

Appendix B
January 9, 2008 letter from Ecology to Rayonier



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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CERTIFIED MAIL

January 9, 2008

Carla Yetter
Director, Environmental Affairs
Rayonier Properties LLC
50 North Laura Street
Jacksonville, FL 32202

Dear Ms. Yetter:

Re: Ecology Comments on the Remedial Investigation for the Marine Environment,
Port Angeles Rayonier Mill Site

The Washington State Department of Ecology (Ecology) is responding to the Response to Comments provided by Rayonier Properties LLC (Rayonier) on September 9 and 13, 2007 on the following documents:

- Remedial Investigation for the Marine Environment Near the Former Rayonier Mill Site Port Angeles, Washington, Public Review Draft, February 2007 (MRI)
- Phase 2 Addendum Remedial Investigation for the Marine Environment Near the Former Rayonier Mill Site Port Angeles, Washington, Agency Review Draft (Public Review Draft proposed with comments provided September 2007), February 2007 (MRI Ph 2), and
- Ecological Risk Assessment for the Marine Environment Near the Former Rayonier Mill Site Port Angeles, Washington, Agency Review Draft, (Public Review Draft proposed with comments provided September 2007), March 2006 (ERA).

While these documents were developed outside of the new Agreed Order, Ecology is operating under the spirit of the order. After review of Rayonier's Response to Comments, Ecology has determined that the documents are insufficient for release for public review. Data gaps still exist which have not been adequately addressed. These inadequacies must be addressed by Rayonier prior to release for public review, and are based on specific comments provided by Ecology and the Lower Elwha Klallam Tribe (LEKT). Enclosed are specific comments as to what changes and additional information is needed in order for Ecology to approve the documents for public review.



As you will note in the enclosed comments, Ecology has determined that additional sediment sampling is necessary to address the data gaps. Hence, a Sampling and Analysis Plan (SAP) detailing the additional sampling must be submitted for Ecology review and approval within 45 days of receipt of this letter. Ecology expects a schedule for completion of the Marine Remedial Investigation (MRI) and Ecological Risk Assessment (ERA) to be included in the SAP submitted as response to this letter. A request for an extension of schedule for submittal of these documents, as outlined in section VIII. K. of Agreed Order 08-TC-S DE5341, shall also be included. Sampling should begin as early as possible in 2008. As we are all striving for completion of the MRI and ERA as quickly as possible, Ecology will commit to review of the draft SAP within 28 calendar days or sooner.

The enclosed comments also note specific revisions needed in the documents. Ecology is not looking for responses to these comments except as full incorporation into the deliverables. All revisions to documents (past and future) must be fully integrated into the documents (i.e., no revision pages). Ecology expects the revisions and incorporation of new data to be submitted in a single comprehensive Marine Remedial Investigation Report, and an Ecological Risk Assessment. To be clear, we expect the information of the Phase 2 MRI to be incorporated into the MRI and ERA, along with the new data so there are just two comprehensive documents. We will consider these two documents to be the revised Public Review draft. Our expectation is submittal in October 2008.

We look forward to completing the Marine Remedial Investigation and Ecological Risk Assessment for the Study Area. As our comments are extensive, I suggest a meeting or conference call to discuss any questions or concerns you may have. I may be reached at (360)407-6257.

Sincerely,



Marian L. Abbett, P.E.
Project Coordinator
Toxics Cleanup Program
Southwest Regional Office

MLA/CME/ksc:MRI Cover Letter

Enclosure

cc: Rebecca S. Lawson, P.E., LHg, Ecology
Roy Hummell, Malcom Pirnie
Larry Dunn, Lower Elwha Klallam Tribe
Bill Beckley, Ridolfi Inc.

General and Specific Comments:

Review of Response to Comments Provided by Rayonier on the Remedial Investigation, Phase 2 Addendum, and Ecological Risk Assessment for the Marine Environment Near the Former Rayonier Mill Site (Public Review Drafts), September 2007

General Comments:

The following general comments detail major issues to be addressed. Ecology has provided specific actions needed to fully address the deficiencies in the documents.

- 1) **Study Area Delineation Incomplete.** Rayonier has not sufficiently delineated the marine environment portion of the Study Area as now defined in Agreed Order 08-TC-S DE5341 signed by Rayonier in November 2007. In particular, the vertical extent of contamination is lacking, and there is insufficient characterization in the areas near the mouth of Ennis Creek, east of Ennis Creek, the Log Pond area, the Mill Dock area, and areas near outfalls. In addition, the EPA ESI (ENE 1998) data, while described in the MRI, was not used as part of the analysis in the ERA.

