Snohomish County Comments on Ebey Island Draft Alternatives and Ranking Process

Thank you for the opportunity to comment on the draft alternatives presented at the Stakeholders meeting on June 22nd. We appreciate the efforts of WDFW and the consultant team in working with the Ebey Island community and larger stakeholders committee in developing alternatives for Ebey I. The following comments we hope will be helpful in stimulating a discussion about the best use for this property and others in the estuary, and obtaining community support. These represent a consolidated set of comments from several County staff, including myself, Ryan Hembree, Sharon Swan and Tim Walls.

1. The alternatives are generally focused on use of the WDFW properties for restoration – either full tidal inundation or a muted tidal effect. There are no alternatives that were developed to specifically propose enhancements to agriculture or recreation. The process would be strengthened and be more likely to obtain support from the farm community and other stakeholders if specific alternatives were developed that target real benefits to agriculture and recreation uses.
2. A key element of continued farming on Ebey Island is for sound dikes and an adequate drainage system. Alternatives should include improvements and maintenance funding to assure long term sustainability of these systems and the Diking District. This includes any new dikes that would be constructed by WDFW.
3. More information is needed on options that include “wet” farming techniques. Some education of the stakeholders group about this and where it has worked in the region would be very helpful.
4. Evaluate recreation opportunities which would be feasible at this site and evaluate alternatives based upon what could be offered under the various scenarios. For example: boat launch (motorized? Non-motorized?), hunting, bird watching, etc.
5. The muted tide option on the north east end of the area may be feasible if combined with improvements to the dikes.
6. Feedback from the farmers on Ebey Island indicates that the land was used more intensively in the past for crops like potatoes, corn, green beans, grain, etc. With some effort to assure working drain tiles and adequate pumping, this area could be used for that purpose again.
7. The study should be broadened to include looking at potential land swaps that would facilitate the objectives of multiple parties. For example, the north end of Ebey Island, owned by Snohomish County may be more viable for tidal restoration, cost effective (shorter dike length). The use of this site could be traded off with enhanced farming on part of the WDFW Ebey I. ownership. Recommend that the group consider land swaps at an even broader scale, such as Leque Island at the mouth of the Stilly.

8. In thinking about how to improve the decision making process for Ebey Island, the following process oriented suggestions are offered. The goal is to find the "sweet spot" where restoration and agriculture elements work in harmony:
   - Develop an explicit list of the constraints and opportunities on the site. These constraints and opportunities should drive the criteria development process. Examples of constraints might be pipelines, waterlines, soil characteristics, proximity to the Snohomish River, etc.
   - Evaluation criteria should be based in part on the constraints and opportunities from above so that they mirror the community's direction and voice.
   - Criteria developed during the community discussions (both within and outside the meeting) should be lumped into appropriate headings. For example, the headings for this project might end up being something like:

     1. Flood control
     2. Agricultural benefits
     3. Fish and Wildlife benefits
     4. Recreation
     5. Public infrastructure/utilities
     6. Drainage district values/issues (e.g., how the fee is assessed)
     7. Deed restrictions
     8. Etc.

   - The criteria developed through the community process, as well as the technical elements of the site, should drive the creation of alternatives. The alternatives could be bookended with a full fish restoration alternative, outlining how it best meets all of the fish needs, and an all agriculture alternative, outlining how it best meets the agricultural needs. Other alternatives would be developed based on the list of criteria and matching elements of the site constraints and opportunities.
   - Where the real in-depth discussions should take place with the committee/community should be in the value trade-offs of discussing the alternatives. Understanding the best goal for agriculture and the best goal for fish should spark discussion about how a new alternative might mix values in a way not conceived by the consultant team. These value tradeoffs should result in at least one project alternative that advances agricultural, recreation and fish interests.
   - Ultimately, the feasibility should develop project alternatives base on the criteria and constraints developed from the site, the mandates of various owners and agencies (particularly WDFW as the landowner) and discussions with the community about what they want to see enhanced on the site. These alternatives should be weighed on how they best fit the criteria, then having the community discussions about potentially new alternatives that meet more objectives.

Memorandum

July 9, 2010

To: Cleve Steward, AMEC
Cliff Strong, AMEC
Richard Tveten, WDFW

From: Janne Kaje, King County Water & Land Resources Division
also representing Snohomish Basin Salmon Recovery Technical Committee and the Snoqualmie Watershed Forum

Re: Ebey Island Alternatives and Criteria

Ebey Island Project Team:

Thank you for the opportunity to provide comments on the draft alternatives and the proposed evaluation criteria. I had an opportunity to chat with Tad Schwager yesterday and shared some of the following comments with him. Most are focused on Criteria 1-11 that deal with aquatic resources and habitat gain. I will also provide a few remarks about the process to date and steps for moving forward.

