DeBay's Slough Habitat Restoration - Feasibility Study and Conceptual Design
8/15/22 Advisory Group Meeting #2

MEETING NOTES

6-22-22
LINK TO RECORDING

Participants

Study Team:

Emily Derenne, Skagit County
Loren Brokaw, Washington Department of Fish and Wildlife
Curran Cosgrove, WDFW
Greg Meis, WDFW
Marcus Reaves, WDFW
Joey Smith, Natural Systems Design
Torrey Luiting, Natural Systems Design
Melanie del Rosario, Veda Environmental
Hilary Wilkinson, Veda Environmental
Cindy Elston, Intern with Skagit County

Advisory Group Members Present:

Devin Smith, Skagit River System Cooperative
Martha Jordan, Northwest Swan Conservation Association
Rick Billieu, Washington Waterfowl Association
Tony Wisdom, Skagit Valley Farm
Roberta Bjorling, Local Landowner, Francis Rd.
Rick Hartson, Upper Skagit Tribe
Sarah Edgett, Local Landowner, Francis Rd.
David Baumgardner, Local Landowner
Robert Dow, Local Landowner
Donald Hutchison, Local Landowner
Austin "Earl" Jones, Local Landowner
Leonard Halverson, Local Landowner
Bob Halverson, Local Landowner

Key Takeaways:

- The study team shared their findings on the hydrology and geomorphology of DeBay Slough.
- Advisory group members asked questions on the hydrology to clarify that the level of water in the slough is directly connected to the Skagit river through subsurface flows, and that there is a correlation between flow response and time, though there is a time lag. The team agreed the overbank flooding within the project area to the South of DeBay Slough is influenced by both flood conditions in the Skagit River and the adjacent Nookachamps Creek basin. Refining flow inputs for the Nookachamps Creek basin based upon available existing studies is an area of potential improvement to the hydraulic model in future phases of work.

- The study team provided an overview of aquatic and terrestrial habitats and wildlife use of the habitats in and around DeBay Slough.
- Advisory group members shared their own experiences and provided insights/feedback about the team's findings regarding existing conditions and habitat use such as:
    - Where beaver dams are located and when and how the beavers are utilizing and changing the habitat around the slough,
    - the flow of the slough and where it backs up, and
    - the height of water on certain properties during flooding.
- Advisory group members asked clarifying questions and made comments about the wildlife and habitat survey results, such as
    - A question about the point at which fish are considered native or non-native, and
    - Clarifying the gamer reserve boundary and the areas of habitat that the swans use.
- The study team shared draft screening and evaluation criteria that could be used to evaluate potential actions if the project moves forward. The advisory group asked questions and provided feedback on the draft criteria.

Notes

Welcome and Introductions

High Level Overview/Meeting Purpose

Melanie and Emily provided a high-level overview of the purpose of the meeting. Highlights include:

- Purpose of this meeting:
    - Recap Advisory Group Meeting #1 – key information shared, Advisory Group input and key decisions
    - Share out the findings from the updated existing conditions work
    - Share out the purpose of evaluation criteria for considering alternatives, provide examples of criteria, and solicit input on potential evaluation criteria
    - Share approach for developing actions to form conceptual alternatives
    - Provide details on next steps for project, and next Advisory Group meeting
    - Address member questions and interests

Recap of Meeting #1

- Agreed to use "DeBay" or "DeBay's" going forward
- Study team provided background information on purpose of study and work-to-date
- Advisory Group agreed to list of roles and responsibilities (provided by team)
- Members shared their experiences during November 2021 flood

Updated Existing Conditions Findings

Torrey Luiting and Joey Smith, Natural Systems Design

- Have started developing evaluation criteria – help us look at potential actions and judge the actions against each other.
- Have completed work on existing conditions geomorphology, hydraulics, and terrestrial/wetland habitat.
- Looked at floodplain topography on the relative elevation model (REM) – looking at elevations (blue is lower; green moderate; oranges and reds are higher).
- Geomorphic analysis looked at how DeBay slough got into its current configuration given the history. Use older aerial images (dating back to 30s and 40s) coupled with historic narrative dating back to the 1800s, plus early mapping. Big conclusion: the Skagit River was what formed the slough and the path of the river used to go right through where the slough is today.
- Since the 60s, the slough has been consistently where it is.
- When out in the field looking at connector channel, it did not have a lot of wood or natural habitat complexity features, wonder if connector channel has been maintained or excavated in past, or human influence to keep it in this condition?
- Shared info re: water flow

Questions

1. (Tony) Is the level of water in the slough directly connected to river through subsurface flows? ***Response:*** Yes, it is subsurface. As the Skagit rises, so do groundwater levels, and it is re-expressed in the slough.
2. (Tony) Is this connection through capillary action/hydroconnectivity of the two places? Is there a correlation between this flow response and time? ***Response:*** Yes, and yes. You can look at the data from highest point on the black line (from graph shared in PPT) from late 2021 and will see a lag every 15 minutes. It is connected, but there is a lag. The data is available from the data logger; there will soon be additional information that can be shared.

