

Sitka Sedge State Natural Area

Compiled Public Comments in Response to Revised Draft Master Plan

June 2nd 2016 – July 28 2016



Nature

HISTORY

Discovery



File Code: 1540
Date: July 28, 2016

Ben Hedstrom
Landscape Design and Planning Coordinator
Oregon Department of Parks and Recreation | Integrated Park Services
725 Summer St. NE Suite C
Salem, OR 97301-1266

Re: Sitka Sedge State Natural Area advisory committee Draft Master Plan comments

Dear Ben Hedstrom:

On behalf of Forest Service interests in how OPRD manages the Sitka Sedge State Natural Area and as a continuation of our comments made on February 10th, 2016, please take this letter for our consideration in response to the Beltz Draft Master Plan that was made available June 23rd, 2016.

As stated in our previous letter, we recommend restoration and conservation activities that create and maintain habitat for federally listed threatened and endangered species, including marbled murrelets, northern spotted owls, and coho salmon, all of which are found on or near the OPRD property. Due to the proximity of the Siuslaw National Forest to the Sitka Sedge State Natural Area, we believe these actions would be both beneficial to OPRD and simultaneously enhance the quality of the lands, aquatic resources, and wildlife habitat that we manage.

We applaud the recognition of marbled murrelet habitat in the uplands of the property, and the plan to preserve and avoid disturbance of this upland area.

We continue to recommend the restoration of tidal marsh habitat and tidal hydrologic connectivity through the dike to improve estuarine habitat in the natural area and allow salmonid access to upstream spawning and rearing habitat on Beltz and Reneke Creeks. Restoring access to this quality upstream habitat is one of our driving interests.

The Wildlife Assessment, while thorough, has several typos and inconsistencies which distract from the information it provides and may confuse the public. We suggest fixing the following:

- The map in Figure 5 (page 18) shows the three culverts under Sand Lake Road as green and “passable” for fish. These culverts are not passable, as is noted in the text on page 21 and 23.
- Some of the figure numbers appear to be inaccurate; for example the text on page 21 refers to Figure 7, but the corresponding graph is not related.
- Although some of the data collected was with malfunctioning equipment, as stated in the report “The sensor above the beaver dam appears to have malfunctioned...” (pg 23), the



data is published in graphs on page 26 and 28. This information is not accurate or useful if not correctly collected.

- Additional data reported, such as the temperature data, does not have comparable (ex. Table 6) or sufficiently long time periods for interpretation. We recommend waiting for the complete hydrology and groundwater report to deliver this information to avoid confusion or misinterpretation.

We support a long term approach in planning the restoration of the park's estuary and recommend investigating the multiple benefits of estuarine restoration, particularly in light of climate change, to physical processes, aquatic organisms, and plant communities. A recent publication on the Salmon River Estuary highlights some of the challenges and unforeseen benefits of restoration:

Flitcroft, Rebecca L., et al. "Expect the unexpected: place-based protections can lead to unforeseen benefits." *Aquatic Conservation: Marine and Freshwater Ecosystems* 26.S1 (2016): 39-59.

The acquisition of the Beltz Property is a great opportunity for OPRD to both provide natural recreation opportunities and restore critical coastal habitat. The Hebo Ranger District is committed to engaging with OPRD in the Master Planning process and is fully prepared to assist in the implementation of activities that benefit National Forest lands. If you have any questions, please contact Adriana Morales at (503) 392-5135, adrianammorales@fs.fed.us, or Leah Tai at (503) 392-5126, ltai@fs.fed.us.

Sincerely,



DEBORAH WILKINS
District Ranger



Tillamook Estuaries Partnership
A National Estuary Project

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Phone (503) 322-2222, Fax (503) 322-2261

Dedicated to the conservation and restoration of Tillamook County's estuaries and watersheds in their entirety.

July 28, 2016

Ben Hedstrom, Planning Coordinator
Oregon Parks and Recreation Department
725 Summer Street, NE Suite C
Salem, Oregon 97301-1266

Re: Review of Sitka Sedge State Natural Area Master Plan, June 2016 draft

Dear Mr. Hedstrom,

The Tillamook Estuaries Partnership (TEP) appreciates the opportunity to provide comments on the June 2016 Draft Sitka Sedge State Natural Area Master Plan. TEP is a 501(c)(3) non-profit organization and part of the National Estuary Program, created through the Clean Water Act. In 1994, the Tillamook Bay was designated a "bay of national significance" and in 2002, TEP expanded its project area to also include the Nehalem, Netarts, Nestucca, and Sand Lake estuaries. We have a keen interest in the Sand Lake estuary. We would like to affirm the comments provided by many of our partners including the Oregon Department of Fish and Wildlife, the Oregon Department of Environmental Quality, the Oregon Central Coast Estuary Collaborative, and the US Fish and Wildlife Service.

Additionally, we offer the following comments for your consideration. Estuaries are one of the most dynamic and diverse habitats on earth. Tillamook County is fortunate to have five within its boundaries. Sand Lake is considered a "Natural" estuary, one of only a handful throughout the west coast. The acquisition of Beltz Farm provides an amazing opportunity to restore function to this system while still allowing for the many recreational uses anticipated on this property. With the introduction of the dike in the early 1900's and the creation of a primarily freshwater marsh behind it, it cannot be considered to be in a natural state. We understand that the marsh is now well-established and provides its own habitat values. We also understand the community connection to the marsh. As we stated in earlier comments, we recognize the difficult decisions that must be made when weighing one habitat value against another; in this case, a freshwater marsh that was established 70 years ago versus its natural estuarine state. In this case, we support moving towards reconnecting the area behind the dike to the rest of the estuary and establishing a functioning and healthy ecosystem, a rare and unique opportunity.

But, there is a misconception that it has to be about fish or the habitat at the expense of the community of Tierra del Mar. I have never heard an agency or other organization advocate for restoration over the safety and well-being of the community. Before any

restoration occurs that involves removing the tidegate, sufficient data, including groundwater levels and historical data, must be gathered and modeled. Climate change must be factored into the equation and a clear strategy developed that ensures that any proposed restoration efforts do not exacerbate conditions within Tierra del Mar, and, ultimately should provide for greater resilience.

This is the perfect time to bring together all of the partners, the Tierra del Mar community, and the other residents along Sand Lake to engage them in the restoration discussion and to use the restoration as an educational opportunity as we watch the site transition from its altered state to a more fully functioning ecosystem that improves the overall health of the watersheds that drain into Sand Lake.

We also recommend that a communication strategy be incorporated into the plan, ensuring transparency. The plan should include regular outreach to the community and other stakeholders on the status of the outcomes of the data gathering and the Master Plan implementation. It should include technical, stakeholder, and community meetings as needed.

Finally, if and when restoration occurs and to what extent possible, there are federal, state, county, and local partners working within the watershed, including TEP, who have the capacity and expertise to assist with those efforts. The workload should not be shouldered by OPRD alone.

Again, we support the comments of our partners and, as an active and engaged partner, ask that restoration and its many possibilities be given full consideration while maintaining the well-being and safety of the community of Tierra del Mar.

If you have any questions, feel free to contact me at 503-322-2222 or at lphipps@tbnep.org.

Sincerely,

Lisa Phipps
Executive Director

Pacific Hydro-Geology Inc.

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July 25, 2016

Ben Hedstrom, Design and Planning Coordinator
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Salem, OR 97301-1271

RE: Comments on the June 2016 Draft Master Plan

We have reviewed the June 2016 Draft Master Plan for Sitka Sedge Park, and we greatly appreciate the additional wording which documents that no changes will be made to the park that involve hydrology until the additional studies have been completed. However, the old wording still remains that emphasizes breaching the dike in some way for fish enhancement.

It is our understanding that the long range plans for the park, which include some form of improvements for fish, will be based on the scientific data that still needs to be collected with consideration of how each change would impact other aspects of the park. For example, converting the fresh-water marsh to salt water could cause the Harrier pair to start hunting the Snowy Plover. Increased hunting pressure on the Snowy Plover may not be a desirable outcome from converting the fresh-water to salt-water. It may be determined that the hydrogeology at Sitka Sedge Park is different from the Salmon River estuary, and converting the fresh-water marsh to salt water will not have the same or similar success story for fish. It may be determined that Beltz and "No-name creek" really do not offer a lot of fish habitat east of Sand Lake Road, and the best improvements for fish would be to re-connect Reneke Creek to the estuary north of the dike. The ability to add other endangered species to the fresh water area where the habitat already exists may add greater value to retaining the fresh water estuary. The hydrology study may also show that breaching the dike may put Tierra Del Mar at greater risk from flooding, which might open the door for waivers that would allow the tide gate to be repaired or for installation of a fish-friendly tide gate. Realization of any of the above scenarios could mean breaching the dike may not be an acceptable option in the future. Therefore, we have provided you with some suggested changes to the report that we think will more clearly outline the future plans of making improvements for fish, maximizing bio-diversity, and being good stewards of the land.

Recommended changes to the Draft Plan:

Figure 2.1: The channel for Reneke Creek west of Sand Lake Road should be revised to show the channel the creek used post 1938 before the culvert was clogged.

Page 18, Habitats: The last sentence of this paragraph should have the words "fresh-water wetlands ". There are fresh-water wetlands present that are not tidally influenced and will not be flooded by salt water if the dike is breached.

Page 19, First paragraph, 6th line: Word "reconnect ion" should be "reconnection."

Page 19, First paragraph: We suggest adding to the end of this paragraph new language that conveys the meaning of this sentence: "However, reconnecting the tidal wetlands will negatively impact the fresh water wetlands that have developed behind the dike, and it may be advantageous to preserve and protect the existing fresh water wetlands."