General comments:

- The fundamental habitat hypothesis in the WRIA 7 Salmon Recovery Plan is that if we restore and protect natural habitat-forming processes (riverine, estuarine and nearshore), then we will create the types of habitat conditions over time that will boost the productivity of both Chinook populations in the basin. As you know, the restoration focus is on juvenile rearing habitat and there are few more important places than the estuarine marshes of the lower river. A major gap in the criteria is the lack of one or more factors that get at the potential restoration of riverine processes. The criteria are largely structured around the tidal process, which makes sense to a degree, but the alternatives differ substantially in their ability to reintroduce fluxes of water, wood and sediment from upstream sources as primary drivers of habitat creation over time. Draft Alternative A illustrates this issue fairly well when comparing the two full-tidal pieces of the alternative. The western portion nearest to the mainstem has a full dike proposed along the entire upstream margin that will effectively preclude any upstream sediment and wood from entering the site, not to mention flow from that direction. In contrast, the dike removal on the eastern edge of the site would allow river processes to reinitiate in a much fuller fashion. Absent additional criteria, both parts are ranked according to their “full tidal” profile and differ mainly in their size.

- A related issue that speaks to both river processes and connectivity for fish is the composition of the site perimeter. Currently, the criteria weigh differently the value of “narrow” dike breaches (likely with flow control structures) and full dike breaches, but I’m not sure that they adequately capture the enormous functional differences between the options. One way to get at this would be a metric related to the proportion of the site perimeter that is connected to the river. Again, referring to the two full tidal portions of Alternative A, the

western portion has an “open” perimeter of maybe 15%, while the eastern portion is well over 50%. In Alternative B, which features a water control structure, the eastern portion might have an open perimeter of less than 1%.

- As you can tell my take on the current criteria is that they underestimate the difference in function and value between full-tidal with complete dike removal and lesser alternatives. So, while I agree with the premise that factors beyond fish restoration are a part of the process, I feel strongly that substantial dike removals are necessary to implement a project that is consistent with the recovery hypothesis.

Specific criteria:

- #1 – Size of Restored Area. This criterion must be coupled with #8 or some other measure of tidal exchange or river process restoration. For example, since most alternatives have several pieces to them, the size and tidal restoration elements could be combined as a weighted sum of products or some other method to better characterize the “size” of restoration.

- #2 – Amount of Fish Habitat. As I shared with Tad (and he had already concluded this himself), the current metric and scoring is nearly the opposite of what it should be. The proposed ratio essentially rewards a project that has little or no difference in tidal prism between MLLW and MHHW. This obviously doesn’t make sense. Since water control structures are used to shave the high water side of the equation, one suggestion is to compare the ratio of wetted area during low and high tidal cycles to what that ratio would be if the dike were removed entirely. Alternatives could be scaled to that value.

- #3 – Energetics/Exchange. This one needs some clarification in the narrative. I assume the idea is to rank each alternative based on this criterion and then split them into quartiles for scoring purposes. Would be nice to see some absolute measures as well. If the alternatives don’t break out cleanly then this criterion may not be very useful as written.

- #4 – Long Term Elevation. What tools are being used to develop these estimates? What is long term? In the event of a full dike breach along Ebey Slough, it is conceivable that in the short- to medium-term, elevation diversity might even decrease as a result of sediment input to a subsided marshland, but in the long term, wood recruitment and natural processes would likely create a much more complex topography as well as dendritic channels. So, absent an explanation of the methodology and time frame (50 yrs?), I’m not confident that this criterion will be useful.

- #5 – Connectivity to Total Fish Population. As I expressed at the meeting, I do not think it is appropriate to place such a biased weighting on mainstem connectivity as compared to Ebey Slough, especially when we consider the layout of the site and potential options. While currently juvenile fish may in fact utilize the mainstem to a greater degree, we have no evidence to suggest that this pattern would persist indefinitely, especially if significant habitat were restored in Ebey Slough. The potential for the restoration of full connectivity is much greater on the Ebey Slough side, so the comparison of connectivity is almost an apples vs. oranges situation. A criterion about connectivity should be more like the suggestion above about site perimeter and about the presence/absence of control structures that may limit access.

- #7 – Adjacent Land Uses. I believe the criterion as written is meant to rate risk factors associated with adjacent uses that could compromise success. However, I think it is inappropriate to equate agricultural 'intensity' with poor management practices related to use of chemicals, manure management etc. Any land uses should minimize impacts on neighboring properties. A better way to think about adjacent uses might be to measure the amount of Natural area on adjacent parcels that could provide synergies with the project area. Or, if there are uses that certainly preclude further restoration in the medium-term, such as a sewage treatment plant or other critical facilities, that might score more poorly than agricultural land that might conceivably be converted to restored area in the future.

- #10 – Effects on Other Restoration Projects. I have a hard time imagining what drove the inclusion of this one. While it may be conceivable that a large scale project could have a minor effect on water elevations that could slightly affect another project, it fails to rise to the level of an issue that should be considered here. All salmon recovery projects are aiming for the same goals and any minor effects could be addressed as needed. Unless a specific project sponsor has expressed a valid concern, I suggest we drop this one.

- #11 – Water Quality. Please explain the basis for using residence time as a proxy for water quality. Is the concern here toxic substances? High temperature? Are we concerned about pool stranding? Absent some clear line of reasoning, it is not clear how water residence time helps us to sort out alternatives.