With regard to sediment core analysis:

- a. Section 5.1, MRI states, "... within Puget Sound, the residence time of particles from the top 10 cm is 29 years (Carpenter et al., 1985)." If samples for the MRI were collected in 2006, sampling is sufficient for the 1977-2006 timeframe. Rayonier has been operating since 1937 and analysis of subsurface sediments likely affected from runoff, outfalls, and air emissions as stated in the MRI has therefore not been performed. Core sampling in the Study Area is necessary. Depth of the wood debris around the Mill Dock and Log Pond areas has not been delineated and should be investigated using a hammered piston corer or similar device.
- b. The statement "Deeper subsurface sediments, which are represented in core samples, are areas that support few organisms and experience very little disturbance. Therefore, chemicals present in these areas do not have completed exposure pathways to organisms, and thus do not present risks, unless future actions such as dredging expose the subsurface sediments." (MRI, Section 5.1, page 5-2) is invalid. Geoducks and horse clams, highlighted on Table 3-1 (MRI) and used in the ERA, are a known prey species to both humans and ecological receptors, particularly to the LEKT and local residents, and are known to burrow 3-4 feet. The presence of these two species alone suggests a pathway to subsurface sediments exists.
- c. Sampling sediment cores only if surface samples exceeded the SMS (Section 5.1.2, page 5-5, second paragraph) is scientifically invalid, inconsistent with MICA, and scientific reasoning unsupported in MRI documentation. Lack of erosion in this area has not been adequately documented in the MRI.

ACTION:

1. A Sampling and Analysis Plan (SAP) should be prepared to include:

- a. Surface sediment and sediment cores to be taken in the Study Area and analyzed for contaminants of potential concern (COPCs, MRI Section 5.1.2) and conventionals. The data will be used to understand contaminant levels, potential risk to ecological and human health receptors, and potential remedial alternatives to be evaluated in the Feasibility Study. Ecology's expectation –
 - Twenty to thirty cores total within the Study Area as defined in Agreed Order 08-TC-S DE5341 to characterize the Log Pond, Mill Dock, Ennis Creek, east of Ennis Creek, outfall areas, and deep water outfall. Five to seven core samples to be collected and analyzed in each area to further vertically and horizontally delineate the site.
 - Core samples should be taken as outlined in the MRI and analyzed for every foot of depth to the depth of penetration. Ecology expects core depth to be a minimum of four feet to represent burrowing clam depths and defined deposition rate in Port Angeles Harbor.
- b. Additional sampling at the mouth of Ennis Creek around the bridge pilings and alluvial fan, the area east of the Mill Dock, and the area east of Ennis Creek. TPH and PCBs should be analyzed in these areas to characterize the areas influenced by Ennis Creek and the fuel release which occurred during the interim action performed in this area. Ecology's expectation –
 - Five to ten surface samples east of the mouth of Ennis Creek, with at minimum five co-located core samples, analyzed to include TPH and PCBs and collected as described above.
 - Five surface samples east of the Mill Dock area and three to five co-located core samples based on SMS exceedances, wood debris, or COPCs lacking an SMS. Core samples should be taken as outlined in the MRI and analyzed for every foot of depth thereafter to the depth of penetration and include TPH and PCBs. Ecology expects core depth to be a minimum of four feet to represent burrowing clam depths and defined deposition rate in Port Angeles Harbor.
 - Three surface and core samples around the bridge pilings and alluvial fan area, to include TPH and PCBs.

c. Depth of the wood debris around the Mill Dock and Log Pond areas has not been delineated. It is important to understand the depth of the wood debris in order to evaluate remedial alternatives that include wood debris removal. Ecology's expectation -

- Five core samples for each the Log Pond and Mill Dock areas to characterize the depth of the wood debris, and any additional areas found to have a significant accumulation of wood debris. A hammer-equipped piston corer or similar device should be used to ensure penetration.

2. Data obtained should be incorporated into the revised MRI and ERA as appropriate. In addition, the EPA ESI (ENE 1998) data should be incorporated in the ERA.

