

Merrill, Hannah

From: Merrill, Hannah
Sent: Tuesday, January 29, 2013 8:20 AM
To: zSMP
Subject: FW: Comments on Shoreline Buffer Widths & SMP Aquaculture

From: Bob Vreeland [REDACTED]
Sent: Saturday, January 26, 2013 10:31 AM
To: Merrill, Hannah
Subject: Comments on Shoreline Buffer Widths & SMP Aquaculture

The following comments are my responses as the representative from the Clallam County Marine Resources Committee on the Clallam County Shoreline master Program Update Committee. These comments relate only the the marine shorelines of Clallam County. These comments have not been vetted with other members of the Clallam MRC. There is no time to do this given the deadline for submitting these comments.

Marine Shoreline Buffer Widths:

The last two sentences of the first paragraph of the Background statement in the December 11, 2012 memorandum, subject Explanation of proposed shoreline buffer widths, state:

"The State's Shoreline Guidelines (Washington Administrative Code [WAC] 173-26) REQUIRE SMPs to include policies and regulations that WILL ACHIEVE "NO NET LOSS" of shoreline ecological functions (emphasis mine). Maintaining well-vegetated buffer zones adjacent to shoreline waters is considered a key element of successful no net loss strategy (WAS 173-26-201(2)(a)).

Given these two sentences, Figure 1 on page 2, and tables 1 and 2 on pages 3 and 4 of the memorandum, it seems to me the most successful strategy to achieve the REQUIRED no net loss is to set the buffer widths at the maximum end of Figure 1 for shoreline habitat buffers rather than the lower end. Setting the buffer widths at the lower end of Figure 1 as shown in Table 3 seems to me to be less likely to achieve no net loss and not incorporate the known best management practices. It also seems to me that for those properties that are large enough to allow development outside the marine shoreline, no future development should be allowed in the marine shoreline. For properties where new development cannot be achieved without encroaching on the marine shoreline, I suggest the following shoreline habitat buffer widths:

	Marine Waterfront	Shoreline Residential-Intensive	Shoreline Residential-Conservancy	Resource Conservancy
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Natural

Marine Shorelines Habitat Buffers

Minor New Development (all lot sizes) 200	100	100	150	200
Major New Development 200	100	100	150	200
Land Divisions 200	100	100	150	200

For marine shoreline properties on bluffs, it may be appropriate to adjust the Safety Buffer widths for Resource Conservancy and Natural columns downward where my recommended habitat buffers plus the safety buffer (in Table 3) exceed the proposed habitat buffers plus safety buffer shown in Table 3 (eg Resource Conservancy Table 3 total buffer widths 250 feet for non-exceptional feeder bluffs or Natural Table 3 total buffer widths 275 feet for non-exceptional feeder bluffs).

My recommendations would provide predictability for property owners (Approach for Developing Buffer Recommendations, Memorandum page 4), but could be more costly and time consuming to administer because it could make some properties more difficult or impossible to develop without exemptions from the SMP. However, I suspect administrative cost and time are not a consideration in WAC 173-26, otherwise why even propose a no net loss strategy. There may be some lots less than 200 feet in depth from OHWM where Minor New Development is difficult or impossible with a 100 foot buffer, but I believe all of these lots need to obtain a variance for any development if no net loss is the goal. A variance could be obtained for Minor New Development on possibly most of these lots if the developer could show how no net loss could be achieved (eg. building up instead of out, installing pervious surfaces, removing lawn area and planting native vegetation, installing rain gardens, etc.).

The last sentence on page 7, "The proposed strategy opts for a minimum buffer based on the latest bluff mapping and provides allowances for buffer reduction when wider buffers are demonstrated to be unnecessary based on site-specific investigation" seems counter to no net loss to me. A no net loss strategy would seem to me to be to set the buffer widths at a maximum and allow buffer reduction if it could be demonstrated that narrower buffers would not result in a net loss or mitigation would preclude a net loss.