Page 19, Second paragraph: We suggest the entire paragraph should be deleted and replaced with language that conveys the following: "The improvements to fish passage will be based on the findings from the hydrology and groundwater studies started in 2015 – 2016. Additional studies completed on fish habitat potential in Beltz and Reneke creeks combined with additional studies on existing wildlife and plants currently in the fresh water portion of the estuary will also be considered."

At the time of completion of this Master Plan, methods for the groundwater study consist of shallow groundwater monitoring, site evaluation, and collection of elevation data. Three groundwater monitoring wells were installed to develop a continuous record of groundwater elevations and allow for an estimation of the primary direction of groundwater flow, concurrent water surface elevation data in Beltz Marsh, and rainfall and ocean tidal data for the same time period. Water surface elevations and stormwater infrastructure in Tierra Del Mar and in the wetland east of Sand Lake Road have been evaluated."

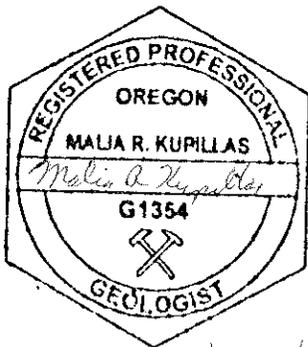
Page 19, Third through tenth paragraphs: We suggest these paragraphs should be deleted and replaced with language that conveys the following: "Some potential alternatives that are being considered for fish restoration or enhancement are as follows: 1) Remove the tide gate flap from the existing tidebox to allow for fish movement through the dike (approximately 4 foot gap). 2) Create an 18 foot wide gap in the dike corresponding to the cumulative channel widths of Beltz and Reneke Creeks, which is also a State fish passage minimum. 3) Restore Reneke Creek to the late 1930's channel, which allows the creek to flow directly into the salt water marsh and repair the existing tide gate. 4) Repair or replace the existing tide gate using waivers if necessary from USFW and ODFW. 5) Other options not mentioned above."

Page 47, First three paragraphs: It seems that these paragraphs are not appropriate given that decisions on improvements for fish and the future of the dike are pending. Therefore, we suggest deletion of these three paragraphs.

Page 52, Under "Natural Resources and Restoration," first paragraph at the top of the page and after the words "fish passage rules:" We suggest inserting language that conveys the meaning of the following sentence: "However, waivers may be needed to address the fish passage rules."

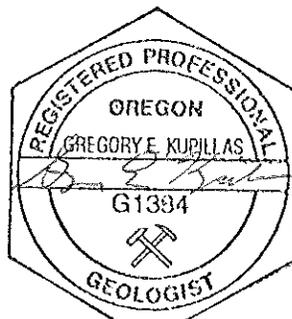
Page 52, Second paragraph under "Natural Resources and Restoration" that starts with the words "In addition to...:" Given that the final restoration plan has not been determined, we suggest deleting this entire paragraph.

Sincerely,



Expiration Date: 5/31/2017

Malia R. Kupillas, R.G., C.W.R.E.



Expiration Date: 12/31/2016

Gregory E. Kupillas, R.G., C.W.R.E.

Sitka Sedge State Natural Area Draft 2 Comments due July 28, 2016

Major Points:

If I am understanding this draft accurately, the discussion and planning focused on fish passage is being continued. With consideration awaiting the hydrologic data from the ongoing studies and the interpretation of that information before final fish passage options are considered. Is this correct?

My main concerns with any and all changes anticipated to take place for Sitka Sedge SNA have to do with maintaining existing healthy aspects of the land, plants, waters, and their associated dependent animal species. To that end, were the Oregon Coast Trail to extend across Sitka Sedge State Natural Area on the east side of Sandlake Rd., I would want to see protections (bridges, for example) in place to prevent degradation/erosion/damage to the streams flowing down from the U.S. Forest Service lands to and under the road to the estuary waters.

Similar protections would also need to be in place through boggy or marshy areas or the riparian areas adjacent to the streams or around any seeps or springs. These protections could be similar to the raised walkways the Bureau of Land Management located over the Warner Lakes and Potholes protected areas in Lake County, and the coastal bogs south of here. Both all-terrain bikes and horses tend to chew up soft ground, trample riparian and aquatic vegetation, and compact or significantly disturb streambeds (aquatic insect and fish eggs and young, also amphibians).

The health of these invaluable water resources are of primary concern to me. Not just for restoration of historic (and earlier) fish populations which could return quickly to these streams (as they have with the removal of dams on the Elwa River, WA, and Sandy River in Multnomah Co., OR. Clean, cold, potable water is the major issue at stake here. Restoring healthy true forests and protecting streams in this SNA get my vote every time.

My hope is strong that the formerly heavily forested lands east of Sandlake Rd.(see 1939 USACE Aerial Image) will be reforested, providing a mitigating treed/shrubbed/ mossed/flowered/fungiied/ferned sponge to retain and

moderate as-of-old the hydrologic cycle of the former Beltz property. Next, my hope is that the formerly naturally contoured meandering waters of the three streams (Renecke, Beltz, and Schaleck [?]) creeks will be released from the drainage ditch formats west of Sandlake Rd., that now restrict/limit their naturally healthy meanderings which once provided habitat for aquatic species whose recovery I also hope will occur through well-thought-out processes. Native fish species, as well as native plant, bird, insect, mammal, and reptile species would all benefit from a return to more naturally flowing waters.

As I read the plan, I conclude my hopes are realistic based on the strategies outlined and specifically listed. I am delighted with the list of tasks and the management emphasizes on page 59, section 1.2-1.4, and 1.5 on page 60, especially the ecological protections and restoration statements. Also, the forest management section. Overall, pleased with plan. Except:

Quiet Marshes and Estuary....Guns?

No hunting. What sets this estuary apart from the many developed estuaries is quiet....with the obvious contradiction of the USFS's ORV recreation area's vehicle noise, in part depending upon the wind's direction and the number of vehicles. Loud explosions will not contribute to this SNA in positive ways. I am not at all in favor of combining guns with a public estuary and parkland. Let there be this one small place where bald eagles and other native predators may hunt without fearing gunfire, and migratory/resident waterfowl may rest without fear of being shot dead or injured.

Not all those who hunt birds can be relied upon to do so responsibly with care for people present or the possibility of a bird watcher behind the bird at which they are firing. I have had four experiences with hunters behaving illegally: trespassing through my families backyard to shoot fawns; shooting at a pheasant flying into the apple trees my grandmother and I was harvesting; hunting (with dog) an elk out-of-season down off the now Sitka Sedge SNA dunes onto the beach to die at ocean's edge; and being shot at by ground squirrel shooters in Central Oregon as I examined a just-shot red tail hawk at the side of the Post-Paulina Hwy. Visitor safety should outweigh hunters' wants.

Finally, compare the perceived need for yet more places to shoot birds (how many acres and locations already designated for shooting?) with how many quiet places, at least safe from authorized hunting, (acreage?) there are for those of us who seek relief from ever-increasingly loud, crowded towns. Does the state really need more shooting galleries? Or is it time to balance noise-producing, even dangerous, outdoor recreation with quiet, non-intrusive recreation. Personally, I believe it is long past time to designate more quiet "zones."

Note: I come from families of hunters, anglers, and military service men, but Sitka Sedge SNA is no place for shooting except with a camera. I do know about the love of hunting. What bird hunting opportunities exist around South Tillamook and North Lincoln counties?

Snowy Plover

I support all efforts to provide suitable safe habitat for the plover. As an SNA, I would expect Sitka Sedge recreation plans to provide the necessary buffers to discourage human disturbance of any "safety" buffer established around possible nesting, rearing, and other plover use areas to encourage the return of this native species. If that means relocating a beach access trail or a dune crest trail, that's fine.

Trails

I read with interest the note about modifying existing trails to provide a firm and regular surface. I am one of those individuals who with family and friends and walked the trails over several decades. Part of a natural landscape, walking on the earth, not on man-altered surfaces, is the playful joy and delight of a changing surface...a surface that tells a history of the land one is walking upon, where one can not just observe, but feel the difference in surface, bump the roots that hold the earth, slog through deep hot dry sand, or note the rocks scattered randomly so far as we of this century know. Manicuring the surfaces to a sameness is not what I want to experience when visit Sitka Sedge. Trim the tree branches where safety dictates, but leave us walkers with a surface naturally varied. These are a beach dune trail, a beach woods trail, an estuary trail....please do not sanitize them like a city park. Please leave as much sensory input from the natural world as possible...scents, sounds, touch, views...all enrich the State Natural Area (not state groomed area) experience. I do understand and support the need to have

access via the dike for those needing to use wheels. But the trails....I've even walked once with a person on crutches with a leg in a cast (she also walked nearly half-way to the inlet on the beach on crutches). Steep or "severe grade changes" are natural features of this landscape. Please do not turn this into flat trails.

Rangers

I was glad to read that three rangers such as (one?) now at Cape Kiwanda will be stationed at Sitka Sedge. Hopefully, this will deter the use of the area by ATVs or other ORVs.

Fish Passage and Populations Restoration

While I had hoped a clear move-ahead plan would result regarding restoring our native fish populations in part through clear fish passage through the dike, under Sandlake Rd. and in part through renewed availability of spawning and rearing grounds, the reports, advisory board and public meetings, and posted comments have indicated more thought is needed. I am still hopeful that the culvert issues and habitat restoration east of the road from the US Forest Service lands west down through the present pastures may be accomplished in a timely fashion. I was encouraged to read the sections on the pastures (cows really are natural, and only an extremely brief use in the history [Native Americans here, then and now] of this area). Reads like a strong move in a healing and restorative direction for these lands. Thank you.

