater marsh or scrub-shrub wetlands; therefore, saltwater marsh will decrease (“lose”), but freshwater habitat will expand (“win”). Although the terms appear to express a value judgement about preference, they have been meant to indicate increase/decrease.
- “Current conditions” is listed as a scenario on the ranking spreadsheet.
- OPRD will not manage beaver dams unless a dam is causing damage to public or private property.

Comments and questions from Andy Ewing 11Nov19

Thank you for your efforts in keeping detailed notes of our Sitka Sedge Technical Team. After review of these notes from our second meeting I take exception to two of the items reported.

First, York reported and meeting notes so reflect on page 3, that dissolved oxygen and temperature will only be “slightly better” with a modern tide gate relative to the existing broken tide gate. While I am not an expert on water quality or modern fish friendly muted tide gates, fish passage improvements directly attributable to installation of modern fish friendly muted tide gates must result in significant improvements over the existing broken tide gate. The Technical Team should hear expert testimony from tide gate experts before accepting as gospel that modern fish friendly tide gates only offer slight water quality improvements. There must be ‘more to the story’ here.

Second, page 9 of the Technical Team meeting notes states that Erin Peck “reminded us that removing the dike would allow for more sediment accumulation in Beltz Marsh increasing the elevation of the marsh...”. If you refer to page 41 from Erin’s PowerPoint presentation relating to what this all means for Sand Lake, Erin states “we don’t know whether sediment accretion ... is keeping up with sea level rise” and “we don’t know sediment accretion rates behind the dike” and “we don’t know how removing the dike would impact sediment accretion rates on the disturbed marshes or on the least disturbed marshes”. In general, in response to my question regarding dike removal, Erin’s message was cautionary with respect to dike removal and possible adverse impacts to the local community. Getting this testimony right is an important correction that needs to be made to the public record.

E-mail response to Andy Ewing from Leo Kuntz 12Nov19

Andrew, I can see some comments that easily could be mis conceived in this exchange. York refers to a "BROKEN" tide gate in comparing to a MTR system. A broken tide gate many times creates a muted tide in the interior by acting as a flow control and allowing a level of inundation that in most cases is muted or does not rise to fully tidal level. This is the same effect we create when we install a muted tidal system. What normally happens with a "broken" gate system is a culvert failure follows and leads to a full blown levee breach. Once the levee breaches the area, in most cases, becomes full tidal. In my opinion you already have a muted system at Belts.

That said we have many MTR system installed over the last 15 years that are delivering a huge improvement in habitat and restoration while at the same time providing valuable protection to established development and agriculture. Does a MTR system perform biologically as good as a fully open system?? Of course not but in situations that full tidal conflicts with current land use they deliver a

huge improvement over existing conventional systems and prevent land use conflicts. They are required in most new tide gate installations in all three states and we continue to install them on a regular basis. There has been several monitoring projects that have all shown the huge benefits.

I have spent quite a bit of time taking a look at the problems there. My wife was raised on the Belts Farm and her family has quite a bit of knowledge of the fish passage and spawning that took place there. Evidently as children, it was great excitement when they could hear the fish run from the house.

Thank You, Leo Kuntz/ Nehalem Marine Mfg

Comments and questions from Andy Ewing 18Nov19

I have read and am commenting on the 3-page handout OPRD distributed at the 11/13/19 Technical Team Meeting #3 which describes the findings of a discussion you two had 11/6/19 related to Sediment Accretion and Sea Level Rise Assessment for Sitka Sedge SNA Dike Scenarios.

The findings of this paper are based purely on speculation and assumptions since Sand Lake Estuary has not been studied with respect to sediment sources and accretion. The decision as to what dike scenarios should be pursued is very critical to the well-being of TDM and should not be based on broad assumptions.