Comments about the process:

As I expressed following the first meeting, I am concerned about the fact that various alternatives and design constraints are being described by the consultant team (primarily Mr. Bartelheimer) in a manner that is biased against the more robust restoration alternatives. This continued at the 2nd meeting. Describing alternatives with phrases like "that's a non-starter with the diking district" or "this is an extreme hypothetical case" in reference to full-tidal restoration of a majority of the site (likely the best restoration alternative) is frankly inappropriate. If full tidal restoration is off the table for WDFW and the project team, then say so and the process can continue with a much smaller group. I think we all expect some measure of compromise to occur, but if the best restoration alternatives aren't even on the table then the starting point for compromise is a false one.

Similarly, physical and financial constraints should be treated as such, not as automatic deal killers. For example, we heard that "based on initial conversations, full-tidal restoration over the Olympic Pipeline is a non-starter." If, based on something more than initial conversation, the pipeline issue appears to be a major one, let's develop approximate costs for addressing it rather than killing any option that involves full tidal in that area. Financially, if the "loss" of WDFW acreage from the diking district is a major financial burden to the district, then let's understand what kind of financial impact is a stake and build it in to the costs of alternatives. In sum, it is too early to rule things out based on perceptions in the absence of data. There may be challenges, but let's treat them as costs.

Thanks again for the opportunity to participate and to comment.

Comments on Ebey Island Restoration Alternatives

By Kate Halstead on behalf of Sno-Valley Tilth

Washington State lost an average of 67,860 acres per year in the 10 years preceding 2009.[1] Since then, that rate of loss has not abated, and for some areas, especially the lands surrounding Puget Sound the loss rate is on the rise. From the US president to Washington's governor, to the Snohomish County executive and a majority of county residents, all have expressed their insistence that this nation must keep intact what few agricultural lands we have left, especially those near our urban areas where food security issues are most pressing.

Given the rising number of new federal and state programs, grants, and low-cost loans focused on increasing the number of farms and farmers near these same urban areas, it is completely counter-productive for another state agency – using federal funding – to propose permanently deleting hundreds of acres of prime agricultural lands near a major urban center from production.

The NRCS soils map provided shows that 100% of the lands owned by WFDW are prime agricultural lands, lands defined by the federal government as being of "Major importance in meeting the Nation's short- and long-range needs for food and fiber." The definition goes on to emphatically state that, "Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland."

Sinking not acceptable

None of the 12 alternatives comes close to meeting this mandate. The tokenism evident is nothing short of appalling. When Sno-Valley Tilth, along with others, encouraged the choice of AMEC to conduct the feasibility study, we really believed we would gain the expertise of a group of individuals capable of thinking outside the fish weir and presenting some serious options for combining salmon run restoration and 21st century farming. Unfortunately, those thoughts seem to have been misguided.

The alternatives presented appear to be straight out of a 1950s-era Army Corp of Engineers manual. Sixty years later we are painfully aware of how poorly those methodologies worked for ensuring public safety, enhancing fish runs, and preventing farms from being washed downstream. The Everglades is a poignant example of poorly understood hydrology and rigid application of dike removal/ inundation schemes that don't always work, often causing more problems than they solve. It's also an example of rigid agricultural interests refusing to acknowledge there is more than one way to farm in the floodplain, a rigidity Sno-Valley Tilth does not follow.

It's sad to note that out of the 12 alternatives given, none allow for more than a small portion of land for potential food production. Inundating the rest of the property in various submergent schemes, in our collective opinion, does not provide anywhere near the benefit to transiting salmonid populations as other strategies might. There is definitely no benefit to agriculture available in any of the alternatives, merely choices between eliminating all, or just most, agricultural production from the properties.

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[1] *The Future of Farming, Strategic Plan for Washington Agriculture, 2020 and Beyond. 2008; Washington State Department of Agriculture.*

Not one of the alternatives expands the number and reach of the few existing dendritic channels. According to WFDW's own studies, these channels increase the volume of riparian areas capable of providing salmonid populations with the most effective 24/7/365 shelter from main stem flows, predation, warm temperatures, etc. while enhancing food supplies from a significant increase in the amount of high quality edge habitat available along these newly created meandering channels. [2]

Fish and farms are not mutually exclusive terms

It's an outmoded opinion that high output agricultural production AND endangered salmonid populations cannot coexist. This project should be the innovative cornerstone of a revitalized ecosystem, a project that could be a showcase on how to enhance fish and farming simultaneously. However, it will take much more thought than merely trotting out the tired and outdated 'move/breach the dike' mentality once more.

Just as there are better – and worse – ways to encourage endangered species proliferation, there are better, – and worse – ways to conduct agricultural food production. Thousands of small, diverse, organic farms around the world are proving that it is possible to grow food in a high production setting while leaving adjacent ecosystems intact, in some cases enhancing and sustaining them through polyculture and crop diversity, edge creation, organic no-till, native plantings to enhance wildlife and beneficial insects, and much more.