Tree Cutting

I would add that using specific months may no longer be a valid choice for either nesting/deer and elk birthing/ or wetness and temperature. The last few years indicate possible shifts in cold/wet and hot/dry months. Could the limits on cutting woody vegetation be tied to temperature and precipitation, humidity, rather than calendar months? I believe this would be more realistic.

There are some grammatical, a fair number of typos I wish I had time to edit, but will not, and one correction I will ask for:

It would be more accurate to list me as a former land owner and long-time intermittent resident of Tierra Del Mar rather than a long-time resident. Thank you.

My apologies for not proofing my own comments here!

Thank you for the opportunity to be part of the advisory committee. I have thoroughly enjoyed the process and the privilege. I look forward to considering the final draft of the master plan.

Kathleen Simpson Myron

Comments on the REVISED Sitka Sedge State Natural Area Draft Master Plan June 2016.

York Johnson 07/28/16

- 1) Page 9, paragraph 1 and 2: SNA isn't just adjacent to but is part of Sand Lake Estuary. The text in these paragraphs does not mention that SNA property includes at a minimum 42 acres of tidal marsh, sand/mud flat in the middle of Sand Lake Estuary. This is unique and important habitat type and should be given equal weight with the other categories identified. It is also important to describe that much of the area behind the dike is currently estuary habitat, part of the Sand Lake Estuary (water quality characteristic "salinity" measurement have confirmed this). OPRD purchased property that is part of Sand Lake Estuary, 42 acres is unobstructed estuary habitat, and an additional (very conservative GIS estimate) 12 acres of altered estuary is located behind the dike.
- 2) Page 11, Figure 2.1: This map shows streams on the property but does not include open water areas inside and outside of the dike. This estuary waters are a huge feature of the property and critical habitat for Endanger Coastal Coho.
- 3) Page 13. Bullet 3; Include addition text about DEQ jurisdiction that summaries the following: DEQ is responsible for protecting and enhancing Oregon's waters and for enforcing Oregon's environmental laws.
- 4) Page 15, first line; Text is incorrect: "saltwater influenced freshwater wetlands, and tidal marsh at Sand Lake." Do you mean to state tidal influenced freshwater wetlands? If there is saltwater influence then water is typically no longer freshwater but considered brackish water (a mix of fresh and salt water and a characteristic of an estuary). There can, however, be areas that see water elevations change due to tidal influence but do not include salt or brackish water.
- 5) Page 18, Habitats Section: **This is an important area that really sets up the discussion of the SNA property and the balance of goals for the park.** There may be some confusion to what should be included here or what is trying to be portrayed. Is this a summary a natural resource values at the park? Plants and vegetation types are a resource and value, but also contribute to habitat for threatened and endanger species. How do you distinguish between a wetland that is habitat for unique plants but also is habitat for fish and wildlife species independent of what plants may occur there? So does this Section need to be entitled Natural Resources and include some major categories like unique vegetation, fresh and saltwater wetlands (marsh/estuary), estuaries (flats/open water), wildlife, and fisheries? Having these broader categories discussed in the front of the document leads into the discussions that follow about hydrologic modeling to provide fish passage for endangered Coastal Coho that balances community resiliency needs, habitat protection and property management for threatened Snowy Plovers, and wetland plant communities. **Including a small summary of text from on page 52 under Natural Resource and Restoration Section, first Constraints, would set the stage for Coastal Coho and its lifecycle needs throughout the rest of the document.** Doing the same for Plovers would provide similar value.
- 6) Page 18, Habitats: Text inaccurately represents estuary habitats and freshwater and saltwater wetlands. There can be tidal influences on freshwater wetlands (tidal in that there is water elevation changes but no salt) but if the water has elevated salinity values then it is a saltwater wetland/estuary and provides estuary habitat. Also the text about dike implies that current

saltwater conditions are somehow not nature and only there because the tide gate is not functioning properly. This gives a false impression of the situation, before the landscape was significantly altered by human influence (dike construction) which limited endangered Coastal Coho passage and degraded water quality.

- 7) Page 19, second whole paragraph under Modeling Scenarios: This summary of modeling efforts is confusing, especially after attending a tech team meeting. If I understand the situation correctly there were two model runs. The first looked at removing the flap on the tide gate and could really be considered current conditions given that the flap on the tide gate isn't functioning as designed. The second was the 18ft breach option. It seems that one model was developed to reproduce the current conditions of the SNA property (tide gate flap removal). The output of this model generally describes scenario: "1) whether increasing tidal interchange... and 2) the depth or duration...". The second model develop was to simulate changes from current conditions based on an 18ft breach of the levee to meet State of Oregon fish passage requirements. This was the first step to meet fish passage requirements of the State but also determine possible negative affect on adjacent landowners. Based on these initial findings more data is needed to meeting federal fish passage and ensure protection of adjacent landowners.
- 8) Page 23, Wildlife Resources Value Map: This map does not highlight endanger Coastal Coho habitat (estuary and streams and riparian areas) with the same value as the threaten Snowy Plover habitat. Given that these are the only threatened and endanger species present at the SNA shouldn't their habitat be given equal value/weight?
- 9) Page 25, Developed/Disturbed Section: This section identifies area that have been changed based on human alterations to the environment. The habitats behind the levee has been significantly change by humans through the placement of the levee. It seems that "unnatural due to disturbance or human intervention" includes the major changes that have occurred to the area behind the levee due to its placement across the southern portion of what was a nature and pristine estuary at the time.
- 10) Page 27, Figure 3.3 Composite Natural Resource Value Map: This map doesn't account for the fact that all waterways and estuary are habitat for endangered Coastal Coho salmon. Values should be more in line with threatened Plover habitat. Riparian areas that have the most effect on streams might also have a value that reflects the needs of the endangered Coho habitat.
- 11) Page 28, Wildlife Habitat Ratings: This is an example of a lack of the inclusion of a Fisheries section. It might also help to include a summary of what the Sitka Sedge State Natural Area Wildlife Assessments found as well as the target species included. I assume that this report includes a description of the threatened Snowy Plover needs and utility at the SNA, yet none of this information is presented or mentioned in the master plan document. What other species are included in the wildlife assessment, elk, black bear, other?
- 12) Page 52, First paragraph second column: The statement "salt water intrusion into the freshwater side of the dike has been increasing due to tidegate malfunction", seems to imply some kind of degradation of conditions instead of a return to an unaltered state of the estuary.
- 13) Page 52, second paragraph second column: Fish species are mentioned but this general term includes Coastal Coho which are federally listed as Endangered. Using the general term "fish species" doesn't fully communicate the importance of providing habitat for endanger Coastal Coho.

- 14) Page 53, Western Snowy Plover Habitat Conservation: Here is an example of how one threaten species is identified and resources management established. Coastal Coho is an endangered species and should be given equal treatment in the document, Coastal Coho Habitat Conservation section?
- 15) Page 58, 1.1 Assessments: DEQ partners and supports projects that focus on restoring natural ecosystem function and improve water quality to highest extent possible. Projects of this nature also meet the goals of the Total Maximum Daily Load (TMDL) document developed for Nestucca Watershed.
- 16) Page 59 and 60, Bullet lists: There are bulleted list on each of these pages that identify Snowy Plover specifically but do not call out endangered Coastal Coho. As mentioned previously it seems that all threatened and endangered species using the SNA should receive equal weight in the document.
- 17) Page 61, 1.7 At-Risk Species: This is another location that seems like it should identify endangered Coastal Coho specifically.
- 18) Page 64, Photo: The photo does not include the entire SNA portion of the estuary in the photo and therefore implies that the estuary does not include the full extent of saltwater influence included on the SNA property.
- 19) Page 76, Fish Passage and Stream Restoration: Coastal Coho are not identified as an endangered species in this section. This diminishes the critical imperative to protect essential habitat that the species needs to survive.
- 20) Page 76, Fish Passage and Stream Restoration, Bullets: **Several bullets in this section contain language that implies that there are significant limits being place on fish passage and all options are not being considered.**

Bullet One: First sentence is good. Second sentence implies that the most that will be done is removing the flap on the tide gate only providing absolute minimum fish passage and not improving water quality at all.

Bullet Four: There should definitely be a balance of goals for the SNA. The text in this bullet implies that weight of man-made landscapes and vegetation has as much or more weight than natural condition and endanger species critical habitat.

Bullet Five: What is a “precedent” project? It doesn’t sound good. Having worked on restoration project throughout Tillamook County this term seems like one used by groups not interested in participating is restoring natural ecologic function of a system. Following along with this questionable wording, are there only “potential” benefits of restoring Sand Lake Estuary?

Bullet Six: This text implies that the only time OPRD will take action to address fish passage through the levee is when the levee fails utterly.

Bullets Seven: This text here implies that there will inherently be negative impacts on the local community from fish passage projects. This gives the wrong message. It seems that OPRD will be working with the local community to communicate how it is working to ensure that will be no negative consequences to the local community from any fish passage projects that OPRD is considering.

- 21) Page 79, Supporting Messages and Related Content, First Bullet: The text refers to a freshwater estuary. An estuary by definition does not have freshwater.
- 22) Page 80, section 2., fifth bullet: **The text about questioning the definition of what constitutes “natural” conditions is highly inflammatory for a natural resource restoration perspective. The statement leads the reader to question whether the Man-made levee and the habitat its presence created is natural condition. The human activity of creating the levee directly through an estuary has significantly altered the estuary and habitat adjacent. If OPRD is committed to correcting this alteration to the maximum extent possible, this should be stated in the document whenever possible.**
- 23) Page 80, section 3., first bullet: Text states that there are freshwater estuaries. As mentioned previously, by definition an estuary has some level of salinity and therefor no freshwater.