I'm puzzled by the last bullet point on page 8. It states that "Total clearing/land disturbance within shoreline jurisdiction cannot exceed 15% of parcel area or twenty thousand (20,000) square feet,...." This criteria is suppose to only apply to single-family residential developments on small lots. For 15% of a lot to = 20,000 sq. ft., the lot size would have to be $20,000/.15$ or 133,333 sq.ft. This does not seem like a small lot to me. It could be a 670 foot deep by 200 feet wide lot! How was the 20,000 sq. ft. maximum determined. Is this 20,000 sq. ft. a mistake?

I'm also puzzled by the first bullet point on page 9. It states that "Impervious area (including structures within shoreline jurisdiction can be up to the lesser of five percent (5%) of the total parcel area or six thousand five hundred (6,500) square feet,..." For 5% of a lot to = 6,500 sq. ft., the lot size would have to be $6,500/.05$ or 130,000 sq. ft. Again a lot that could be 650 feet deep by 200 feet wide, doesn't seem like a small lot to me. How was the 6,500 sq. ft. maximum determined?

Given my interpretation of Figure 1, Tables 1 and 2, and Table 4, it appears to me that "no net loss" is being defined in this memorandum as the percentage of shoreline that has a minimum buffer of 50 feet or 2.6% of the shoreline covered in the proposed SMP for Clallam County. I base this on Figure 1 which shows me that only the Stream Temperature Control category is maximally achieved with a minimum 50 foot buffer. With my recommended minimum buffer width of 100 feet, one could argue that only Stream Temperature Control, LWD Recruitment, and Erosion Control & Sediment Removal are maximally achieved. One could argue that there is a net loss unless all 6 categories of habitat protection in Figure 1 are maximally achieved. Is there anything in WAC 173-26 that implies that maximally achieving only one of the six categories shown in Figure 1 is considered no net loss? Perhaps this is what Clallam County vs Western Washington Growth Management Board case determined?

On page 11, under "The rationale for the recommended buffers is as follows:", first bullet, why is it that just because the existing vegetated buffers are generally narrow and patchy one can conclude a wider habitat buffer would not necessarily result in better ecological functioning? Doesn't Figure 1 and Table 1 show that wider buffers provide better ecological function? Doesn't the scientific literature show that the wider the buffer the better the ecological function? Wasn't WAC 173-26 written, in part, because existing vegetated buffers did not provide no net loss?

In the second bullet, under "The rationale for the recommended buffers is as follows:" the statement: "While a 50-foot buffer is below the minimum recommended buffer width for SOME of the buffer ranges in the scientific literature (Tables 1 and 2)...," (emphases mine). My review of Figure 1 is that MOST of the recommended buffer widths in Table 3 are below what should be recommended buffer widths to achieve no net loss. The bullet goes on to state: "...many of these studies were based upon unaltered riparian areas." This indicates to me that if an area is proposed to be altered, it should have maximum buffers rather than minimum buffers. Isn't part of the reason we have endangered species listings and WAC 173-26 that we have had minimum or no buffers for the past 30 to 50 years? How are we ever going to claim we are attempting to achieve no net loss if we continue with minimum buffer widths?

Under the Shoreline Residential - Intensive Shorelines, page 12, the entire rationale for the minimum 50 foot buffer recommendation seems totally backward to me. The last 2 sentences in the first paragraph say to me that what exists now has not been sufficient to prevent endangered species listings and no net loss. This all cries out to me that on these small lots where the buffers are narrow and natural vegetation sparse, there must be a review of all proposed development to determine how to improve the ecological function of the buffers or net loss will continue as in the past!

My review of Tables 1 and 2 indicated to me that most buffer functions will not be adequately protected with 50-foot buffers, and if the buffers cannot be enlarged to 100 feet, then the buffer functions need to be enhanced or proposed development must be done so as to not impact ecological functions. If this is not done, I don't see how the County can achieve no net loss.

On page 12, under "The rationale for recommended buffers is as follows:", Shoreline Residential - Conservancy Shorelines, the last sentence of the second bullet indicates to me that since "analysis shows that areas with larger parcel sizes generally have more intact and high functioning buffers to begin with" that smaller parcels either need to have larger buffers, if possible, the buffer functions need to be enhanced, or the proposed development must be done so as to not impact ecological functions.