2) **Evaluation of Pathways Incomplete.** The groundwater to sediment pathway, and the air emissions to surface water/sediment pathway has not been sufficiently modeled in the Conceptual Site Model of the ERA. The MRI identifies these as potential sources, but modeling that source has not been adequately characterized. In the MRI Ph2 Technical Document, a single 1995 ash stack emission characterization is used. Other available source data from the Uplands RI should be included in this fingerprinting analysis.

ACTION: Groundwater to sediment and air to sediment/surface water must be properly characterized in the ERA if identified as a potential source in the MRI. The SAP and MRI should include modeled isopleths predicting depositional loading from historic stack emissions beyond the shoreline to the marine environment (e.g. into Port Angeles Harbor) as well as the potential risk from these sources; this data should be included in the revised MRI and ERA as appropriate. In addition, Ecology directs that Upland site depositional soil data for dioxin/furans should be used for the fingerprinting analysis in absence of sufficient stack emission data. The plan for use of this information should be included in the SAP and result in **document revisions**.

3) **Fingerprinting Analysis Insufficient.** Ecology is not convinced that dioxins/furans have been appropriately fingerprinted at the Site to potentially affected area wide sediments. Rayonier mentions on more than one occasion in the MRI Ph 2 Section 4 that the dioxin congener pattern is highly reproducible: within the log pond >91%, the west end of the harbor >95%, and that the correlation between the average patterns in the two areas is greater than 99%. There does appear to be a distinct, highly reproducible pattern among the likely impact areas around the site.

ACTION: Ecology directs a reanalysis of sources at Rayonier and impacted areas of the site using the site depositional soil data as indicated above in General Comment #2. Five samples should be used at minimum for appropriate statistical power. Rayonier should also utilize dioxin data for site sources including ash, hog fuel

boilers, and others, collected and reported in the Current Situation/Site Conceptual Model Report (Foster Wheeler, 1997), if applicable. If the data is not appropriate or applicable for use, Rayonier must state why this data is not usable for this fingerprinting analysis. A statistical approach to consider is the Polytopic Vector Analysis approach which appears to have greater discerning power among potential sources and in tracing fate of contaminants over time and space. It has the advantage of not depending on *a priori* assumptions regarding separate sources and can track apparent linking between dechlorinated signatures and the parent signature/sources that gave rise to it. The process may aid in distinguishing different sources in tissues as well. EPA's fingerprinting method, FALCON, requires *a priori* assumptions regarding different sources which may lead to biased testing/comparisons.

Document revisions should include reanalysis using the new soil source data and the statistical analysis used.

- 4) **Subsurface Current, Sediment Fate and Transport Investigation not Characterized.** Ecology is not convinced that Port Angeles Harbor is out of the area of influence of Rayonier runoff, former outfalls, and effluents. A bottom current study has not been performed; surface water transport is not adequate to describe transport of sediments and currents at depth, particularly at the deep water outfall over the years. Local evidence from the LEKI suggests deeper currents move in a clockwise, not counterclockwise fashion, in the Harbor. Deposition areas have not been sampled as identified in the Modeling conducted by Battelle (Section 7.5 MRI).

ACTION: Ecology will be conducting an investigation into sediment fate and transport, and subsurface and bottom current strength and direction as part of the Harbor Wide Investigation. Ecology will make every effort to have our study run concurrent with the Rayonier sediment data collection so as to not cause further delays. Ecology directs that Rayonier utilize the information gained from this study to completely understand the marine processes occurring in Port Angeles Harbor, and include analysis and use of the data in the **document revisions**.

- 5) **Reference, Natural and Area Background Inappropriate or Inconsistent across Documents.** The difference between Reference Areas, Natural Background, and Area Background needs to be consistent across all three documents. Selection of Port Angeles Harbor as an Area Background as defined by MICA is not appropriate; lack of influence of Rayonier operations on the Harbor has not been adequately demonstrated in the MRI. Natural Background and Reference Areas, including Freshwater Bay, Dungeness Bay, and Sequim Bay are appropriate.

ACTION: Ecology directs that all references to Port Angeles Harbor as an Area Background or background, and therefore comparison to Study Area sediments, be removed from all documents. Consistency across documents in use of the term background or Reference Area should be made when referring to the three areas investigated (Freshwater Bay, Dungeness Bay, and Sequim Bay). Comparison of Site sediment bioassays to the designated Reference Area (Sequim Bay) and Site sediment chemical analysis to the local, appropriate natural background areas (Freshwater

and/or Dungeness Bay) as defined by grain size and TOC as an evaluation step should be performed in **document revisions**. Call outs to these three areas in documents should be consistent as either reference areas (Sequim Bay) or natural background (local bay areas).