July 23, 2016

Ben Hedstrom, Design and Planning Coordinator
Oregon Parks and Recreation Department
725 Summer Street N.E.
Suite C
Salem, Oregon 97301

Re: Public Comment
Revised Draft Beltz Property Master Plan

Ben:

This letter is sent as a formal response or comment to the current revised version of the Sitka Sedge State Natural Area Draft Master Plan. Please make this response a matter of public record.

The homeowners of Tierra Del Mar have expressed concern over OPRD's plans to breach the Beltz Dike in order to improve fish passage. The concern is that dike breaching will likely lead to problems related to increased water table elevations and an increase in flooding. The revised draft master plan, like the previous version, continues to prescribe dike breaching as the only alternative to improving fish passage. Following are specific examples where the authors of the plan have modified the plan to craft a narrative that accentuates the positive impacts and minimizes the negative impacts of dike breaching:

- This latest draft master plan eliminates the maps and charts from the previous draft master plan version which showed that the area south of Beltz Dike is projected to experience a 599% increase in the mud/water area and removes language from the previous version stating that preliminary water elevation models indicate that the dike decreases the water level south of the dike 10".
- Rather than stating these cautionary statistics, the latest version of the plan adds paragraphs such as the second paragraph on page 19 and the sixth paragraph on page 52 extolling and glorifying the virtues of dike breaching.
- OPRD's intentions are stated on page 47 in the 2nd and 3rd paragraphs. Although poorly worded it is clear that OPRD favors change that "was meant to be there and much more self-sustaining than (what) was there before". The language on page 76 further reinforces the notion that, per the revised draft master plan, the dike will be breached, it is just a matter of time.
- On page 53 from the previous draft master plan, under the heading of "Upland Habitat Value" OPRD stated that ODFW unpublished data "show that Beltz and Reneke Creeks have low habitat value". This wording is completely removed from the latest version of the plan.

As far back as spring of 2014, a long-time resident of Tierra Del Mar testified to OPRD in a public meeting in Pacific City, in response to early discussion related to improved fish passage, that breaching Belt Dike would cause flooding in Tierra Del Mar. OPRD responded that breaching the Beltz Dike would not happen. In May of 2016, in another meeting with OPRD, one of our homeowners was assured by OPRD that OPRD did not favor any one option over other options to fish passage improvements. The draft plan does indeed envision dike breaching and list no other options.

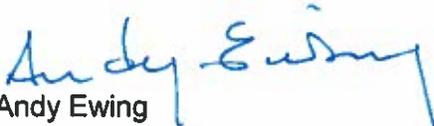
The revised draft master plan is on a path to becoming administrative law and the specific wording needs to honestly reflect the risks of dike breaching to the homeowners of Tierra Del Mar rather than craft a plan that minimizes the risks and promotes their preferences. Verbal assurances from OPRD in meetings, while comforting at the time, are trumped by administrative law that puts our community at risk. There is a definite disconnect between the assurances OPRD personnel express in meetings that the well-being of Tierra Del Mar will be protected and what is written in the revised draft master plan. This disconnect should be corrected prior to plan adoption.

For these reasons and because the master plan, once adopted, becomes state administrative law, I make the following recommendations for changes to the plan:

- 1- As stated In my previous comment, add an affirmative statement to chapters 6 and 8 that "OPRD understands that dike breaching is likely to adversely impact neighboring property owners and will not be allowed unless and until further comprehensive engineering, geologic and hydrologic investigation into impacts of any dike breaching are completed and conclude and clearly state that no adverse impacts to neighboring property will occur."
- 2- As I stated in my previous comment, language in the plan referring to dike breaching, including removal of the existing tide gate, should be removed. Any such language that remains in the draft plan merely serves to further the inevitability of dike breaching and this is inappropriate given the risk to the neighboring properties and inadequate investigations that have been completed to date.
- 3- As I stated in my previous comment, language should be added to the plan that states that OPRD will review fish passage improvement alternatives, rather than favoring dike breaching as the only cited alternative. These alternatives should be stated in the plan. There are a range of alternatives including:
 - Installation of a "fish friendly tide gate".
 - Seek a U.S. Fish and Wildlife waiver from current fish passage standards to allow consideration of alternatives.
 - Move location where Reneke Creek crosses Sand Lake Road. The present crossing location (apparently also the proposed location) is likely not the historic alignment which is probably to the north. Per a review of available LIDAR imagery, the current crossing location appears to be a landslide location which is obviously problematic for new bridge construction. Also, moving the crossing to the north would allow the creek to cross Sand Lake Road without disturbing Beltz Dike. This alternative would require that one fully compliant bridge would need to be constructed where the creek crosses the road rather than requiring a second fish passage compliant bridge constructed where the dike would be breached.

- 4- A huge portion of the Sitka Sedge Natural Area is characterized by the lower salinity freshwater marsh south of Beltz Dike. In earlier presentations by OPRD, this was portrayed as a unique feature with value. It certainly is valued by the local community. Chapter 3 is very confusing but, it seems that, since dike breaching will destroy this habitat, this habitat is no longer valued. Those of us who have lived in the vicinity for years do value that habitat. Chapter 3 should clearly state that this habitat will be lost with dike breaching.

Sincerely,


Andy Ewing
Tierra Del Mar Community Association

Cc: Tillamook County Commissioners
Director Public Works, Tillamook County
Director Community Services, Tillamook County
Tierra Del Mar Community Association

From: [ANDREW EWING](#)
To: [HEDSTROM Ben * OPRD](#)
Subject: Sitka Sedge Revised Draft Master Plan
Date: Wednesday, August 03, 2016 4:21:08 PM

Hi Ben:

Thanks for meeting with Jim and myself and the county on Monday at the site. You indicated that you would make adjustments to the plan to address the troubling paragraphs and plan omissions that we talked about on Monday. Following are some of the most troublesome paragraphs and omissions from the revised draft master plan.

1- In response to our concerns that the scary data has been removed from the plan, you said that it was removed to the appendices. I can see on page 53 that the second paragraph refers to documents labeled "Modeled Future Conditions Under Two Potential Dike Alteration Scenarios" and another reference "Sitka Sedge State Natural Area Wildlife Assessment". When I look at Appendices on page 103 and 104 I do not see these names. For sure the appendices needs to list these and all cited documents. Is "Wildlife Assessment for Beltz Property, OPRD 2016" the same document as "Sitka Sedge State Natural Area Wildlife Assessment" ? Is "Modeled Future Conditions..." actually in the appendices?

It was confusing to me trying to connect cited references to documents in the appendices. I could not connect the dots. Of course, I would favor leaving the anticipated negative impacts data in the plan rather than relegating this data to the appendices.

2- The second paragraph on page 19 and the sixth paragraph on page 52 are new and virtually identical paragraphs promoting the virtues of dike breaching. These paragraphs are not necessary unless the goal is simply to promote dike breaching. If these paragraphs must remain then statements should be added to truly inform what the negative impacts of dike breaching are. A truly balanced and impartial plan will list both the positive and negative impacts with equal fervor.

3- The second and third paragraphs on page 47 really have no business being left in the plan. Speculating on "what was meant to be there...", is, in my opinion, way out of bounds. It is very subjective and raises a point that begs for argument.

4- The wording on page 53 from the previous draft master plan that cites data that Beltz and Reneke Creeks "have low habitat value" should be restored unless the purpose of the plan is just to appease the government fish agencies. I am not saying that sarcastically. It is the truth.

5- Where dike breaching is discussed in detail such as on page 76 narrative should be added to "potential next steps" describing OPRD's impartial stance and willingness to consider fish passage alternatives such as rerouting Reneke Creek to the salt water side of the dike, seeking fish passage waivers and fish friendly tide gates.

6- Finally, wording should be added, for instance to the last bullet item just before "Culture Resource Management" on page 77 that dike breaching will not be allowed until further comprehensive engineering, geologic and hydrologic investigation into impacts of any dike breaching are completed and conclude and state that no adverse impacts to neighboring properties will occur.

I know your goal is to get the plan approved by mid September and I do appreciate that you are willing to make adjustments to address our concerns. I would be happy to further discuss any of these items by phone or in person if that would be helpful.

Thanks,
Andy Ewing
971-998-3655 cell

Ben Hedstrom, Design and Planning Coordinator
Integrated Park Services Section
Oregon Parks and Recreation Department
725 Summer St. N.E. Suite C
Salem, OR 97301

July 26, 2016

Dear Mr. Hedstrom:

Please accept these comments regarding the revised Draft Sitka Sedge State Natural Area Master Plan.

I am concerned that if this a state natural area that you haven't proposed and planned for removing the dike and tide gate that constrains the natural tidal hydrology of the site – rather you seem to be planning for recreational use as you would in a “normal” park. State Natural Areas are different and rightly so. They are special areas where "protect outstanding or important portions of Oregon's ecosystems for continued public education, and/or for contributing to larger ecosystem health". Without removing dikes that have destroyed a tidal marsh and tide gates that constrain salmon passage the site will not contribute to the larger ecosystem health of the area. There are ways to provide public education in a natural area without maintaining dikes!

Oregon's Coastal Coho salmon are still listed as threatened. Tidal marshes and their complex channels, high food resources and protective cover have been documented in the scientific research (by NOAA, OSU, UW and others) to help young coho larger and faster and those coho contribute disproportionately to adult coho returns. That is why the state's coho recovery plan calls for estuarine restoration. In fact, state agencies have a special obligation to recover coho on their properties. In a “natural” designated estuary and in a State Natural Area, such restoration is called for.

I have worked with watershed councils and others on estuarine restoration projects. These projects are quite doable and effective. I urge you to complete your hydrology studies, designing for dike removal and habitat restoration in mind before you plan for public uses, trails etc. on the site. Those uses can be accommodated in this area, but only after the area has been restored to its full ecosystem health-supporting role.