It seems to me that what the last bullet on page 12 doesn't say or even imply that habitat buffers of 100 to 125 feet will allow development that does not impair ecological functions. If Clallam County is to achieve no net loss, there must be 150 foot buffers where possible for Shoreline Residential - Conservancy. If this is not possible due to lot depth, then improved buffer function or development that does not impair ecological functions must be required. Future development within the SMP shoreline jurisdiction that impairs ecological functions is unacceptable in my view.

Page 13, second bullet, Resource Conservancy Shorelines, "The rationale for recommended 150-foot habitat buffer is as follows:", may be "within the range of appropriate buffer widths for functions..." but they don't achieve the maximum ecological function for fish & wildlife habitat according to Figure 1 and Tables 1 and 2. I believe unless the buffer widths are not set toward the maximum width for fish and wildlife habitat, my recommendation for this designation is 200 feet, then the likelihood of achieving no net loss will be reduced.

Page 13, second bullet, Natural Shorelines, "The rationale for the recommended buffer is as follows", I believe to ensure no net loss along natural shorelines there should be no

development within the SMP shoreline jurisdiction, thus my recommendation for 200 foot buffers.

Page 15, third bullet, "Other Buffer Recommendations," although it may be true that new development and redevelopment will not result in a significant decrease in the shoreline vegetation, it does not necessarily follow that there will be no net loss in ecological function of Lake Sutherland.

Aquaculture:

From reviewing the recommendations for Aquaculture from Jefferson County it appears to me that some of the Jefferson County recommendations were incorporated verbatim while others were left out completely. Why not include all recommendations from Jefferson County?

The only sure way to ensure there is no net loss as a result of fin fish aquaculture is to not allow in-water finfish aquaculture and only allow self contained shore based aquaculture for all finfish. Anything less than this has the potential for net loss of native fish through escape and interbreeding of native fish and aquaculture fish, disease transmission from aquaculture fish to native fish, and development of "super" pathogens for which native fish have no natural immunity through feeding of antibiotics to aquaculture fish and use of pesticides in open water net pens.

Page 3-2, 3.2.2 Policies, #1, Sentence 2 should be removed. It is unclear to me what long-term benefits finfish aquaculture could provide to the ecology of the shoreline even if it is "properly managed." There could be long-term economic benefit to the owners of the net pen operation and some economic benefit to Clallam County depending on how the operations are managed and possible processing of finfish in the County. I take exception to the third sentence that states in part "Aquacultureis a preferred use of water area when pollution is controlled...." It is my view that if pollution is NOT PREVENTED finfish aquaculture must not be allowed.

Page 3-3, 3.2.2 Policies, #3, The phrase "significant adverse effect" is used in letters b and c (and other places in the Aquaculture section). Significant adverse effect is not defined in Chapter 7; however, "substantially degrade" is defined. I suggest searching this entire section and replacing "significant adverse effect" with "substantially degrade." Also, a letter "d" should be added to #3 that states something like "...will not "Interfere with tribal treaty fishing sites." County agencies should be added to the list (second line) "evaluated and approved by state and federal agencies."

Page 3-3, 3.2.2 Policies, #4, experimental finfish aquaculture should not be allowed in open water until the effects can be adequately understood. In the second sentence the word "genera" should be replaced with "species or GMO altered species."

Page 3-3, 3.2.2 Policies, #5, commercial aquaculture operations that propagate non-native fish species should not be allowed at all unless the operations are conducted in upland systems, fully self-contained aquatic systems or can be proven to present NO RISK of escapement, disease transmission, or waste-related environmental impacts. To allow less than this risks net loss of native fish. I have no idea how one would define "low risk of escapement, disease transmission, or significant waste-related environmental impacts." "Low risk" and "significant waste-related environmental impacts" are not defined in Chapter 7.

Page 3-3, 3.2.2 Policies, #8, it is unclear to me how this can relate to finfish aquaculture. I can think of no way that finfish aquaculture could enhance or rehabilitate water bodies and their adjacent habitat; however, I can think of a number of ways the degradation of water bodies and their adjacent habitat could occur. It is also unclear that shellfish aquaculture in all cases would enhance or rehabilitate a water body and adjacent habitat if native plants

and animals are removed or replaced with cultured species. I suggest #8 be removed from the document.