We believe the setting of WFDW's Ebey Island holdings presents a unique opportunity to develop an environmentally sensitive agricultural system. It could provide Snohomish County residents with abundant fresh, nutrient-dense foods while providing clean, cool waters and enhance the ability of salmonid fry to live and grow safely in a habitat filled with native plant and animal diversity.

Back to the future with chinampas

One of the most productive agricultural systems the world has ever known is 'chinampa' or 'raised field agriculture.' The word chinampa comes from the Nauhatle words chinamitl (reed basket) and pan (upon), a good description of the ancient building methods utilized to develop these raised fields.[3] The most prominent New World example still exists adjacent to Mexico City, which was built over much of the original chinampas in adjacent Lake Xochimilco. Other modern day examples are thriving in inundated areas all over the world from China and Costa Rica to the Lake Hills Farm in Bellevue, Washington, USA.

Chinampas are agricultural fields created by piling clays and muds, aquatic plants, dryland silage, and canal muck in layers between parallel reed fences to create long fingers of dry ground alternating with narrow canals in a tightly laced configuration resembling an endless water maze.

Once the ground is raised to the proper height (about ½ meter above high water) willows are planted at the banks' edges to control erosion as well as provide shade and a source of firewood. The farm plots are renewed each season with more canal muck and vegetation, eliminating the need for most brought-in fertilizers.

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[2] *Pacific Salmon and Wildlife - Ecological Contexts, Relationships, and Implications for Management. Special Edition Technical Report, 2000. Prepared for D. H. Johnson and T. A. O'Neil (Managing directors), Wildlife-Habitat Relationships in Oregon and Washington. Washington Department of Fish and Wildlife, Olympia, Washington.*

[3] *Werner, L. 1992. "Cultivating the Secrets of Aztec Gardens." Americas 44: 6–15. Academic Research Library.*

Chinamperos (farmers utilizing the chinampa style of agriculture) easily and sustainably fed the population of the area, estimated at up to 2 million in the 1500s.

Present day chinampa field near Mexico City looks very similar to the intensive agriculture system used by small diverse organic farmers throughout the lowlands of Puget Sound.

Diverse & sustainable

The wildlife and botanic edge diversity created by Xochimilco's chinampas was described by an early explorer as, "a work of man, formed a harmonious whole with its lacustrine ecology, the site was no less than a paradise, for the beautiful landscape created with its houses and chinampas sown with vegetables and ahuejotes [willows], and for the freshness and amenity of its flowers." Another described it as, "…water, fertile lands, woods, wild animals, fish, and mild climate…and the intelligent use of these resources by the valley inhabitants." [4]

Modern chinampa-style agriculture is different from 'drain and farm' schemes in a number of ways:

1. *Chinampas take advantage of a high water table for capillary irrigation as well as utilizing the canals created as a means of quickly transporting crops, supplies, and people. This helps save water, energy, land, and money since there is no need for irrigation pumps, trucks, roads, or bridges.*

2. *By using edge plantings as part of each narrow plot, integrity maintains through high and low water times and erosion reduced or eliminated. In addition, during periods of low flows, these plantings serve to shade and cool canal waters providing abundant high quality habitat for fish, plants, and wildlife.*

3. *Utilizing canal muck, night soil, and organic materials taken from the plots, chinamperos are composters who used the resulting rich products to replenish their field's fertility while ensuring none is wasted, thus avoiding water pollution issues.*

4. *Edge-residing populations of pest-eating birds and beneficial insects help farmers reduce pest populations without chemicals, helping balance and maintain the entire ecosystem. Bird and wildlife enthusiasts find increased species diversity within chinampa-style agricultural settings easily accessible via small watercraft. The*

[4] *Ecologist , Vol 17 No 2/3 - March / June 1987, page 78*

Chinampas of Mexico City have a thriving agritourism industry shuttling boatloads of sightseers through the canals to view the flowers, plants, and wildlife found throughout.

As recorded by one group of researchers, total sustainability in the chinampa system is achieved by:

1. *Conserving renewable resources and reducing environmental impacts, the farmers efficiently manage the habitat for agricultural purposes;*
2. *Recycling practices, they maintain nutrient flow and wastes cycles;*
3. *Conserving a high degree of biodiversity in time and space, they efficiently use the resource base, increase biological interdependence between crops and pests, and reduce crop failure;*
4. *Intensification of the production and increasing sustainable levels of productivity, farmers rely on regional resources, efficient use of labor, and high technological complexity;*
5. *Using social and economic factors in decision-making, diversification of crops and maximization of returns are part of the development of self-sufficiency and economic viability of the chinampa system.*[5]

Aerial view of today's chinampas near Mexico City shows a lush landscape sustainably farmed for thousands of years.

Crops are grown year-round in a constant rotation of species and fallow throughout the plots. Among those plants grown in the chinampas is a broad diversity of fruit and nut trees, vegetables, maize, and grains. From arugula to zucchini, broccoli to strawberries, chinamperos can grow pretty much anything they decide to plant.