- 6) **Bioassay Analyses Insufficient.** Bioassays are needed to determine contaminant affects of sediment to benthic populations since many contaminants of potential concern (COPCs) do not have SMS/CSL criteria. Bioassays were only conducted in the Log Pond for purposes of determining wood debris affects initially. Using bioassays only where SMS were exceeded in surface sediments is inadequate to characterize the site (see General Comment #1).

ACTION: Ecology directs that bioassays be conducted across the Study Area to determine: 1) the effects of Rayonier COPCs not having an SMS, such as resins and fatty acids; 2) the effects of COPCs which exceed the Reference Area sediment concentrations; and 3) the effects of wood debris in other areas such as the Mill dock, and the Ennis creek influence area (described in General Comment #1).

The **SAP** should include plans for this bioassay study. Bioassays should not be purged as this removes ammonia and sulfates which may be present from wood debris. All references to past purged bioassay data should be removed from the documents as well. Ecology expects that bioassays (as defined in WAC 173-204-310 through 315) will be taken to further characterize surface samples (0-10 cm) and include co-located sampling areas identified in General Comment #1. Bioassays should be taken where SMS are exceeded, where no SMS exist for COPCs, and in wood debris areas. Ecology expects approximately the following number of bioassay samples to be collected in the indicated areas:

- Five to seven bioassays in the Mill Dock area.
- Five bioassays in the deeper outfall area.
- Five bioassays east of the Mill Dock area.
- Five to seven bioassays east of the Ennis Creek area, to include the alluvial fan and bridge area.
- Three to five bioassays in the Reference Area, Sequim Bay.

Details of sampling these co-located areas should be detailed in the **SAP** submitted to Ecology.

- 7) **Additional Analysis of COPCs.** Ammonia, sulfides, TVS, and TOC were not investigated as potential hazardous substances caused from wood debris accumulation and degradation. High TOC surface samples with 95% wood debris as typically found in some areas of the Study Area as compared with high TOC surface samples in the Reference Area due to fine silt/clay fraction sediments may be influencing analysis of results.

ACTION: Rayonier shall include ammonia, TVS and sulfides as COPCs in wood debris areas, and high TOC descriptions between high wood debris areas vs. sediment reference areas should be described in the uncertainty section of the ERA and MRI as appropriate. Any additional COPC sampling needs should be included in the SAP provided to Ecology and aligned with sampling needs identified in General Comments #1 and #6. Bioassays should not be purged of these compounds and reference to these data should be removed from the documents.

- 8) **Benthic Community Analysis Incomplete.** A benthic community analysis has not been adequately performed for the MRI and ERA. Video conducted by Foster Wheeler (2002) suggests benthic habitat is of low quality in some areas, typically in the wood debris areas. This is supported by a very shallow (1cm) aerobic layer and the OSI investigation. Sea lettuce is abundant and sea fans/pens are some of the species described. Invertebrates found other than shellfish have not been adequately identified in the MRI or ERA. Citations of the marine environment in Port Angeles Harbor (Shea et al., 1981) are over 20 years old.

ACTION: Ecology directs that a more comprehensive assessment of the benthic community structure in the Study Area and Harbor be provided in **document revisions**, particularly in the MRI and ERA, including a scientific names and description of invertebrates currently in the area of Port Angeles Harbor investigated as appropriate for a more thorough and complete understanding of Sediment Quality Triad data and ERA for benthos. Ecology believes existing data can be used for this assessment; data descriptions, species identification and community analysis just need to be more complete and incorporated into a full risk characterization in the ERA and benthic habitat description in the MRI. Consider use of more recent sources (i.e. Shaffer, A. 2001. "Nearshore Marine Habitats," Summary Report: Clallam County Marine Resources Committee Interactive Workshop #5. http://www.clallammrc.org/CCMRC/InteracitveWorkshops_file/keyelements.htm. May 7, Washington).

- 9) **Human Health Tissue Comparisons Inappropriate, Discard of Older Clams in the Study Area.** EPA Region 3 human health risk-based concentrations (RBCs) are inappropriate for use as a benchmark due to the low consumption rates used by EPA nationally. Additionally, preferentially selecting against older clams (apparently over 900 g Mill Dock) in the Study Area (MRI Ph 2) for analysis may bias and underestimate the ecological and human health risk at the Site. Reference areas had similarly aged/weight clams that were analyzed.