Thank you for your attention.

Fran Recht
P.O. Box 1344
Depoe Bay, OR 97341

July 26, 2016

Ben Hedstrom, Design and Planning Coordinator
Integrated Park Services Section
Oregon Parks and Recreation Department
725 Summer St. N.E. Suite C
Salem, OR 97301

Dear Mr. Hedstrom:

Please accept these comments regarding the revised Draft Sitka Sedge State Natural Area Master Plan. I provide them from the perspective of more than 30 years of wetland and watershed restoration experience following a M.S. degree in Wetland Plant Ecology. I was the Department of State Lands Wetlands Program Manager and the Deputy Director of the Oregon Watershed Enhancement Board (OWEB). Through this experience in Oregon conservation and with my experience in sponsoring Coastal Wetlands grants from the U.S. Fish and Wildlife Service since 1999, I would like to provide some comments on both the significant opportunity posed with the Beltz Farm acquisition and the opportunity it provides for Oregon to address both public recreation and natural resource conservation benefits. I was active in both the development and implementation of the Oregon Plan for Salmon and Watersheds with specific involvement in the development of efforts to restore coho salmon (*Oncorhynchus kisutch*) populations. At OWEB, I was deeply involved in the funding for the acquisition of Whalen Island that became Clay Meyers State Natural Area.

Following my time in public service I was for a time the project manager for the Salmon Superhighway project that was working with Tillamook County, local watershed councils and others to "restore access to almost 180 miles of blocked habitat throughout six major salmon & steelhead rivers of Oregon's North Coast. Using a strategic, scaled approach to maximize benefits and minimize costs, a unique, community partnership will deliver a portfolio of 93 projects in 10 years."

First I would like to compliment the Department for the significant evaluation of the site. The botanical evaluation is quite thorough as is the wildlife assessment. The assessment work has been used to explore the limits and opportunities presented by the site. While the natural resource inventory work appears thorough, there seems to be a reluctance to fully evaluate the restoration potential of this unique estuarine site.

I have a number of considerations that argue for a more complete evaluation and consideration of additional restoration work. The first comes from the Oregon Coastal Management Program designation of Sand Lake as a "Natural" estuary, following that, consideration of the recovery of threatened coho salmon, and finally consideration of the representations made in the federal Coastal Wetlands grant application and other conservation recommendations. I close with some examples of other approaches or examples that might be instructive in evaluating the potential restoration effects and concerns raised.

The Oregon Coastal Management Plan Designation

There are only five estuaries designated as "Natural" estuaries on the Oregon Coast during the development and adoption of the Oregon Coastal Management Program (Cortright et. al., 1987). Natural estuaries are defined as: "Estuaries lacking maintained jetties or channels, and which are usually little developed for residential, commercial or industrial uses. They may have altered shorelines, provided that these altered shorelines are not adjacent to an urban area. Shorelands around natural estuaries are generally used for agriculture, forestry, recreation and other rural uses. Natural estuaries have only natural

management units.” Natural Management Units have the management objective to: “assure the protection of significant fish and wildlife habitats, continued biological productivity in the estuary, and scientific research and educational needs. These areas are to be managed to preserve the natural resources in recognition of dynamic natural, geological and evolutionary processes.”

Sand Lake and the Salmon River are the only two designated Natural estuaries on the north coast. The Sand Lake estuary is considered a lagoon (Gleason et. al., 2011; Heady et. al., 2014; Aldus et. al., 2008) and is the only lagoonal estuary designated as “Natural” estuary in Oregon. The Salmon River estuary has been a model for restoration of estuarine function (Flitcroft et. al., 2016). The removal of dikes from the Salmon River estuary has resulted in significant changes to the ability of the watershed to support a wide range of anadromous fish and a significant expansion of life history patterns of coho salmon. Restoration of tidal habitats in the Salmon River estuary partially resulted from the Natural designation but also from the federal designation of the Cascade Head Scenic Research Area. The extensive documentation of restoration and analysis of changes associated with the restoration actions helps to build a baseline for understanding estuarine changes resulting from changes in use from human dominated to natural process dominated.

The three South Coast estuaries designated as “Natural” estuaries function in a very different manner from the Salmon River and Sand Lake estuaries. Sixes River, Elk River and Pistol River estuaries are “Blind – Drowned river mouth” estuaries that are often blocked by sand accumulation at the mouth that prevents late summer mixing of ocean water with freshwater (Lee and Brown, 2009; ,also see Heady et.al., 2014).

The designation of the Sand Lake site as a State Natural Areas established to “protect outstanding or important portions of Oregon’s ecosystems for continued public education, and/or for contributing to larger ecosystem health” appears consistent with the Natural Management Unit designation. However without full evaluation of restoration of tidal connection the draft management plan fails to meet the criteria of “contributing to the larger ecosystem health”. While there remains a choice of management emphasis, full consideration of restoring natural hydrology appears to be lost in the draft.

Given the Oregon Coastal Management Program management direction for this “Natural” estuary to protect significant fish and wildlife habitats and preserve the dynamic processes, it seems exploration of restoring full tidal flooding of the upper estuary would be reasonable.

This suggestion is bolstered by a recent review of the trends affecting coastal planning in Oregon (Cogan Owens Cogan, LLC, 2014) who document that: “Historic loss of tidal wetlands is high, but restoration of diked former wetlands is reversing loss trends, increasing habitat availability and the functionality of estuaries for juvenile salmon and other estuary-dependent species.” The report concludes: “Historical estuary habitat change trends have reversed, with the large losses experienced up through the 1960s being replaced by modest gains in estuary habitat in recent years. Some indicators of estuarine health reveal significant adverse effects of past and present human activities; conversely, others show the positive impact of recent protective measures. Other indicators suggest continued threats and risks to estuaries, or raise concerns about long-term, cumulative effects of change.” The restoration of a “Natural” estuary to continue the reversal of historic losses would appear to be a significant opportunity for the state to meet the many objectives associated with public management of critical natural assets.

Designation of Sand Lake estuary as a Natural estuary and the Beltz property as a State Natural Area without serious consideration of full restoration of tidal hydrology is a significantly lost opportunity and failure to achieve the full opportunity of Oregon’s Coastal Management Program.

ESA Listed Coho Salmon Recovery

The 1999 Oregon State Executive Order concerning the recovery of coastal coho salmon (*Oncorhynchus kisutch*) includes the following general direction to state agencies: “State agencies will take, fund and/or authorize actions that are primarily for the purpose of restoring salmonids or the habitat they depend upon, including actions implementing the Oregon Plan, with the goal of producing a conservation benefit that (if taken together with comparable and related actions by all persons and entities within the range of the species) is likely to result in sustainable population levels of salmonids in the foreseeable future, and in population levels of salmonids that provide substantial environmental, cultural and economic benefits to Oregonians in the long term.” The Executive Order identified the specific role of the Department of Parks and Recreation as: “The Oregon Parks and Recreation Department will continue to work to provide information and education to the public on salmon and steelhead needs through park programs and interpretive aids.” I doubt it meant to have a Natural Area Park show the factors that led to decline of the species by standing on a dike that blocks free access between tidal and freshwater habitats.

This project will provide permanent protection to 244 acres of habitat important to federally listed coho salmon. The loss of estuarine habitat is a significant factor in the decline of this species as identified by the NOAA Fisheries Biological Review Team (BRT) in 2012 (Stout et. al., 2012) and the draft Coho Recovery Plan in 2015 (NMFS, 2015). The BRT review expressed concern about the historic loss of estuarine habitats, especially intertidal habitats. The BRT describes in great detail the importance and use of intertidal habitats by different life history expressions of coho salmon. They indicate that the historic loss of intertidal habitats is a factor in the decline of the species and a reason to retain its status as “threatened” under the federal Endangered Species Act.

Lee and Brown (2009) reviewed Pacific Northwest estuaries from The British Columbia border to the Mexican border and compared habitat conditions and watershed influences. They used information on the importance for coho salmon from Oregon Department of Fish and Wildlife and others which was summarized as: “An analysis of the predicted historical number of Coho smolts produced per watershed along the Oregon coast (Lawson et al., 2004) indicated that the small estuaries produced a proportionally greater number of smolts than the larger estuaries when normalized to estuarine area.” Sand Lake estuary was estimated to produce 123,000 coho smolts/year. The general conclusion of Lee and Brown (2009) about the small estuaries of the Pacific coast was: “These smaller coastal watersheds and estuaries may also serve as a future refuge for wild salmon with the increasing development and alteration of the larger estuaries and watersheds.” This fact argues strongly for maximizing the production potential of coho salmon from this publically owned estuarine area.

In the 2015 draft recovery plan for coho salmon (NMFS, 2015) the significance of intertidal habitats is an important element for recovery. The plan specifies: “Estuarine areas **free of obstruction** (emphasis added) with water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between fresh- and saltwater; natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels; and juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation” as necessary for recovery. The recovery plan also states: “**Estuarine habitat: Protect and restore high priority tidally influence habitats by reconnecting intertidal wetlands and tidal channels by removing dikes, levees, and tidegates.**” The recovery plan identifies increasing access to floodplains and sloughs as a high priority in all North Coast estuaries.

The Sand Lake population is identified as a dependent population of coho, however with the restricted access to the southern portion of the watershed at Beltz dike tidegate and failing culverts at the mouths of Reneke and Beltz Creeks a significant portion of the potential coho salmon habitat has reduced availability. These tributary streams, while not large, could contribute to improved productivity and diversification of life history expression of coho salmon in this population.