Page 3-3, 3.2.2 Policies, #9, the County must review any proposals for new aquaculture development not just for the potential to thwart or compromise planned restoration but also for existing resources that could be compromised (eg. macro algae, salmon, forage fish, clams, oysters, etc.).

Page 3-4, 3.2.3, A new permit must be required for changing species or a GMO variant of the same species at any existing or permitted aquaculture operation. A change in species does not necessarily mean that feeding, disease treatment, etc. regimes will remain the same as with the previously reared species.

Page 3-4, 3.2.3, #3, a, Remove one of the "the physical extent of" in the first line of the first sentence. Allowing an increase in the size of an existing operation to expand by 24.9% or any percentage without a review of the previous years of operation and the potential cumulative impacts of the proposed size increase is a mistake. At a minimum, a review of the operation must determine if the facility is operating per the plan projections listed in 3.2.3, #11, page 3-8. For finfish operations the review must also examine previous years operations for escaping fish, unanticipated disease treatments and mortalities, accumulation of pollutants, chemicals and/or antibiotics in the bottom sediments below and in the immediate vicinity of the operation. Any deviation from the plan projections submitted with the original application, escaping fish, unanticipated disease treatments and significant mortalities (more than 5% of the fish), accumulation of pollutants, chemicals, and/or antibiotics must trigger a requirement for a new permit application.

Page 3-4, 3.2.3, #3, b, If a permit holder proposes to cultivate any SPECIES not previously cultivated in Washington, a new permit must be required.

Page 3-4, 3.2.3, #4, Letters "e" and "f" need to be added to this section as follows: (not considered development and not required to obtain a shoreline development permit unless:) e. The activity involves seeding, planting, cultivating, raising and/or harvesting non-native species not previously cultivated in Washington. f. The activity involves removal of macro algae (eg. eel grass).

Page 3-4, 3.2.3, #5, b, It is not clear to me how this Regulation fits with 2.2.3, #10, o, that limits individual operations to 2 acres of surface coverage and no more than one operation per square nautical mile. Number 5, "b" seems to limit an individual operation to one acre. Would an individual operation be able to have 2 one acre net pens within a square nautical mile? How is an "individual operation" defined? Is it one owner/company? If so, could more than one owner/company each have 2 one acre net pens within a square nautical mile? Houston, I think we have a problem here!

Page 3-4, 3.2.3, #6, If I understand Table 2-2 correctly, finfish net pens are required to obtain a conditional use permit and are "restricted" to those areas in the aquatic environment off of Shoreline Environment Designations: Shoreline Residential-Intensive, Shoreline Residential-Conservancy, and Resource Conservancy (91.3% of the Clallam County [SMP] administered shoreline from Table 4 of the proposed shoreline buffer widths memorandum). What is the reason for not permitting finfish net pens off Designation Marine Waterfront? Is this because net pens could interfere with navigation and/or the Marine Waterfront consists of such a small area of Clallam County administered shoreline (0.2% according to Table 4 mentioned above)? What are the aquaculture activities other than geoducks or finfish, oysters and mussels? Would mussel racks (included as a structure in chapter 7) interfere with navigation? Would anyone really want to locate their aquaculture off of a Marine Waterfront? Why not just change Marine Waterfront to Prohibited for in-water aquaculture? Would it be too much of an imposition on the shellfish industry to exclude

shellfish operations off of the Natural Designation (which seems appropriate to me) given that the area consists of only 6.8% of the Clallam County [SMP] administered shoreline?

Page 3-5, 3.2.2, #6, c, This regulation seems to be a loop hole that could make #6, d a moot regulation. What is the height and size of the "moored watercraft for sleeping or work quarters?" If it is more than the six (6) foot height in letter "d" then isn't defeating the purpose of letter "d" regulation? I can understand the need for a vessel for access to a net pen facility, but this regulation seems to me to open the door for long term or permanent mooring of a taller than 6 foot vessel alongside of a net pen facility. Some changes are needed here!