ACTION: A screening level approach comparing tissue data against natural background tissue data from Freshwater and Dungeness Bay should be performed, eliminating the R3 RBC comparison in the **document revisions** as a basis for assessment. Analysis of data should be adequately conservative for subsistence tribal consumers and consistent with MTCA. Additional older horse clam data in the Study Area (such as the Log Pond, Mill Dock, and Ennis Creek areas in General Comment #1) should be identified in the SAP and collected and analyzed for COPCs to

compare with natural background tissue data similarly collected and evaluated in the ERA, as a conservative estimate of risk and potential exposures that could occur to ecological and human receptors. Ecology expects that two to three horse clam tissue samples of the older age class in each of the Log Pond, Mill Dock, Ennis Creek and the deepwater outfall areas be collected and analyzed appropriately for COPCs.

10) **Ecological Tissue Comparisons and Receptors of Concern.**

ACTION: Fish and benthos/shellfish need to be added to the ecological receptors of concern in the **document revision** to the ERA, and risks for fish and shellfish further identified by comparison to Tissue Residue data. This comparison should be included in a new section of the ERA. An assessment of the risk to benthos from COPCs at the Site needs to be more complete including sediment chemistry, bioassays, and benthic community analysis per MTCA, and should include vertical delineation at the Site and new data collected as indicated in General Comments #1, #6, and #8 above.

Specific Comments:

Listed comment numbers reflect the numerical system used in the Response To Comments tables prepared by Rayonier.

Marine Remedial Investigation Report

1. Comment not addressed. This information is needed to interpret the results of the RI and should be summarized here.
4. Comment not addressed. The characterization of salmonid presence at and near the site should have been completed early in the RI process and is important because of the human consumption and ecological relevance of these species. Ennis Creek supports populations of coho salmon, steelhead, bull trout, and coastal cutthroat trout.
6. Comment response is satisfactory.
7. Comment not addressed. The response relies completely on predictions of a hydrodynamic model that has not been field verified at the specific location of the outfall diffusers, and new information was presented during the RI regarding the result of model predictions. The only way to characterize the presence of buried contaminated sediment at this location is to collect core samples. This remains a major data gap that we recommend be addressed in the future.
14. Comment not addressed. The basis for determining if concentrations of chemicals without SMS numeric chemical criteria are elevated is a comparison to background concentrations. Note, this is not necessarily an identification of risk, just a statement that they are elevated. The approach used in the RI, if not

followed up further, is not consistent with the Sediment Management Standards, which requires use of bioassays in areas where chemicals are present that do not have numeric chemical criteria, in order to determine if risk to benthos is present. In addition, the response does not address the central issue of potential buried sediment contamination, specifically in the mill dock area.

22. Comment not addressed. It is important to understand the linkages between upland contaminant sources/releases and the marine environment to make informed risk management decisions prior to the Feasibility Study stage of the cleanup. This does not entail full linkage of the two reports, but some linkage must occur in order to accurately understand the RI results and the adequacy of sampling. The Ennis Creek report was reviewed, leading to the questions here, as it was clear that not all residual contamination was dealt with during the interim hot spot removal. PAHs remain near the bridge and PCBs may be present in the alluvial fan at the mouth of the Creek, which was not included in the RI sampling. Interim benchmarks were not adequate to address potential bioaccumulation risks from the PCBs.
23. Comment not addressed.
12. Comment response is satisfactory.
15. Comment response is satisfactory.
16. Comment not fully addressed. Evaluation of the bioassay results must be fully consistent (not "largely" consistent) with Ecology's direction. Ecology has the authority to interpret its own guidelines, rules, and interpretation procedures and give appropriate direction.
17. Comment not accepted/addressed. See response to 16. WAC 173-204-560(4)(b)(ii) requires identifying alternative site boundaries at the point at which the SQS or the CSL will be met (including risk-based values for chemicals without numeric chemical criteria). Therefore, stations clusters based on bioassay results must include SQS stations as well as CSL stations, and must be marked as uncertain in areas not tested or areas where the existing stations at the edge of the area tested exceed these standards. This is a critical deficiency of the report as it stands.
18. Comment not addressed. All stations with any SQS exceedence should be included in the area of concern depicted in the RI report. WAC 173-204-570(4) states that site-specific cleanup standards are to be set as close as practicable to the SQS, which is defined by any one of the three bioassay tests exceeding the applicable SQS, in addition to risk-based criteria for bioaccumulative chemicals or chemicals without numeric criteria. A weight-of-evidence approach is not used for the SQS level of effects, which represents no adverse effects to benthos. Risk management decisions will be used at a later time to refine the area of concern

requiring remedial response. Furthermore, the response does not address the comment's suggestion to add symbols to the diagram indicating where uncertainty exists in the delineated area of concern.