It would appear that to comply with the Executive Order and the Coho Salmon Recovery Plan, at least serious consideration would be given to restoration of full tidal access to the Sand Lake estuary.

Conservation Consistency

The federal grant application has significant language concerning the restoration of tidal flows across the Beltz dike. The proposed benefits of the nearly \$1,000,000 federal grant includes specific mention of the restoration of historic hydrology (see text box).

Other direct quotes from the grant application include: *“The transition of the property to conservation ownership will provide an opportunity to pursue restoration actions including alterations or removal of the Beltz Farm dike, wetland restoration, and fish passage restoration to the freshwater streams present on the property.”*

“Additionally, OPRD will include other partners with a strong interest in restoration, particularly when it comes to assessing the potential of restoring historic hydrology to the areas behind the dike and restoring fish passage to Reneke and Beltz creeks. OPRD will work with the Nestucca-Neskowin Watershed Council, the Oregon Department of Fish and Wildlife, the Oregon Watershed Enhancement Board, and the USFWS Coastal Program on the development of a restoration and management plan for the property.”

“The acquisition of the Beltz Farm property also enables the conservation of additional habitat, serving as a catalyst to restore hydrologic connectivity to the wetlands and stream systems located behind the dike. The goals of the eventual restoration will be to restore full fish passage to the estuarine and freshwater wetlands located south of the dike and to restore full fish passage to the spawning grounds on Reneke and Beltz Creek by replacing the culverts. The acquisition of this property allows the possibility of restoration concepts already developed by the Nestucca-Neskowin Watershed Council and other conservation partners to come to fruition.”

“Acquisition of the Beltz Farm will result in a protected, contiguous wetland buffer between the freshwater wetlands and the estuary. Conservation ownership of the property will also open up the potential for restoration on the site, which could improve the riparian habitat and hydrologic function of the freshwater streams on the property, contributing to improving and maintaining water quality within the estuary. OPRD will evaluate the current hydrology on the site after acquisition and develop an alternatives analysis that will consider options to restore the site to its historic hydrology. Alternatives could include alterations to the Beltz Dike, which was specifically mentioned as a restoration action in the Joint Venture Implementation Plans for the Northern Oregon Coast (1994), and the replacement of the culverts under Sand Lake Road through which Reneke Creek and Beltz Creek travel. Both culverts are currently undersized and present fish passage and water quality issues.”

“Fish Passage Restoration Opportunities

The acquisition of Beltz Farm provides significant restoration opportunities through which further benefits could be obtained for sensitive and listed fish species. Currently, a 2500-foot long dike on the property alters wetland hydrology and potentially impacts habitat for fish. A tidegate which passes under

from: Beltz Farm Acquisition Project Sand Lake Estuary: A Proposal to the National Coastal Wetlands Conservation Grant Program

Expected Benefits

1) Permanent protection will provide the opportunity for long term preservation and restoration of nationally declining wetland types within the estuary, which will greatly increase habitat for a diversity of at-risk fish and wildlife species, including habitat for three species of salmonids.

2) Permanent protection will provide future opportunities to restore the wetlands to historic hydrology, particularly those located behind the Beltz dike.

the dike limits passage under certain flow conditions. Both Reneke Creek and Beltz Creek go under Sand Lake Road in a poorly maintained and undersized culvert that impedes fish passage. The Reneke Creek culvert is undersized and continually plugs with rock and debris, diverting the creek into a roadside ditch which runs parallel along the eastside of the road until emptying into the Beltz Creek crossing. The Beltz Creek culvert beneath Sand Lake road, through which both creeks now flow, is also undersize and perched 2-3 feet above the stream surface, presenting a fish passage barrier to all life stages. The transition of the Beltz Farm into conservation ownership will enable restoration of fish passage at both of these streams and also open up the possibility of estuary restoration through an assessment of potential restoration actions relating to the dike. OPRD will work closely with the Nestucca-Neskowin Watershed Council and other partners in the region on plans for restoration.”

While the above quotes from the federal grant application were obviously cherry picked, the common message is that the Department would seriously consider full tidal connection at the Beltz dike location. It is hard to square those representations with: “Following through on the agency’s pledge to “take the long view”, OPRD will take a measured pace in moving towards restoring fish passage to Sitka Sedge State Natural Area. As it approaches 100 years of Oregon State Parks, OPRD feels that taking a flexible, measured approach to restoring fish passage based on incremental and informed steps is key to sustainably restoring natural hydrolic (sic) function for the next 100 years.” This statement from the master plan seems to be a major retrenchment from the representations made in the grant application. I doubt Oregon State Parks Department would look favorably on such a change in any of the grant programs the agency administers.

An additional consideration should be the numerous conservation planning documents that identify Sand Lake as an important conservation opportunity. The federal grant application lists many of the supporting plans that call for restoration and protection of estuarine functions. The recently updated Oregon Conservation Strategy (ODFW, 2015) identifies Conservation Opportunity Area “COA ID 015, Sand Lake Area” and recommends “Restore and maintain tidal marshes and freshwater wetlands” as a priority conservation action.

The representations to the federal funding agency and the consistency among other conservation planners to restore estuarine function call into question the completeness of the draft Sitka Sedge State Natural Area Master Plan.

Comments Concerning the Master Plan Content and Background Evaluations

A significant portion of the analysis of vegetation and habitat change is detailed in the Bacheller (2016) report on vegetation and modeling of vegetation changes with changes at the Beltz dike tidegate. The effects on wildlife (Blackstone, 2016) are based on the modeling outcomes associated with the vegetation information. The model used relates geographic information on plant communities to tidal elevations alone. The model does not attempt to evaluate estuarine processes of plant productivity, sediment dynamics or sea level change.

Predicting the future resulting from intertidal alteration, climate change and other factors is quite complex and often fraught with large error boundaries. The precision of the model is only evaluated for accuracy in predicting current vegetation types. The modeling used does not include recent information on changing sediment or sea level rise. Recent modeling efforts on a Pacific Coast marsh examined uncertainties about tidal marsh resiliency to accelerated sea-level rise, reduced sediment supply, reduced plant productivity under increased inundation, and limited upland habitat for marsh migration (Schile et al., 2016). This approach would give a much more robust estimate of future conditions. Schile et al., 2016 concluded: “Elevation predictions using the Marsh Equilibrium Model highlight the importance of including vegetation responses to sea-level rise. These results also emphasize the importance of adjacent uplands for long-term marsh survival and incorporating such areas in conservation planning efforts.” In

essence, retaining the Beltz dike at Sand Lake estuary will affect the ability to respond to changes in sea level.

The modelling done by Bacheller (2016) assumes that “Hydrologic variables that appear to be most significant in determining which plant species grow in a particular location are depth of inundation, duration of inundation, seasonal patterns in inundation, and water chemistry variables such as salinity. “ While hydrology is very important, the report by Schile and others (2016) indicates that: “Across a range of century SLR (sea level rise) rates, we demonstrated the important role of plant productivity on marsh resiliency.”

The consideration of sediment supply also has a significant influence on marsh resiliency. The modeling completed by Bacheller (2016) while informative, does not consider the effects of plant community productivity or sediment supply and does not indicate the margin of error in the estimates of change projected. It is interesting to note that the greatest predicted change (loss of habitat) is in the two categories (Upland and shrub-swamp) that have the lowest predictive value (are approximately 50% accurate) beyond the obvious loss of freshwater marsh. The conclusions about habitat changes with this large level of uncertainty raises questions about the accuracy of calculating species groups that are affected which is an important tool for evaluating the potential changes. The general conclusion about altering the dike tidegate as explained in the master plan is: “Restoration could also include negative impacts, such as loss of freshwater marshes, saltwater marshes, and scrub-shrub habitat that will reduce biodiversity in the area.” The conclusion comes directly from the extension of predicted habitat changes and evaluation of species groups that use them using estimates that are only correct half the time. The broad conclusion about loss of biodiversity from changing the Beltz dike tidegate should be couched in a more definitive sense of the margin of error of the projected effects.

The master plan draft also includes interpretive themes based on the assumption that the dike will remain. Statements such as the following: “This site is different from the other estuarine park habitats in that it has the dike - which provides travel way across wetland habitats that otherwise would be unreachable on foot.” And “Having a side-by-side fresh water marsh and salt water marsh is the only example in the state. This is one of the values that would be lost if the dike is modified. There are numerous values to this, not just in terms of flora and fauna but the history of man’s impact on natural lands. OPRD should take a measure approach to making changes because of the enormous potential costs and impact to the area, maybe fixing the culverts but not the tidegates.” As a matter of accuracy, the statement that the Beltz dike is the “only example in the state” is decidedly not accurate. In consultation of the recent estuarine mapping using the Coastal and Marine Ecological Classification Standard (CMECS) as queried by Dr. Laura Brophy (personal communication July 25, 2016) she stated “There are lots of cases where there are diked freshwater marshes adjacent to salt marshes. If you check through the CMECS data you'll find plenty of examples, such as: Depot Slough and Olalla Slough in the Yaquina estuary, Barclay Meadows in the Alesia estuary, wetlands on the south bank of Duncan Slough in the Siuslaw estuary, Dean Creek elk viewing area in the Umpqua estuary, lots of examples on the Smith River (tributary to the Umpqua), several wetlands on Haynes Inlet in the Coos estuary... there are dozens of examples of this situation on the Oregon coast.” While it is true that the Beltz dike has greater contrast from most diked areas and is on State Parks property, the opportunity to interpret the changes from restoration are probably more powerful than showing what human alteration has done in the past.

It does not serve the Department well by mischaracterizing the situation at the Beltz dike as unique as a reason to not explore full tidal restoration. There are many valuable estuarine conditions that can be interpreted at the Sitka Sedge State Natural Area without focusing on the conditions that degrade function of the estuary.