- Your paper assumes that Netarts is a suitable analog to Sand Lake (only a guess on your part) and that sediment from Rineke, Beltz and No-Name creeks only supply negligible sediment to the area behind Beltz Dike. The existing tide gate has been in place for many years and the land elevation appears to confirm that the sediment from these sources is not insignificant.
- Your paper predicts “lowest sediment accretion” with a modern TMR and assumes that there will not be enough water allowed through a new TMR to allow sediment from outside the dike to accumulate behind the dike. The question of allowing enough water from outside the dike to penetrate behind the dike is just a matter of TMR design for opening size and elevation-closure settings.
- Your paper predicts “highest subsidence” due to projected decomposition of organic and peaty soils projected to be caused by shortened periods of inundation. Once again, this is speculation and can be completely controlled by TMR design. I do not think anyone knows how much organic soil currently exist behind Beltz dike and it is pure conjecture to guess how much organic soils will be generated in the future and available to compress and subside.
- -Your findings go on to claim that the dike breach scenario “compared to the existing dike/tide gate and the modern tide gates scenario(s), this (dike breach) alternative is the most likely (way) to keep up with sea level rise”. Once again this is speculation.

OPRD is relying on this and other testimony to select a fish passage scenario to pursue. The decision to breach Beltz Dike is fraught with the possibility of unforeseen consequences and uncertainty. Considering the importance of the decision I do not see how such claims can be made in the absence of scientific study specific to Sand Lake sediment sources and without taking into consideration various TMR design openings and settings. The decision makers at OPRD should not take this paper at face value but rather should understand the weak grounds upon which it is predicated. I would insist on much more scientific study and engineering review and design before proceeding.

OPRD response to Andy Ewing from Noel Bacheller, OPRD Botanist 19Nov19

Thanks for your comments. This dialog is very important. You are correct that the summary document we put together is speculation. We tried to make that clear, but at the same time to offer the professional opinion of an expert in the field for the benefit of the group with full disclaimers in place. Unfortunately, we currently have no data to produce anything other than speculation, and we only did so to give an idea of potential effects. We believe that we were upfront about the limitations and speculative aspects of the document, but I felt that it was necessary to summarize the content of our discussions for the benefit of the group while it was all fresh. It's a complicated subject that I think we were probably all having some trouble understanding, so I wanted to reach out to Erin to try to capture a summary and apply it to our site as best we could. By no means did we intend to imply that the summarization was definitive. OPRD understands the need for more data to make more informed inferences, and for that reason we are looking into funding the analysis of existing sediment cores from Whalen Island. Analysis of these cores will provide much more site-specific information on the Sand Lake estuary. Funding has been tentatively identified and we are working towards finalization soon.

You are also correct that the assumptions around the modern tide gate are limited -- the main reason for this is that in the previous PGG/ESA hydrological study we only fully analyzed low tide gate closure settings because of concern over stormwater buildup during gate closure. The 7-ft closure setting was chosen to give ample stormwater storage and result in the low tidal surface water near TDM. This was important as a groundwater modeling scenario to represent a situation that is not likely to increase groundwater elevations. We then increased the closure setting to 8-ft to see if that setting would result in any increased risk. The problem is that the higher the closure elevation, the smaller the stormwater retention basin behind the dike - which could be problematic during something like a 50-100 year storm event coinciding with a high tide. I am currently looking into other tide gate closure settings and how they affect maximum water surface elevation behind the dike during closure. I hope to present the information as a supplement at the next Technical Team meeting or via email to the team. It is possible that a higher MTR closure setting could get us to a tidal scenario that would allow for more sediment accretion in higher elevations of the marsh if the high closure settings don't pose risks that could result from insufficient stormwater storage capacity. OPRD is not trying to limit the discussion to only the 7-ft closure setting, and is actively looking at other settings - some of which might change the sediment accretion characteristics.

Thank you for bringing up these comments. I hope you understand that we are not taking the decision lightly, and we are not trying to make a quick decision without careful consideration of the complexities. We also need to be realistic that we will not be able to answer all of our questions and have perfect information. At some point, we will need to make a decision but are working to do so with as much information as we can gather. With respect to the sediment and sea level rise document, the intention was not to represent it as definitive science upon which a decision can be made - but rather to capture the conversation (as limited as it is) for the benefit of the group as we continue to work towards adequate understanding.

Comments and questions from Tierra Del Mar Homeowner's Association 29Nov19

Getting back to you regarding the definition of "public safety," my thoughts are that there is potential for the increased water that a full dike breach will bring to TDM will have a negative effect on the functionality of homeowners' septic systems and could cause them to overflow, thus creating a health hazard to the public. I'm including TDM property owners, tourists, and others who visit the area under

the definition of public. Also, for consideration is the livability of those affected properties; one cannot safely inhabit their home if they don't have a fully functioning septic and if you have a house with a septic that you can't use, then it is essentially uninhabitable.