Dendritic channelization, not sinking

While chinampas are typically built in thin rectangles, there's no reason these channels couldn't be patterned to resemble a more typical dendritic floodplain channel system. By expanding and elaborating on the existing channel pattern within Deadwater Slough, it would be simple to replicate and expand the dendritic channel patterns that existed prior to 1850.

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[5] *Urban Sustainable Agriculture: The paradox of the chinampa system in Mexico City, Pablo Torres-Lima, Beatriz Canabal-Cristiani, and Gilberto Burela-Rueda; AGRICULTURE AND HUMAN VALUES - Winter 1994, pages 37-46.*

Adding tendrils to the sloughs and connecting one or more to the river mainstem would allow development of many tens of miles of new edge habitat planted with native species. This would help shade narrow channels to protect young salmon while providing them with abundant foods. As stated previous, WDFW's own research shows these edge habitats are the most dynamic and productive places to be found in any ecosystem, and an excellent place to rear young salmon.

A different approach would develop islands of different shapes and sizes, as determined by hydrology studies, with channels sufficient for small boats or barges in some places, in others simply wide and deep enough to create the most effective mimic of dendritic channel fish habitat. This May 2010 aerial of the project area shows some very crude mapping of channel/island creation.

To date, we've not seen the science that indicates that simply flooding an area tidally twice a day does near as much for salmon population enhancement as does the creation and enhancement of permanent, dendritic channel habitat that not only feed, but shelter salmon fry from heat and predation 24/7 regardless of tidal flows or flood conditions.

We believe that a form of chinampa farming system should be applied to WFDW's Ebey Island holdings. Through the development of a set of channels large and small, interconnected with themselves and the existing sloughs and river channels, perhaps a hundred miles (or more) of high quality edge habitat would be created. The mud and soil spoils from channel creation would be used, along with other organic materials, to build up the farm islands, and then edge-planted with native willows and other species. No infrastructure such

as roads or bridges are needed beyond well-placed small boat/barge docks in protected locations, allowing 100% of the islands created to be devoted to agriculture and edge habitat production.

Cost/benefit ratio

Unfortunately, no cost estimates accompany any of the 12 variations on a theme, which makes it very difficult to evaluate dispassionately all the alternatives. Based on our collective experience and knowledge, Sno-Valley Tilth concludes that the probable costs associated with the alternatives so far proposed will be prohibitively expensive, if not initially, most certainly later through increased costs to the county and diking districts for maintenance and repair, especially after major flooding events.

In our experience, the approaches proposed are a very expensive way to attempt salmon run restoration. There is sufficient evidence to question whether those approaches would work at all and the very real possibility exists that WDFW may end up throwing money at the problem without garnering results worth the enormous initial and ongoing costs.

The increasing frequency with which major flooding events occur makes it in everyone's best interest to ensure the most physically stable and economically viable alternative is used. We believe a chinampa-style agricultural system would meet both those goals much more effectively than any of the 12 alternatives.

Economic development

There are modern-day chinampas thriving on lands that would be considered marginal from a conventional agricultural point of view (Lake Titicaca, Bolivia; Veracruz, Mexico; Pearl River Delta, China; Costa Rica: http://videos.wittysparks.com/id/508348109). The chinampas near Mexico City have been described as capable of satisfying the food needs of up to one-fourth the current population of Mexico City (estimated at almost 9 million in 2009) if put into full food production.

Productive even by today's standards, chinampa harvests have been known to outweigh those from nearby agricultural research stations, and in 1986 it was a chinampero who won Mexico's annual maize-growing contest.[6]

Utilizing 21st century plot-intensive, successional agriculture we know it's possible to make a good living farming relatively small plots of land using organic, sustainable techniques coupled with direct-to-consumer and direct-to-retailer marketing.

For example, a popular program amongst beginning farmers utilizes plots as small as backyards to make a living. The SPIN Farming program (www.spinfarming.com) calculates the average gross yield in per half-acre terms based on their Small Plot InteNsive system. A representative example calculates gross income per half acre for a typical SPIN farm as being somewhere between $24,000 and $72,000 per year based on the crops chosen.

Even a fraction of that would be considered an astronomical yield by today's conventional agricultural models, one glaring reason why conventional agricultural fails the sustainability test.

Plans for nearby year-round farmers market & more

Recently, the Snohomish County Executive and a group of Snohomish County farmers gathered to announce the formation of the Snohomish Growers Alliance along with their intent to develop a year-round farmers

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[6] *The chinampa system: marshland magic of the Aztecs. CERES No. 147 May-June 1994: Cerescop (Food and Agriculture Organization of the United Nations, 1994)*

market on a site adjacent to the Snohomish River near Ebey Island. What a perfect opportunity to provide a regional market with nearby farm-fresh produce…and most importantly, provide new farmers with a ready market of consumers eager to support local agriculture!