Additional Considerations

There are other examples of tidal restoration that may be instructive for your staff to review. The removal of a dike across Lint Slough in the Waldport estuary was completed in 2013. The landowners upstream from the dike expressed concern about the potential for flooding similarly to the residents of Tierra Del Mar. The hydraulic analysis and experience for the last three years at this site may help in building a better view of the results of dike removal. Mr. John Spangler of the Oregon Department of Fish and Wildlife may be able to help by explaining the project and how it was implemented.

There are a number of examples of pile supported walkways over tidal areas that could be explored as an alternative to retaining the dike road. The adjacent photograph is from the Yaquina estuary. Replacement of the Beltz dike with such a structure would allow for public access and interpretation while allowing for full tidal restoration.



I believe that there are a number of reasons for a more thorough evaluation of full restoration of tidal hydrology at this time. Failure to address the opportunity fully at this time will result in continued depressed coho salmon stocks from the Sand Lake population, failure to meet the goals of Oregon's Coastal Management Program and the Oregon Plan for Salmon and Watersheds, and the promises made to the federal funding agency. Oregon has been a leader in estuarine restoration and failure to fully explore the opportunity at the Sitka Sedge State Natural Area would belie that leadership.

Please feel free to contact me if you have any questions concerning my comments. I would be pleased to work with your staff to ensure the Sitka Sedge Natural Area fulfills the potential it has for all Oregonians.

Respectfully Submitted,

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(503) 362-6860

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Oregon

Kate Brown, Governor

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July 21, 2016

Ben Hedstrom, Planning Coordinator
Oregon Parks and Recreation Department
725 Summer Street, NE Suite C
Salem, Oregon 97301-1266

Re: Review of Sitka Sedge State Natural Area Master Plan, June 2016 *Draft* and Sitka Sedge Natural Area Wildlife Assessment, May 2016 *Draft*

Dear Mr. Hedstrom:

On behalf of the Oregon Department of Fish and Wildlife, I want to thank you for the opportunity to provide comments on the June 2016 draft of the Sitka Sedge State Natural Area Master Plan and the May 2016 draft of the Sitka Sedge State Natural Area Wildlife Assessment. Our comments and suggested edits are provided in Attachment 1 (below).

As you know, the Oregon Department of Fish and Wildlife is very interested in seeing natural processes restored to the site to the extent feasible and with full consideration of the potential constraints imposed by the surrounding land uses and infrastructure. As we have discussed previously, ODFW is concerned that there appears to be somewhat of a presupposition in the draft Master Plan and draft Wildlife Assessment that the area behind the dike is better served from a habitat perspective by maintaining the existing muted connection with the tide. We encourage you to incorporate more objectivity on this subject into the planning documents, as we believe this will better serve habitat restoration decision-making into the future.

Sincerely,

Chris Knutsen
District Manager – North Coast Watershed District

Attachment 1: ODFW Comments

Document	Chapter	Section	Page Number	Paragraph/Bullet #	Comments
Draft Master Plan	2	Partners and Land Managers	13	6th Bullet	ODFW regulates fishing <u>and</u> hunting, not riparian development. Add hunting and remove riparian development
Draft Master Plan	3	Hydrology Modeling	18	1st Paragraph; 1st Sentence	The first sentence sounds like the entire estuary has been under a hydrologic assessment. This of course is not the case.
Draft Master Plan	3	Hydrology Modeling	18	1st Paragraph; Last Sentence	This is an awkward sentence. Really, the study is intended to inform decision-making regarding future modifications to the dike for purposes of restoring natural hydrology and meeting fish passage requirements. If you choose to keep all the language about collaborative partnerships, please include ODFW.
Draft Master Plan	3	Habitats	18	1st paragraph	If the goal is to describe "current" Habitat(s) then the pasture(s) should be clarified as presently maintained with livestock forage that consists of non-native grasses, shrubs, and noxious weed species.
Draft Master Plan	3	Hydrology Modeling	19	1st Paragraph	No need to have both <i>conceptual</i> and <i>concepts</i> in same sentence here
Draft Master Plan	3	Hydrology Modeling	19	2nd Paragraph; 1st sentence	<i>Tidal interchange</i> is redundant with <i>restoring estuarine hydrology</i> in the sentence... " <i>In addition to providing increased habitat for these fish species, benefits of the restoration of natural estuarine hydrology could include potential improvements to: tidal interchange;</i> "
Draft Master Plan	3	Botanical Resource Summary	20	1st Paragraph; 1st sentence	Sentence suggests more than 1 action (i.e. <i>both</i>) but only one action is stated.
Draft Master Plan	3	Botanical Resource Summary	20	2nd Paragraph; last sentence	"... <i>the various varieties of saltmarsh.</i> " Not clear what varieties this is referring to? High and Low? Or are you talking about different veg communities? Also, " <i>various varieties</i> " is a bit redundant.

Attachment 1: ODFW Comments

Draft Master Plan	3	Botanical Resource Summary: Developed/Disturbed	25	1st Sentence	Might want to use another term besides "Man-made". Also, the dike would be an example of a disturbance structure.
Draft Master Plan	3	Botanical Resource Summary: Disturbed streambank	25	1st Sentence	Replace "potion" w "Portion"
Draft Master Plan	3	Botanical Resource Summary: Water/mud	25	last Sentence	The bottom of ditches are not mudflats but they are muddy. Also, is the "pond" identified on a map somewhere in the document? It would be helpful to have a reference to that feature.
Draft Master Plan	3	Botanical Resource Value Ratings	26	2nd paragraph; 1st sentence	It is not clear what "developable" means in this context.
Draft Master Plan	3	Botanical Resource Value Ratings	26	Last half of the last paragraph	Seems as though there is some redundancy here that creates a bit of confusion. Might consider tightening this up a bit.
Draft Master Plan	3	Historic Summary	30	1st paragraph; last sentence	Include "hunting" as historical use
Draft Master Plan	3	Historic Recreation Activities	33	Bullet List	Include "hunting" in list as follows... Fishing/Hunting/Clamming
Draft Master Plan	3	Hydrology Modeling	Misc.	Misc.	It would be helpful to provide a full explanation of the scenarios under which a fish passage review will be triggered in the future, as well as the options that will be available to OPRD at the time that happens. As ODFW has stated, there are three potential options at the point the owner/operator is triggers fish passage: (1) provide passage; (2) request a waiver; and (3) request an exemption. Given the quantity and quality of upstream estuarine and stream habitat, waivers or exemptions will not be a viable option. The more that OPRD can explain this impending scenario in the plan, the better informed folks will be.

Attachment 1: ODFW Comments

Draft Master Plan	5	Recreation	45	1st paragraph	Hunting and fishing are both forms of foraging for food, a means for wildlife viewing, and is a highly popular form of day use on public lands. Both should be listed as they were also suggested at your public meetings that they be provided as recreational opportunities on this property to the public.
Draft Master Plan	5	Fish Passage and Hydrology	46	1st Paragraph; 1st Sentence	As stated, this paragraph leads one to believe that the two options are "protect the estuary" or restore fish passage. As though restoring fish passage somehow doesn't protect the estuary. I believe OPRD means to say that they heard from the local public that they did not want the dike and the tidegate removed to "protect homes and roads from flooding". ODFW suggests rephrasing this statement.
Draft Master Plan	5	Fish Passage and Hydrology	46	1st paragraph; last sentence	Regarding the statement "...options for improving fish passage that did not exacerbate flooding in the estuary." ODFW recommends using the words "potential flooding" or "perceived flood risk" as clearly nobody knows what the impacts (if any) will be. Also, avoid using the term "estuary" to refer only to the area behind the dike. It is a bit confusing.
Draft Master Plan	5	Fish Passage and Hydrology	47	2nd paragraph; 2nd sentence	Should read Federal and <u>State</u> fish passage standards. Also, need to be clear that there are multiple fish passage trigger scenarios including dike failure (such as dike or tidegate repair, bank stabilization, fill/removal above the concrete culvert, tidegate replacement, etc.)
Draft Master Plan	5	Fish Passage and Hydrology	47	4th paragraph; 1st sentence	<p>The statement that the side-by-side salt and freshwater marsh is the only example in the state is inaccurate. Per Laura Brophy.(GreenPoint Consulting)...<i>There are lots of cases where there are diked freshwater marshes adjacent to salt marshes. If you check through the CMECS data you'll find plenty of examples, such as: Depot Slough and Olalla Slough in the Yaquina estuary, Barclay Meadows in the Alsea estuary, wetlands on the south bank of Duncan Slough in the Siuslaw estuary, Dean Creek elk viewing area in the Umpqua estuary, lots of examples on the Smith River (tributary to the Umpqua), several wetlands on Haynes Inlet in the Coos estuary... there are dozens of examples of this situation on Oregon coast.</i></p> <p><i>The CMECS data are here: http://coastalatlantlas.net/estuarymaps/. To see diked and undiked wetlands, within the data catalog on the left, go to "Planning Inventories / Estuarine Resources - Goal 16 / Biological / CMECS Estuary Classification" and check the box for "Aquatic Setting". Green areas are diked and adjacent light blue areas are tidal wetlands. Then check the box for "Biotic Component" to see the vegetation type, so you can be sure the light blue is in fact tidal marsh or tidal swamp, as opposed to open water or mud flat.)</i></p>