Hydraulic analysis – habitat and flood flows

- The team picked representative calendar dates and looked at the connector channel and the profile of the slough to compare water surfaces in the slough and the main Skagit River channel. At the lowest flow, water in the Skagit River channel is below the connector channel. At moderate flow it is even; at higher flows, the Skagit River is higher. We would expect the Skagit to actively fill the connector channel in these higher flow events.
- During higher flood flows when the Skagit River is overtopping its banks and flooding the adjacent floodplain and farmlands, the team identified three areas of interest where these floodplain flows are more concentrated: 1. A low portion of the South bank of the Skagit River due north of the upper slough and flows south into the slough; 2. Areas within the slough including the DeBay's Isle Road crossing and a location further downstream where water overtops the slough bank and floods across Francis Road; and 3. Within the connector channel itself where flood flows move across the connector channel toward the southwest. By identifying locations where floodplain flows are more concentrated the study team is better able to understand the prevailing movement of water across the floodplain during these larger flood flows.

Questions & Comments

1. (Tony) Does the Nookachamps have a big impact on the area? ***Response***: The Nookachamps doesn't have a robust history of hydrology data. However, the team agrees that it's an area for potential refinement, helping understand how big floods in the Nookachamps contribute to flooding in the surrounding area, and will aim to incorporate findings from other previous work or ongoing studies to refine the representation of the Nookachamps in the project hydraulic model.

Facilitated Discussion

Advisory Group members were asked to share their own experiences and provide insights/feedback about the team's findings regarding existing conditions. Specifically, how does the model and its results compare to your experiences?

- (David) In the area described as a clay sill, that's actually a beaver dam (actually a series of dams constructed within the past 10 years) which is keeping water levels lower. Regarding the height of the slough, any significant rise in water level is from water backing up the exit channel. ***Response***: great input; timing of field work might have been before the dam was evident
- (Donald) When watching the flow of the slough, you can actually see the movement of the water moving into the slough. It's visible and is going backward. As the river goes down, you can see a big flow going out. ***Response***: this is a challenge with the models. You can get a snapshot but this doesn't provide the full dynamics, especially as water is moving rapidly. Would be great to refine conclusions in light of this information. The team needs to account for the ebb and flow in the connector channel.
- (Sarah) Regarding the 30' river gauge, there is usually 4' of water in the driveway at address: 23020 Francis Rd. ***Response:*** *This is good information and something we can look at in our model to see if it aligns with your observations.*

Aquatic and Terrestrial habitats and wildlife use

- The study team provided an overview of aquatic and terrestrial habitats and wildlife use of those habitats, including aquatic and riparian habitat characteristics that affect juvenile salmonids, including Chinook.

Questions / Comments

- (David) Regarding the comment about non-native fish in the slough; it's got a lot of fish that are predatory on small salmon, such as small mouth bass. There are stories of people catching large bass out of the slough. At what point are these fish considered native versus not native? ***Response:*** Fair point. Thanks for mentioning this.
- (Martha) Regarding the slide with colors: it seems to show limited areas where swans are. ***Response:*** Did not mean to imply that the swans only use one or more particular habitats; they actually use a variety of these areas. The game reserve field is outlined based on agricultural remnants that define that field.
- (Martha) Are you implying the game reserve boundary is where the extent of swan use is? ***Response:*** This isn't reflecting anything but habitats. It doesn't reflect a legal extent or boundary. ***Response*** (in chat from WDFW): We can provide a map of the current Game Reserve boundary, which includes the

field, a large portion of the lower slough, the riparian/forested areas north and south of the field, and portions of the field south of the slough that the Baumgardner's own.

Screening and Evaluation Criteria

- The team has been trying to get a handle on existing conditions in the area. Once completed, changes to the site will be proposed. Screening and evaluation criteria are how we do that.
- There are two types of criteria:
    1. *Screening criteria* will be used to filter potential actions (for an action to be considered, it has to meet each of the screening criteria).
    2. *Evaluation criteria* will be used to compare the actions that passed through the screening criteria step to compare across the actions.