The coincidence of prime agriculture lands to support potential high-volume farms adjacent to a high-volume direct-to-consumer market should be a stimulus to ensure this opportunity to enhance food security in the region is not lost. In addition, the Port of Everett has expressed an interest at working with the Snohomish County farming community to support wholesale distribution and processing facilities with existing structures, all within a few minutes boat ride from Ebey Island.

All of these facilities could easily serve the newly created 'Chinampas of Ebey Island' with small boats and barges along with the addition of minimal infrastructure for docking facilities.

Farmers ready to farm

The great need for farmable land is evident by looking at the Washington FarmLink program (www.cascadeharvest.org/programs/washington-farmlink/). Currently, they have a list of almost 500 farmers looking for a plot of good agricultural ground, something very hard to come by even during a recession.

Currently, WSU Snohomish County Extension is helping develop beginning farmer mentorship and incubator programs in areas adjacent to Ebey Island. Adding the WDFW lands to this incubator management group would ensure the lands are farmed in strict accordance with a set of approved BMPs approved for floodplain cultivation.

With the growing need for new farmers, and the number of people desperate for access to good land in order to develop small, diverse crop farms, the lands represented in the Ebey Island project could put hundreds of farmers to work developing a vibrant, sustainable, and diverse ecosystem. Sinking these lands instead is a complete anathema to the concept of Washington State food security, true salmon habitat restoration, and common sense.

Conclusion

Sno-Valley Tilth believes that the 12 alternatives presented so far offer no significant advantage for salmon while eliminating economically viable farming from ever occurring again on WFDW's 1200+ acres. We insist that further loss of ANY agricultural lands is unacceptable and tender this alternative for serious, scientific consideration.

We believe this is an excellent opportunity to create an enhanced salmon and wildlife habitat within a rich, diverse farming landscape that provides healthy foods for our communities, all within sight of a major metropolitan area. Opportunities like this do not come along often and should not be squandered.

Let's ensure this opportunity does not slip through our fingers, we will all be the poorer for passing it up, and our salmon will be little better off than they are right now.

Memorandum

To: AMEC and WDFW

Fr: Maria Calvi and Kurt Nelson, Tulalip Tribes

Dt: July 9, 2010

RE: Ebey Island Restoration Feasibility Study - Comments on Criteria and Preliminary Alternatives as presented at Advisory Committee Meeting #2 (June 22, 2010)

I. General Comments

The criteria and alternatives should follow from the goal of the feasibility study which is to *evaluate the technical and social feasibility* of restoring high quality tidally influenced aquatic habitat on 1,237 acres of WDFW owned land on Ebey Island. Therefore the emphasis in developing alternatives should be on looking for alternatives that restore high quality tidally influenced aquatic habitat on 1,237 acres. Alternatives that provide less than this level of restoration or with less acreage than that owned by WDFW should be pursued only if the full restoration scenarios are technically infeasible. In addition, we should not throw out a technically possible yet expensive alternative at this point in the process simply due to cost. The restoration funding landscape changes over time and abandoning an alternative so early in the process without exploring options fully would limit the project over time. Finally, the goal of social feasibility seems a bit subjective. I would suggest that alternatives be designed for technical reasons and then all of the alternatives considered based on social goals – weighing the benefits and costs to different stakeholder groups.

That said, the meeting on June 22nd seemed biased towards advocating for a muted tidal versus full tidal restoration scenario. A muted tidal alternative should be considered if technically necessary but there are many issues that were not presented at the meeting. For example, science would not characterize the anticipated fish benefits of full tidal as “high” and muted tidal as “moderately high.” In fact a muted tidal system is probably closer in form and function to the walking wetlands and even diked land uses. Science suggests that full tidal inundation results in the highest potential habitat quality for fish and the most opportunities for fish access to those habitats. In addition, a fully tidal system is likely to be sustainable over time and habitat quality is likely to improve over time. Where as in a muted tidal system, the habitat quality is likely to be poorer than in a full tidal system, the habitat quality is also likely to diminish over time, and opportunities for fish access into a muted tidal system are likely to be much less than in a fully tidal system. In addition, a muted tidal system is likely to cost more in long term maintenance costs even if initiation construction costs are lower. We should consider both alternatives but the benefits of each alternative should be examined carefully and costs should be outlined for each alternative but should not preclude the evaluation of that alternative at this time.

Finally, the criteria and alternatives should be simplified. They are too complex and confusing. Especially at this point in the evaluation, basic measures should be evaluated and compared amongst alternatives.