Attachment 1: ODFW Comments

Draft Master Plan	5	Fish Passage and Hydrology	47	4th paragraph; 3rd sentence	The notion that the [intact] dike is important as a reminder of " <i>man's impact on natural lands</i> " is not supported by the facts nor public or agency input (including SHPO). In ODFW's view, it is reasonable for OPRD to state that the dike may be important to prevent inland impacts to homes; to provide a hiking trail; or that removing a section may alter vegetative composition behind the dike. But this statement and paragraph as written is not particularly credible.
Draft Master Plan	6	Natural Resources and Restoration: Need	52	1st Paragraph	Should read " <i>...preservation or restoration...</i> "
Draft Master Plan	6	Natural Resources and Restoration: Constraints	52	2nd paragraph; last sentence	Assessments of impacts of restoration shouldn't include impacts to existing individual habitat types alone but rather the suite of spatial and temporal changes that occur during and after restoration activities. While biodiversity can be reduced temporarily in some areas, it may be enhanced in others. Successional processes ensure these changes are not static. ODFW suggests that OPRD provide further explanation if this sentence is to remain.
Draft Master Plan	6	Natural Resources and Restoration: Constraints	53	3rd bullet	More so it is the <u>potential</u> habitat value of Beltz and Reneke creeks that is important. Rephrase to " <i>...current and <u>potential</u> habitat value...</i> "
Draft Master Plan	7	Goal 1: Section 1.1	58	1st paragraph; 1st sentence	Citizen scientific assessments are typically conducted in collaboration with professional scientists. I don't believe that is the situation here. You could rephrase this to " <i>...supplemented by <u>local knowledge and citizen observations</u>...</i> "
Draft Master Plan	7	Goal 1: Section 1.1	58	1st bullet; last sentence	end quote needed after " <i>Hydrologic Reports...</i> "
Draft Master Plan	7	Goal 1: Section 1.1	59	Sub-bullet 4	Not clear who these citizen science groups are. Perhaps identify them or rephrase
Draft Master Plan	7	Goal 1: Section 1.1	59	Sub-bullets 6/7	Not clear why there is so much negative bias around restoration discussion. Instead of saying " <i>Study potential negative or unintended consequences of restoration...</i> ", why not say, " <i>study effects of various restoration scenarios on adjacent habitat and land uses</i> ".

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Draft Master Plan	7	Goal 1: Section 1.3	59	Bullet 3	Where are the waterfalls, cliff faces, and talus slopes?
Draft Master Plan	7	Value 4: Recreation	67-68	Entire Section	Hunting and fishing are both low-impact/passive forms of recreation.
Draft Master Plan	8	Dike Trail	73	Last Sentence	Statement "refer to state and ODFW requirements for tidegate work." Rephrase to " <i>refer to ODFW requirement to fish passage...</i> " Need to state where this reference would be found... You could refer to this link... http://www.dfw.state.or.us/OARs/412.pdf
Draft Master Plan	8	Interpretive Themes and Message Framework	80	Item 2; last bullet	The statement " <i>Address perception that "natural" means it hasn't been altered by man-made influences... sharing alternate views on the idea.</i> " Perhaps people have that perception because that is the actual definition of the word (see Webster, <i>Existing in nature and not made or caused by people: coming from nature...</i>). This is another example of unnecessarily introducing a negative bias toward restoration into the planning document. The bullet as written is not necessary.
Draft Master Plan	8	Interpretive Themes and Message Framework	80	Item 3; first bullet	As stated in our comments above, this idea that side-by-side salt and freshwater wetlands is somehow unique is absolutely not true. Again, this appears to be selling the idea that the only reasonable condition is status quo. ODFW recommends substantially more objectivity on this point.
Draft Master Plan	8	Interpretive Themes and Message Framework	80	Item 3; third bullet	So in describing " <i>how the dike shaped the natural space...</i> " We presume this would include a discussion of the wetland fill involved via the dike footprint, effects on fish passage, and changes in natural hydrology. Maybe also include a discussion of how dikes have substantially altered the natural landscape elsewhere in the coastal ecoregion.
Draft Master Plan	8	Interpretive Themes and Message Framework	80	Item 3; last bullet	There are other estuarine park habitats that have travel ways across wetland habitats. The bridge to Whalen Island, Fort Clatsop board walks, to name a couple on the North Coast. You could rephrase to say " <i>...this site is unique because it is bisected by a human-built dike that serves as a travel way</i> "
Draft Master Plan	8	Sitka Sedge State Natural Area D10Visitor Experience	81	Table; Day Use Section	Please add <i>Fishing, Hunting, and Shellfishing</i> as existing activities

Attachment 1: ODFW Comments

Document	Chapter	Section	Page #	Para./bullet #	Comment
Wildlife Assessment	1	Introduction	1	Paragraph 3	See comment for Master Plan above, the side-by-side salt-freshwater marsh is not a rare occurrence.
Wildlife Assessment	1	Existing Information: Section 1.1	3	Paragraph 1	The correct agency name is the Oregon Department of Fish and Wildlife
Wildlife Assessment	2	Wildlife Resource Values: Section 2.3.1	12	Table 2	Native west-side grasslands are not locally common
Wildlife Assessment	2	Priority Habitats: Freshwater Wetlands	13	Paragraph 1	Freshwater wetlands exist in areas on this property that were historically tidal marshes. The narrative here exaggerates the habitat benefit freshwater wetlands provide for wildlife in coastal environments and sets the tone for the rest of this document where freshwater wetlands seem to be the habitat priority. Freshwater wetlands should only be managed in areas that would have historically supported them. With between 50 and 80 percent loss of tidal marsh land in Oregon, these freshwater wetlands contribute to that statistic until they are restored tidal marshes. It is premature to state a goal of " <i>maintain freshwater wetlands at Sitka Sedge</i> " in absence of an assessment of the alternatives.
Wildlife Assessment	2	Aquatic Passage: Section 2.4.2	20	Paragraph 2	This section implies to the reader that providing fish passage will have negative effects on wildlife habitat which is false.
Wildlife Assessment	2	Water Quality: Salinity: Section 2.4.2	21	Paragraph 1	Survival of juvenile Chinook exposed to salinities as high as 35 ppt will depend on life stage and degree of smoltification. Usually salmonids that are not fully acclimated to saltwater can avoid changing salinities that are due to daily tidal cycles provided there are no barriers to their migration.
Wildlife Assessment	2	Water Quality: Temperature: Section 2.4.2	21-22	Paragraph 1	Salmonids will exhibit avoidance behavior when presented with adverse temperature conditions provided that there are no barriers to their migration.

Attachment 1: ODFW Comments

Wildlife Assessment	2	2.4.2 current conditions, temperature	22	Paragraph 2	This paragraph, between tables 5 and 6, is the first reference to a beaver dam, but there has been no description or mention of it before and therefore its mention has no context to the reader. Figure 8 shows it on a map, but there should be a discussion or its qualities before referencing it casually in the text.
Wildlife Assessment	2	Water Quality: Dissolved Oxygen; Section 2.4.2	23	last	It is important to re-measure DO before suggesting that water quality above a beaver dam complex is unsuitable for salmonids. This could be done easily with a YSI meter or other multi parameter water quality measuring device.
Wildlife Assessment	2	Water Quality misc.	25-28	Figures 9-11	The data in these graphs presenting the low water quality behind the dike is a great rationale for complete restoration of estuary functions.
Wildlife Assessment	2	Methodology: Tidebox Modification Effects on Wildlife	29	Paragraph 1	This paragraph fails to consider successional processes that are restored once hydrologic returns to previously modified habitats. Mudflats are not static habitats. Transition to low and high marshes is a natural process in estuarine ecosystems. ODFW suggests that this be included as part of the assessment.
Wildlife Assessment	2	Aquatic Passage: Section 2.4.2	30	Option 1 Narrative	"Option 1" isn't an option under OPRD's statutory fish passage obligations.
Wildlife Assessment	3	Table 1	37	Misc.	Spring Chinook are not present at the site but Fall Chinook are in vicinity. Coastal cutthroat trout (coastal ESU) are not on state list (2008), western brook lamprey (state list) should be included and are present; golden eagles do not occur in this part of Oregon, they should not be listed in the table. Fringed myotis, Yuma myotis, should be listed as potential. See ODFW's bat page for more reference at: http://www.dfw.state.or.us/species/mammals/bats.asp#Top .
Wildlife Assessment	3	Fish and Wildlife; Section 3.1.3	40	Paragraph 1	Fall Chinook are still present in sand lake. Early returning spring Chinook are not present. The early run (spring) are the run listed as sensitive of the state list.
Wildlife Assessment	3	Fish and Wildlife: Sections 3.1.4 and 3.1.5 and 3.1.6	40	Last Sentence	Chinook could be referenced here although there is not an independent, self-sustaining population known to exist in Sand Lake. Most adults are likely strays from other basins. There is some minor reproduction

Attachment 1: ODFW Comments

Wildlife Assessment	3	Fish and Wildlife: Section 3.3.2	46	Paragraph 1	You may one to point out that ODFW has requested that waterfowl hunting be a permitted use at the site.
Wildlife Assessment	4	Habitat Connectivity: Section 4.3.7	54	2nd Bullet	The tide gate in the dike is among the most substantial barriers to connectivity, but is not referenced here.
Wildlife Assessment	4	Work Periods: Section 4.4	57	Table	Consider delaying tree and snag removal until October to avoid take of bats that use these habitats to roost and raise young. Estuary in-water work period is November 1 to February 15 and the work periods for the creeks is July 1 to September 15. The dates you have showing are not correct.
Wildlife Assessment	3 to 4	Various	Multiple	Figures	Check figure numbers and associated references to them in the text. Seems to be a few that are jumbled once you get past Figure 13.
Wildlife Assessment	5	Appendix A	71-72	Table	Red fox do not occur west of the coast range, coyote should be listed as present, golden eagle should not be listed, see previous comment
Wildlife Assessment	Multiple	Multiple	Multiple	Multiple	Anadromous is misspelled throughout.