Draft Screening Criteria (Step 1)

Actions must

1. Not increase surface flooding or elevate groundwater for local ag/private property
2. Support existing levels and types of human uses, including WDFW access and agricultural lease footprint requirements
3. Maintain or improve aquatic habitat conditions, access, structure/complexity, water quality, food resources
4. Maintain or improve wetland and upland riparian conditions
5. Meet obligations of reserve property acquisition
6. Meet grant funding agency criteria and have viable permitting pathway for construction

Draft Evaluation Criteria (Step 2a)

1. Improves habitat access and condition for overwintering and out-migrating juvenile Chinook
2. Reduces or eliminates hydraulic constriction at DeBay's Isle Rd.
3. Maintains winter swan roosting habitat on slough water surface
4. Improves water quality attributes of DeBay Slough and connector channel
5. Improves wetland and riparian conditions to support fish and wildlife habitat functions
6. Provides benefits under projected climate change scenarios

Rate Against Logistical Evaluation Criteria (Step 2b)

1. Maintain public access for recreation
2. Meets range of viable construction costs consistent with grant sources
3. Construction access can avoid or minimize impacts to forests and wetlands
4. Minimizes potential to convert forested wetlands to open water conditions
5. Consistent with WDFW considerations for operations and maintenance.

Facilitated Discussion

1. (David) Are you trying to get salmon into the upper part of the slough or just in the drainage? There is a series of beaver dams there now and if you were to open it up, the slough would empty out except for deep water in the corner. ***Response:*** we'd look at this with modeling, would then put it through screening criteria.

2. (Devin) Building on this, will there be a diagnostic to determine what the problem is for salmon? If it's temperature, you'd propose one kind of action, but if it's fish passage, you'd propose a different kind of action. ***Response***: fish use is a major gap in our understanding; we are trying to sort it out and are beyond the time period for field work to verify when salmon may be able to access the slough. We need to do it but missed the previous window. (Devin) So will you select an alternative before you have that information? If so, why is that? ***Response***: We have a meeting coming up to determine how to move forward to try and accomplish fish use sampling.
3. (Tony) Is this project primarily about replacing a pipe under the road? Should there be specific screening criteria to address the culvert? ***Response:*** The culvert replacement is just one part of it. Screening criteria 2 seems to address it.
4. (Donald) Two concerns. First, would like to make sure that this is designed so that it's not a "trap" for landowners (e.g., if salmon return, landowners aren't then held to higher regulatory control and have to mitigate impacts). Second: Increasing water flows into the area will reduce landowners' time to prepare for a flood (e.g., moving farming equipment, families, etc.) That should be included in the evaluation or screening criteria. ***Response***: 1) The slough is already considered Type F – meaning it has fish in it or that fish would be expected to use this habitat feature if something man-made wasn't keeping them out. This means the regulatory standard is already set and nothing will change about that. 2) Great comment. We think this is covered by screening criteria 1.
5. (Richard) Is there a cost benefit analysis that would help us understand an increase in fish quantities relative to the cost of the project? Is there a cost payoff? ***Response***: This should already be captured in the evaluation criteria. However, it could be more nuanced and we'll refine them based on this feedback.
6. (Martha, via chat) What is an estimate on when we will see a more accurate land ownership map for this area, not just the Reserve boundary? This includes all adjacent property ownership as well to WDFW lands, DNR, etc. Also, the resources used to establish this map. ***Response:*** In the June update, the team shared a map that showed private, public, County and unknown properties. The County and WDFW are working to find an answer to this question. There are a couple parcels where there is no current ownership. Looking to put together a title report. The team will get more clarification from the title report; the current map is based on what people are paying taxes on.
7. (Earl) For eval criteria #10, please elaborate (construction access can avoid or minimize impacts to forests and wetlands). ***Response***: the degree of disturbance to forests and wetlands adds complexity and impacts to an action, so it's considered in the evaluation criteria.
8. (Robert) Regarding grant sources; you've received one, what others are in the works? ***Response:*** We currently have a salmon grant; they went the Salmon Recovery Funding Board (SRFB) to look at the culvert; they said show us there are fish that would benefit from replacing the culvert and see if you can make a better project for Chinook. SRFB is funding this first phase. Depending on the results, different grants including transportation or Fish Barrier Removal Board might fund the culvert and others might fund any other work

Wrap and Next Steps

Screening and Evaluation Criteria

1. Suggestion to wrap in cost/benefit analysis into the screening and/or evaluation criteria. Will there be an increase in fish quantities relative to the cost of the project? Is there a cost payoff? Etc. (Note: The study team believes this is captured in the evaluation criteria and could be teased out a bit more and clarified)

2. Need to make it clear to Advisory Group how the evaluation/screening criteria help address project priorities.

Additional information sought

1. Request for hydrology data from the data logger to help people better understand hydro-connectivity between Skagit River and the slough and the timing of changes in the slough with respect to changes in the Skagit River.
2. Request for updated map to clearly show areas of swan use, land ownership, hunting area boundaries etc.
3. Information (if possible) regarding connection between Nookachamps and the slough during flood events..