II. Criteria

- Criteria should be simplified and grouped.
- References for criteria should be provided.
- For example, the Salmon Recovery Plan (2005) should be used to develop the criteria for "fish benefit." The salmon recovery plan recommends the use of process based restoration strategies for restoring tidally influenced estuarine rearing habitats. The plan also uses acres of fully restored estuarine habitat as a metric for evaluating fish benefit. The underlying assumption here is that acres of fully restored habitat provides a proxy measure for the potential food base productivity of a marsh system and for the amount of tidal channel edge/wetted area as a both of these measures increase with restored area.
- Basic Categories of Criteria:
  1. Fish Habitat
     - **Acres of restored area** (Restored needs to be defined as 100% tidal influenced area. Any less than 100% tidally influenced is not restored as defined in the salmon recovery plan. This measure also acts as a proxy for channel network and dendricity of wetted area (what you later call "fish habitat") with more area providing more opportunity for channels to develop. A channel length criterion could be included and further refined at later phase in design process but at this stage acres should account for this opportunity).
     - **# and size of breaches** (or tide gate inlets and outlets) (This measure gets at fish access points as well as the ability of the site to maintain habitat forming processes such as sediment accretion and erosion, marsh channel development, seeding and vegetation growth of native plants, and water exchange to maintain water quality. In addition to the acres of marsh area the connectivity of the area to the tidal environment and sloughs are the two most important measures.)
     - **Acres of less than 100% tidally influenced area** (A muted tidal system would have some reduced habitat benefits as compared to fully tidal system and those acres should be accounted for much differently than a fully restored tidal marsh area.)
  2. Bird Habitat
     - I think the approach of using a **bird species composition** metric to get at the community of birds using various habitats (fully restored tidal marsh areas, ponded diked marsh systems, agricultural fields) is a good one (I think Nisqually and The Nature Conservancy probably have the best data on this.)
  3. Wetland Habitat
     - **Acres of restored area**

4. Land Uses
    - **Acres of (each land use) on Ebey Island** (agricultural land, residential land, road and other infrastructure land) (Criteria quantifying agricultural land uses on Ebey Island should be expanded to quantify all land uses on the Island. So that in addition to tidal area and agricultural area, the comparison of alternatives would also examine the amount of road, residential, and other infrastructural land use areas. It also might be worthwhile to look at the total acres (# acres) of each land use and at the percentage (%) of each use across the alternatives. Finally, these metrics should look at the entire Ebey Island and not just areas within the WDFW property. It is unrealistic to think that WDFW can maintain all of these land uses on their property as their mandate is to provide fish and wildlife habitat and recreational opportunities but the mix of uses on the island is what can be evaluated. All of the alternatives should be compared to each other and to the current condition.)
5. Recreational Uses (hunting, boating, wildlife watching, bird watching, fishing)
    - **Area of wildlife habitat** sustained at site
    - **# of access points** by land and water to the area
6. Maintenance Requirements
    - **Area protected** by dikes
    - **Length of dikes**
    - **# of structures** (tide gates and pumps)
    - **Length of ditches**
7. Costs
    - **Length and CY of new dike** to be built
    - **Cost of infrastructure to be protected**
    - **Cost of new structures** (pumps, tide gates)
    - **Length of dike removed**
    - **Cost of other project elements**
    - **Cost of additional land acquisition**
    - **Maintenance costs** (these should be determined based on maintenance requirements listed above)
    - **Maintenance cost structure** (who pays what amount in maintenance costs)
8. Protection of adjacent Property and Infrastructure
    - This <u>should not be a criterion</u>. Every alternative MUST protect adjacent property and infrastructure. This should not be used to differentiate between projects as they will all have the same level of protection. The difference between alternatives will be in terms of cost of protecting infrastructure.

- Comments on specific criteria provided by AMEC:
    1. Size of restored area (Very important criteria. Restored needs to be defined as 100% tidally restored. MHHW is ok but better metric would be #8)
    2. Amount of fish habitat (Not good. I do not like the implication that only wetted areas are fish habitat. According to the salmon recovery plan, rearing habitat in the estuary is defined as an area where all natural processes are restored; this then encompasses a number of fish uses – refuge, food, etc – that a marsh area might

provide. This metric also as written would create an unintended consequence of a high score for a muted/ponded system that does not drain properly. This metric should be removed. The idea might be right that a more dendritic tidal marsh complex would provide more access points and refuge points for fish at all tide levels but again a good proxy for this at this stage is marsh area.)

3. Energetic/Exchange (OK. Measure of tidal exchange is a good one. However, tidal prism as a relative value to other alternatives is confusing. If the tidal prism is related to another tidal prism of the same area and location then it could work. There is also an issue with an unintended consequence of this metric. Because tidal prism accounts for area of tidal action and elevation there could be a case where a subsided area has a higher tidal prism value than a non subsided area but the habitat gain and the tidal exchange is complete in both alternatives. I suggest using #8 instead of #3.)
4. Elevation Distribution (OK. Combine with 6. However, it should be noted that the elevation gradients in this system are not likely to be very different as the marsh is flat. However, you are right that a system with full tidal exchange is likely to recruit wood logs that in the long term would act as nurse logs and establish hummocks and high points for tree species to grow and therefore increase the complexity of the elevations and system as a whole over time. Again this criterion might be important to consider later in the design process and not at this point in the process.)
5. Connectivity (Very important criteria. However I do not agree with the rating system 1-4 as it is stated now. Many large breaches would provide more opportunities for fish access regardless of their orientation and would therefore be preferable to one or two small openings even if those openings are on the mainstem. This criterion should focus on size of breach, number of breaches, or channel connections.)
6. Complexity and diversity (OK. Combine with 4)
7. Influence of adjacent land use (Not good. This criterion should focus on the adjacency of natural habitats and not make a judgment about the variable and potential impact of adjacent land uses. All land uses should not impact adjacent environment so it is inappropriate to suggest that one land use is more detrimental than another. I would focus this criterion on adjacency to natural areas. So if the alternative is closer and more connected to other natural areas it gets a 4 otherwise if it is connected to a non-natural area it gets a 1.)
8. Completeness of restored area (Very important. Combine with 1).
9. Birds (Good)
10. Effects on other restoration projects (Not good. I do not understand how the project could impact other restoration projects except in a beneficial way by completing actions identified in the salmon recovery plan. This criterion should be removed. Also, again to the point above that every alternative will need to meet the threshold of NOT impacting adjacent properties and infrastructure, this criterion should be removed.)
11. Water Quality (OK. Complete tidal exchange will result in better localized water quality conditions as compared to water with higher residency time. However, the differentiation between 1 and 4 seems arbitrary.)