Additionally, the road flooding that will occur with dike breach is another aspect of public safety and I know Chris will address that, but it also includes the impact flooding would have to the one and only road in and out of TDM. How would road flooding impact emergency vehicles' access, or our Tsunami evacuation route?

I wasn't involved when the public safety definition was originally included, but it most definitely should remain as a category for consideration because as I mentioned, there are a number of factors to be considered, not just the "physical harm" term that was mentioned. Below are a few questions from TDM community:

Has there been an environmental impact study (EIS) done for this project, or is that still to come, or not required?

Can you please provide the names of the OPRD Executive Committee or Team that will be involved in making the final decision on the future of the dike? And, what sort of timeline is being considered or is there an actual deadline when this decision will be made?

Vanessa stated a few times during her presentation that with the 7-ft breach, "*we didn't see the changes we were hoping for*". Can this statement be explained?

Trevor uses the term "*desired scenario*", what does this mean?

As always Celeste, we very much appreciate the willingness to help us understand all that is being considered so can share accurate information with the rest of the TDM community who are deeply concerned about where this project might be headed.

OPRD response to the above comments from Tierra Del Mar's e-mail on 11Nov19

- "Public Safety" will be included on the ranking spreadsheet as it relates to emergency vehicle access. Based on modeling scenarios, septic systems in Tierra Del Mar would not be impacted by any of the scenarios under consideration. If new information is provided indicating that there would be an impact to septic systems, that concern would fit best under "Private Infrastructure."
- Chris Laity will address any potential flooding to Sand Lake Road that could occur as a result of any of the scenarios being considered.
- An environmental impact statement (EIS) is a requirement of federal agencies, not state agencies. That said, a NEPA document such as an EA or EIS may become necessary as part of a federal grant or permit in a future phase of work.
- Trevor Taylor will discuss OPRD's decision-making process and who will be involved at the last technical team meeting on December 4th.
- None of the scenarios being considered includes a 7-ft breach. Vanessa may have been referring to the 7-ft tide gate closure setting for a modern tide gate. Results from ESA's surface water model showed less tidal exchange with a 7-ft tide gate closure setting than under the existing broken tide gate, which was unexpected by some technical team members.

- Without knowing what the context was for when Trevor used the phrase “desired scenario,” we can only say that he may have been referencing the final scenario that is chosen by OPRD for restoration work around the dike. As a reminder, OPRD has made no decisions regarding restoration work around the dike.

Follow-up statement from Chris Havel, OPRD Associate Director 19Nov19

In 2014, before it acquired the property, the Oregon Parks and Recreation Department said it was not considering breaching the dike as part of its development plans. That was based on the best information available at the time, and was included in its public presentation to show OPRD leadership did not want its neighbors to suffer at the expense of the park. Had we known at the time that a full hydrological study would be necessary to address the failing tide gate and complex fish passage and habitat issues, and that this study would need to include investigation of breach options to gauge potential effects, the agency would have presented this information in 2014. OPRD should have anticipated the need for this conversation and at least left the door open to this idea to avoid surprises, and we regret not doing so. It is noteworthy that several members of the community who provided public comment in 2014 were ahead of OPRD in this regard, and publicly stated they thought significant alterations would be needed to the dike.

Comments and questions from Andy Ewing 01Dec19

I understand that the 12/4/19 Technical Team meeting is OPRD’s last scheduled opportunity to receive public comment but I want to be able to submit a position or advocacy statement to OPRD decision makers after the Technical Team completes its series of meetings and related presentations. Submitting such a written comment at or prior to the meeting on 12/4/19 does not allow for review and response to the important presentations to be presented that date. The scheduled Technical Team presentations have been an opportunity for presenters to effectively advocate the strengths and weaknesses of various scenarios relative to their field of expertise. Other than my comments on such presentations by others and completion and submission of the ranking spreadsheet, private property owner presentation has not been solicited by OPRD.

Please confirm that OPRD will take such written submittals and, if there is a deadline for such submittals. Also, please tell me who the final decision makers are so I can include all in my submittal.

OPRD response to the above comments from Andy Ewing’s e-mail on 01Dec19

- Trevor Taylor will discuss OPRD’s decision-making process and who will be involved at the last technical team meeting on December 4th.
- We would like to receive scoring sheets and written comments by December 11, 2019, however, input is always welcome.