19. Comment not addressed. We recommend that the Axys data be presented in the RI report, however this is less important now with the Phase 2 dioxin data and associated detection limits. We disagree with the stated reason for not including the Axys data. On the contrary, the Axys data set appears to have the fewest quality assurance issues of the various dioxin data sets available.
20. Comment response is satisfactory.
24. Comment response is satisfactory.
27. Comment response is satisfactory.
29. Comment response is partially satisfactory. Regarding larval quality assurance guidelines, Ecology is authorized to apply alternate technical methods instead of or in addition to those in the rule under certain conditions (see WAC 173-304-130(4)). For the larval performance standard, these public notice conditions were met through the Sediment Management Annual Review Meeting public notice and comment process in 1994 and have been in place since that year. Similarly, comparison to control was discussed in a SMARM paper in 1997 and has been applicable to the SMS process since that time. Both of these program modifications were made well before this sampling program began. Under WAC 173-340-130(4), the Department, determines when the use of alternative technologies is appropriate, subject to the required notice and comment as discussed above. Therefore, it is not appropriate for Rayonier to make independent determinations on the applicability of these guidelines.
2. Comment response is satisfactory.
3. Comment response is satisfactory.
5. Comment not addressed. The report needs to reflect the most current information, and orca whales should be added to the table.
8. Comment response is satisfactory.
9. Comment response is satisfactory.
10. Comment not addressed. The purpose of collecting reference samples was not only for interpreting bioassay results, and regardless of why they were collected, they can be used for any RI-related purpose. Reference area chemical concentrations are used along with source information to identify chemicals of concern that may not have chemical criteria, and to guide further bioassay and/or

risk assessments in areas where these chemicals are elevated above background to determine if these concentrations present a risk. This approach is used at all sites where CoPCs are present that do not have numeric chemical criteria.

11. Comment not addressed; the definitions continue to be inaccurate and misleading. Revise as directed.
21. Comment response is satisfactory.
25. Comment not addressed. We feel that the extent of sediment contamination in Port Angeles Harbor has not been adequately delineated, and models put forth by Rayonier suggest the presence of depositional areas that have not been sampled. The report should acknowledge this data gap.
26. Comment not addressed. See response to #19.
28. Comment not addressed. Rayonier's position is that the chronic bioassay test performed meets the requirements of SMS. However, if the bioassay test does not account for site-specific factors, then alternative analyses are a logical next step to provide the necessary "weight of evidence" to support risk management decisions. As noted above, Ecology has the authority to require specific tests if site-specific conditions warrant it.
30. Comment response is inadequate. No information is provided to support the statement that the 14-day period selected would result in the high deposition rate, given seasonal factors and changes in stratification known to occur in the Strait of Juan de Fuca area.
31. Comment not addressed. It is not likely that a change in deposition rate would not change the pattern of deposition; at the very least, there would be much greater shoreline dispersion away from the site of lighter material. The extent to which effluent traveled away from the site along the shoreline is one of the key questions that needs to be answered during the RI, and shoreline sampling to date is inadequate to assess that.

Phase 2 Addendum Marine Remedial Investigation Report

32. Comment response is satisfactory.
33. Comment not addressed. The intent of the RI is to collect data that will be used to assess potential exposures to human and ecological receptors. By discarding older clams, the data is biased low and is not representative of exposures that could occur from human consumption of shellfish.
34. Comment response is satisfactory.

35. Comment response is satisfactory.

36. Comment response is satisfactory.

Marine Ecological Risk Assessment

38. Comment not addressed. See response to #28.

40. Comment not addressed. Minor comment that would be easy to incorporate.

51. Comment not addressed. The response suggests that sediment sample data collected for the ESI was part of the reason for collecting so few intertidal sediments during the RI. However, the ESI data are not incorporated into the risk assessment. Furthermore, much of Rayonier's response is related to human health exposures. Our comment related to the acceptability of sediment characterization for ecological receptor exposures, and sample frequency has not been adequately addressed for this purpose.