Page 3-5, 3.2.3, #6, e, No time frame is required for removal of abandoned or failed aquaculture equipment from water and/or the adjacent shoreline buffer. I suggest within a year of abandonment or failure.

Page 3-5, 3.2.3, #6, g, I'm puzzled as to how one would mitigate for interfering with intracoastal or international navigation routes, or access to adjacent waterfront properties, public recreation areas, or Tribal harvest areas. I suspect that interfering with international navigation is against Federal law, and maybe international law. Why not just state that "Aquaculture use and development shall not interfere with..." and not have a need for some kind of speculative mitigation? "Significant adverse impact" fourth line needs to be replaced with "substantially degrade."

Page 3-5, 3.2.3, #6, h, Aquaculture must not scour, shade or substantially degrade existing red/brown macroalgae and eelgrass, period. Trading the benefits of macroalgae and eelgrass for native salmon and forage fish for the "beneficial effects that shellfish species can have on water quality" is not acceptable. The cumulative effect of "trading" macroalgae benefits for shellfish could lead to the listing of macroalgae and eelgrass as critical habitat for endangered salmon, and possibly forage fish, if macroalgae and eelgrass aren't already listed as such. "Significant adverse impacts" in the third line is not defined in Chapter 7. A search of this phrase is needed and replacement by "substantially degrade."

Page 3-5, 3.2.3, #6, i, "Significant ecological impacts," and "significantly impact" are not defined in Chapter 7. Perhaps "substantially degrades" would work? However, I see no way to determine that the spread of disease to native aquatic life and the establishment of new nonnative species is detected before there is substantial degradation of the shoreline without rigorous expensive monitoring of the entire Clallam County shoreline! The only way to ensure this does not happen is to locate finfish aquaculture on land.

Page 3-6, 3.2.3, #7, I believe an Administrator (prior to approving a permit) must also consult, or make sure this has been done by a State or Federal agency, a group of aquaculture experts from State and Federal agencies, private industry and knowledgeable citizens to determine the possibilities of substantial degradation of natural resources as a result of a finfish aquaculture facility.

Page 3-6, 3.2.3, #8, The potential for disease and spread of viruses and parasites from finfish aquaculture to native wild and hatchery fish should be added to the information an Administrator may require.

Prior to issuing any permit the Administrator must know the location of the proposed site and MUST REQUIRE a resources assessment of the proposed site. This assessment must include, at a minimum, shoreline bathymetric features, bottom type, current patterns, tidal influences, types and average densities of plants and animals present on proposed shellfish aquaculture sites and under proposed in-water net pen sites (to include as a minimum Geoducks, hardshell clams, Dungeness crabs, fish, sea urchins, sea cucumbers, scallops, abalone, shrimp and attached marine vegetation including eel grass, kelp beds and other macro algae), a substrate baseline assessment for expected chemicals to be used, types and quantities of anticipated

waste materials to include aquaculture by-products and toxic materials. For in-water finfish aquaculture, these required items MUST be part of the operations plan (#11, page 3-8).

Page 3-7, 3.2.3, #10, a, The word "minimize" should be removed from this regulation for finfish aquaculture. I don't know how "minimize" could be defined for release of herbicides, pesticides, antibiotics, fertilizers, parasites, viruses, and pharmaceuticals. Hormones should be added to this list. Who would determine what is a "minimum" release of these items? Release of non-indigenous species and genetically modified organisms should not be allowed. There is no acceptable minimum release of these species. Even the regulation for a "minimized" release of feed seems to me to be not useful, since it is to the operator's financial advantage to "minimize" the food fed to finfish in net pens. Any feed falling through the pens and not adding to the weight of the fish in the pens is a loss to the operators.

Page 3-7, 3.2.3, #10, b, The basis for the minimum required depth of water below the bottom of any in-water finfish aquaculture facility comes from the 1986 Interim Guidelines. These Guidelines are now 26-years-old and are "Interim." Have they been updated?

Page 3-7, 3.2.2, #10, c, What is the source of this criteria? What studies have shown that any current velocity above 0.1 knots is sufficient to prevent accumulation of solids under net pens (which is what I assume the criteria is attempting to prevent as in letters "d" & "e").