12. Current Use (OK. Again, current uses should be identified for all uses including tidal areas, agricultural areas, road infrastructure areas, residential areas. # acres and % both might be valuable to evaluate)
13. Contiguity of Ag Uses (OK although you might want to expand this criterion to look at the contiguity of all human use areas (roads, houses, and other infrastructure). The idea being that we should provide continuity between all human used lands as well as maximize continuity between natural lands).
14. Effects on agricultural lands (Not good. Like #10 this measure assumes that a project will be built and negatively impact an adjacent property owner. That is simply not the case. It is not the desire nor the right of a restoration project to impact adjacent uses so this criterion should be removed as all alternatives will protect adjacent uses.)
15. Soil suitability (OK)
16. Effects on adjacent drainage (Again, I would remove this as a criteria. Projects will maintain existing level of drainage on adjacent areas. We might want to include a cost associated with various alternatives – e.g. pump versus no pump but every alternative will meet this threshold.)
17. Effects on archeological historical and cultural resources (Again, we might want to remove this criteria and assume that all projects will not impact cultural resources. In fact I do not know how we could evaluate the difference in potential effects between alternatives at this stage. Except maybe that amount of ground disturbance could act as a proxy for potential impact. And in the end if resources are found during construction it is true that an alternative would need to be abandoned and another option found. But this would be the case with every alternative.)
18. Effects on flood protection infrastructure (see comments for #10, 16, 17) – this might be kept in as a proxy for cost of protecting infrastructure but the focus should be on cost of protecting infrastructure not an assumption of risk.)
19. Effects on new flood protection infrastructure (this is good – but I would restructure the criteria to be # length of new dike plus # length of remaining dike as well as pre and post alternative # and type of structures (tide gates and pumps) in order to get full picture of the difference between alternatives in terms of flood protection costs.)
20. Economics of Diking District (Again I think criteria #18, 19 and 20 should be restructured so that the comparison between alternatives is looking at the entire big picture (#length of new dike, #length of existing dike, #structures, #area protected by dike) and comparing the pre project conditions to the post project conditions under various alternatives.)
21. Impacts on Utilities and Infrastructure (Again this should be removed so as not to assume that any of the alternatives will impact this infrastructure. I would rephrase to say cost of protecting utilities and infrastructure.)
22. Impacts on Roads (same as 21)
23. Through 28. These look ok.

III. Alternatives

- Criteria should be established and agreed upon before moving forward with evaluation of alternatives.
- Alternatives should be simplified. The use of variable names for “working lands,” “walking wetlands” is confusing. These areas should be defined as “managed areas” as they all require dikes and tide gates and people to maintain the structures and uses of the property within those managed areas. Therefore, the alternatives should be revamped to define three categories of land: 1) tidal areas (areas restored to full tidal inundation) (dark blue), 2) managed areas (areas in between dikes, requiring tide gates and management to sustain the conditions within these areas), and 3) current drained and diked land (this might also be divided into multiple land uses – agriculture, residential, roads, other infrastructure areas). The muted tidal system is more like a working landscape or walking wetland than it is to the full tidal restoration therefore these managed areas are lumped together. The infrastructure is the same – dikes protecting the entire area and tide gates regulating water (riverine, tidal, and drainage actions). Although the fish use within each of those areas will be different based on access points and amount of water within the managed area the function of those lands is very similar.)
- The goal of the project is to restore aquatic habitat on WDFW land; I do not agree with the depiction of agricultural land on WDFW land. Commercial agriculture is not an activity that WDFW should be encouraging on their public lands. WDFW lands should be used for fish and wildlife habitat and recreational uses related to that fish and wildlife habitat. If we want to evaluate the pre- and post-project impacts on current uses of Ebey Island I would suggest identifying the current and potential future uses of all of the land on the Island under current conditions and under each alternative.
- One suggestion is to re-work the alternatives with consideration given to nesting areas within each other. In some cases full tidal may be surrounded, or in part surrounded by a managed area, and then encircled by the current diked lands. This type of arrangement might be desirable to meet full tidal restoration goals and drainage needs.