60. Comment not addressed. The response indicates that a non-conservative approach is being applied. Ecology is authorized to apply alternate technical methods instead of or in addition to those in the rule under certain conditions (see WAC 173-304-130(4)). For the larval performance standard, these public notice conditions were met through the Sediment Management Annual Review Meeting public notice and comment process in 1994 and have been in place since that year. Similarly, comparison to control was discussed in a SMARM paper in 1997 and has been applicable to the SMS process since that time. Both of these program modifications were made well before this sampling program began. Under WAC 173-340-130(4), the Department, not the project proponent, determines when the use of alternative technologies is appropriate, subject to the required notice and comment as discussed above. Therefore, it is not appropriate for Rayonier to make independent determinations on the applicability of these guidelines.

37. Comment not addressed. The noted marine species are important resources to the LEKI. Top trophic level receptors as assessment endpoints characterize worst case risk for bioaccumulative COPCs, not all COPCs. In addition, the site use factors proposed by Rayonier would lessen the risk to higher trophic levels compared to mid-trophic levels, which have higher site fidelity.

If there is sufficient tissue data to assess risks to higher order consumers, there is sufficient tissue data to characterize body burdens for assessing the risks to organisms themselves. While bioassay testing may assess the risks to one of these receptors, these data need to be presented and discussed in the risk assessment in this context. Benthic toxicity assessment procedure in SMS are not intended to be applied to evaluation of risks to fish and crab species; alternative methods are required for this portion of the risk assessment.

39. Comment response is satisfactory.
41. Comment not addressed. The re-analysis of ecological risks needs to be incorporated into the public review draft of the ERA.
42. Comment response is satisfactory.
43. Comment not addressed. This issue is significant enough to warrant holding this document back from public review.
44. Comment response is satisfactory.
45. Comment response is satisfactory.
46. Comment response is satisfactory.
47. Comment response is satisfactory.
48. Comment not addressed.
49. Comment not addressed. There are too many problems with the exposure model, including poor selection of prey species, and biased samples of clams due to elimination of older individuals from the sample set. We recommend the entire exposure assessment for plovers be re-designed.
50. Comment response is satisfactory.
52. Comment not addressed. 52A – It is true that sufficient data are not yet available to identify the boundaries of the site and the concentrations beyond the areas previously sampled. This is a deficiency in the RI that has been noted in our comments. Until these data are available, an ERA cannot be finalized. If these areas were included, exposure would increase, not decrease, as currently the area use factor used results in an assumption that exposure is non-existent outside the area included in the risk assessment. 52B – Response is satisfactory, assuming other parts of this comment are addressed. 52C – The point was not to assume 100% marine exposure for the raccoon, but to combine upland and marine exposures for this receptor, since it would be exposed to both areas of the site. 52D – Ecology does not agree that Port Angeles Harbor represents area background for this site, as there are many possible routes for contaminants to have reached the harbor from the site. It is within Ecology's authority to determine, on a site-by-site basis, whether area background will be used and if so, how it would be calculated. In the absence of concurrence by Ecology, Rayonier may not assume, for the purposes of risk assessment or any other use, that Port Angeles Harbor constitutes area background.

53. Comment response is satisfactory.
54. Comment response is satisfactory.
55. Comment not addressed. These comments and all similar directive comments by Ecology staff are not optional.
56. Comment not addressed.
57. Comment response is satisfactory.
58. Comment not addressed. Previous comments on the same topic also not addressed, contrary to this response. Rayonier must use the data interpretation approaches required by Ecology for this and all other sediment sites, as discussed in Response 60.
59. Comment not addressed. See comment 55 and 60.
61. Comment not addressed. See comment 55 and 60. It is within Ecology's authority to conduct final interpretations of the data, define the area of concern and select cleanup boundaries.
62. Comment not addressed. The risk assessment needs to account for other deleterious substances. SMS does not limit risk assessments or remedial investigations to only the chemicals for which numeric chemical criteria exist.
63. Comment not addressed. It is appropriate to acknowledge uncertainties.
65. Comment not addressed. It is appropriate to compare to the benchmarks in the risk assessment. The response is acceptable for DDTs, but not for dioxins/furans or other compounds that do not have NOAA criteria.
67. Comment response is satisfactory.
68. Comment response is satisfactory.
69. Comment response is satisfactory.
70. Comment response is satisfactory.