Page 3-7, 3.2.3, #10, d, Again it is unclear how or who would make the decision that "the depth and lateral extent of solids accumulated" is minimized. Is the depth and lateral extent of solids accumulated measured under existing net pens in Washington? If not, it should be measured at least annually. This should be a requirement of obtaining a permit. If fish are held in the net pens for only part of a year, the accumulated solids should be measured immediately before the fish are put into the pens and immediately after they are removed. The solids must also be tested for the potential accumulation of herbicides, pesticides, antibiotics, fertilizers, parasites, viruses, pharmaceuticals, hormones and undigested fish food at the time of fish removal, or at least once a year if fish remain in the pens year around.

Page 3-7, 3.2.3, #10, f, This regulation seems too open ended to me for all potential locations of net pens. I would expect that the maximum annual production in pounds would depend on currents, tidal influence, and possibly the depth of water under the pens, not just the square nautical mile. I suggest an additional sentence be added stating that the maximum annual production may be reduced based on the currents, tidal influence, and water depth and other pertinent items where net pens are proposed.

Page 3-7, 3.2.3, #10, f, What is the basis for this criteria? It seems to me that it sets up the potential for all net pen operators to produce 1,000,000 pounds annually whether the location, bathymetric features, depth, currents, tidal influences, etc. are appropriate for a production this large. I suggest a sentence that says that this maximum production may be reduced depending on the conditions at the proposed aquaculture site.

Page 3-7, 3.2.3, #10, g, This regulation is far too general. The information should also be reported to Clallam County as well as the State. It is unclear what is meant by "all necessary precautions." In my view, "all necessary precautions" would be locating finfish aquaculture on land, not in open water. Much greater specifics are needed in this regulation. How is the operator to "ensure that nearby sediments and shellfish do not accumulate significant amounts of antibiotics?" What is a "significant amount" and who will determine that? How shall this be measured? What is the sample size for sediments and shellfish? What is the sampling procedure? How frequently should the sampling be done? The operator should also be ensuring that sediments and shellfish are not accumulating herbicides, pesticides, fertilizers, parasites, viruses, hormones and pharmaceuticals as

well. Local streams near a location of a in-water net pen must also be sampled for cultured species that could interbreed or establish in those streams. The operator of the net pens must pay State biologist or State approved consultant, for all sampling required, including sediments and shellfish. All information collected must be reported to Clallam County as well as the State and be available at public libraries to interested citizens. This sampling needs to be done annually for at least the first five (5) years of operation of any facility and could be done less frequently, maybe once every 5 years, as long as there have been no changes from the initial operating plan, no accumulation in sediment or shellfish of chemicals used in the operation of the facility, no indication of spread of viruses or parasites, and no escapement of cultured finfish. If any of the above are detected, the operation must cease until it can be determined why the "necessary precautions" were not successful and corrective actions have taken place.

In addition, I believe monitoring of surrounding sediments must be required annually where PVC pipe is used in geoduck aquaculture to determine if harmful materials are accumulating in the sediments and/or in the cultured geoducks similar to that described for finfish above. Again, sample sizes and techniques must be specified in the regulation.

Page 3-7, 3.2.3, #10, h, Distance and depth criteria are provided for location of in-water finfish aquaculture facilities from critical habitats to avoid (should be "prevent") "significant adverse impacts" (should be "substantially degrade" since "significant adverse impacts" is not defined in Chapter 7); however, no basis is provided for the criteria? Is this part of an RCW, a WAC, or the 1986 Interim Guidelines?

Page 3-7, 3.2.3, #10, i, What are these "existing State and federal regulations" that ensure importation of new and/or non-native species do not adversely affect existing and/or native species? RCWs and WACs are listed in letter "m," so why not list the State and federal regulations here? If existing State and federal regulations for existing in-water aquaculture facilities are insufficient to prevent substantial degradation then a operational changes and anew permit is needed to eliminate this problem.

Page 3-7, 3.2.3, #10, j, Again, what are the State and federal requirements that state in-water finfish aquaculture facilities should use stocks with the greatest genetic similarity to local stocks? These requirements don't seem to me to be very stringent given Atlantic salmon are reared in in-water net pens in Washington and there are no genetically similar local stocks in Washington State waters, I hope! County requirements should be added to the State and federal.

Page 3-7, 3.2.3, #10, k, This regulation is not strong enough and should be the FIRST regulation in this list. As long as there is any potential for fish to escape from in-water finfish aquaculture facilities, there is a risk of interbreeding and/or establishment of naturalized populations of cultured species. All finfish reared in in-water aquaculture facilities must be sterile. This may not prevent interbreeding and/or establishment of naturalized populations, since there is likely no feasible way to ensure that every fish in the net pens is sterile. However, sexually sterilizing finfish before they enter the net pen will certainly reduce the potential for escaping fish interbreeding with wild fish or establishing naturalized populations.

Page 3-7, 3.2.3, #10, l, County guidance as well as State is needed here (last line). Based on my experience with straying of hatchery fish in the Columbia River, I don't believe there is any in-water finfish net pen location that is a sufficient distance from river mouths that would prevent genetic degradation of wild fish as long as there is any potential for cultured fish to escape from the in-water net pens and the cultured fish are capable of reproducing in the wild. Genetic degradation is not the only problem, there is also the problem of spreading of pathogens and disease. Jefferson County recommended net pens be located at least two nautical miles from Type I rivers and streams and one nautical mile from

Type II streams. That might help, but I still don't think it would prevent cultured fish that escape from entering the streams based on my experience with straying of hatchery fish.

Page 3-7, 3.2.3, #10, m, The use of regional broodstock should be required, not just preferred. This would not, however, prevent the spread of pathogens and disease to wild fish if cultured fish escape from in-water aquaculture facilities and are resistant but carriers of pathogens and diseases due to treatments while reared in the net pens.

Page 3-8, 3.2.3, #10, n, How will "high density residential development" be defined and who will make this determination. The offshore minimums for in-water finfish aquaculture facilities appear to be the same as those recommended by Jefferson County, are these distances part of a RCW, a WAC, or the 1986 Interim Guidelines?

Page 3-8, 3.2.3, #10, o, What is the basis for the 2 acres of surface coverage per square nautical mile? Is this in a RCW, a WAC, or the 1986 Interim Guidelines? Would this not also be determined by location of the facility, the tidal influence, currents, and possibly the water depth? I suggest a sentence saying the allowed coverage may be less than this maximum based on location and local conditions.

Page 3-8, 3.2.3, #10, p, It seems to me that these criteria should be part of #11.

Page 3-8, 3.2.3, #10, q, Baseline and periodic surveys, assessments, and operational monitoring must be REQUIRED at least annually and made available to the public at Clallam County libraries. The monitoring must be conducted by State biologist, paid by the operator, or a qualified consultant approved by appropriate State agencies.

Page 3-8, 3.2.3, #11, Potential diseases and pathogens, treatments, and a photo or computer simulation demonstrating the development's appearance from shore should also be added to this list. The SMP must make the reporting of these items as well as those in #10, q, part of an annual report to be submitted to the State and Clallam County and made available to the public at County libraries.

An additional regulation needs to be added requiring any potential operator of an in-water finfish net pen to provide a bond to fund the removal of any abandoned or failed aquaculture facility that at least equals the value of the facility and the gross value of the annual facility production.

It would seem appropriate to me that a disaster plan for net pens being swept from moorings into navigation lanes be included as part of the proposal to be submitted to the county. Given the amount and size of the shipping in the Strait of Juan de Fuca off the Clallam County shoreland, I think net pens that could come loose from moorings and be run down by a large vessel a major concern.

Before any permits are issued for in-water finfish aquaculture facilities, a review/consultation with citizens whose view could be impacted (eg. Shoreline Residential - Intensive & Conservancy, Table 2-2) is needed. The natural shoreline views are an important economic asset of Clallam County. A two acre facility 2000 feet offshore from residential coastal property could very well have a negative impact on property values.

Also, before any permit is issued, local tribes must be consulted. After all, they have Federal Treaty fishing rights. There seems to me to be little acknowledgement or emphasis of the Tribal Treaty fishing rights in the Aquaculture section.

