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9-15-1931 (COAST SEAFOODS COMPANY)

JUNE 7, 2017

CORRESPONDENCE

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June 2, 2017

VIA E-MAIL (ADETTMER@COASTAL.CA.GOV AND CASSIDY.TEUFEL@COASTAL.CA.GOV)

Alison J. Dettmer
Cassidy Teufel
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Dear Ms. Dettmer and Ms. Teufel:

RE: Coast Seafoods Company – Permit Renewal and Amendment (Application No 9-15-1931)

Dear Ms. Dettmer and Mr. Teufel:

This letter is written on behalf of Coast Seafoods ("Coast") in response to the California Coastal Commission ("Commission") staff report dated May 25, 2017 concerning the above-referenced project. While Coast appreciates the participation and efforts of the Commission's staff in discussing the project and coordinating interagency review amongst several state and federal agencies, Coast believes that several of the proposed conditions remain problematic, and respectfully requests that the Commission revise or eliminate certain conditions as described below.

Coast has endeavored to address the Commission's concerns through performing an extremely thorough EIR analysis; adopting an extensive and peer-reviewed monitoring program with adaptive management to address remaining scientific uncertainties; and significantly reducing the size of its proposed project. These changes included reducing the proposed expansion area by approximately 60%; removing all new cultivation from the East Bay Management Area ("EBMA"); incorporating in-kind mitigation through removal of existing culture gear; splitting the project into two phases (the second of which would be dependent on monitoring data and results); and slowing the proposed Phase I expansion to allow consideration of preliminary monitoring results.

While Coast is amenable to most of the proposed special conditions as written and others that we understand will be revised, there are five conditions that, if imposed, either significantly impact Coast's ability to operate its farm or establish unrealistic and potentially unattainable impact thresholds, with severe consequences if Coast does not achieve the stated objectives. Such unrealistic and strict conditions, if not revised, make it unlikely that Coast will be able to commit millions of dollars to install its proposed farm, given the uncertainty inherent in whether it will be able to meet staff's proposed monitoring plan requirements. We respectfully request the following revisions to Commission staff's proposed conditions, with additions shown in <u>underline</u> and deletions shown in ~~strikeout~~.

1. **Condition 6 (Eelgrass Monitoring Plan):** We recommend the following revisions:

Eelgrass Monitoring Plan. PRIOR TO PERMIT ISSUANCE COAST SHALL SUBMIT, for Executive Director review and written approval, a revised version of its March 31, 2017 Eelgrass Monitoring Plan

(Eelgrass Plan). The Eelgrass Plan shall be focused on documenting eelgrass recovery within areas from which existing cultivation beds are removed as well as quantifying any loss of eelgrass density or ~~percent vegetated cover~~ aerial extent within newly installed expansion cultivation beds. Upon approval, the Eelgrass Plan shall be implemented by a qualified, independent, third party approved by the Executive Director.

The Eelgrass Plan shall be consistent with the feedback provided by Commission staff and state and federal agency staff (as reflected in the email dated April 28, 2017 from Commission staff to Coast's consultants and the meeting notes from the May 12, 2017 meeting between agency staff and Coast) and include the following:

A. **Treatments.** Three operational treatments shall be monitored for impacts and recovery relative to reference areas. These include areas where cultivation is:
   i. *Removed*, including the initial 34 acres to be removed between the collection of baseline and year one eelgrass monitoring data as well as the 8 remaining acres of the 42 acres total proposed by Coast to mitigate for its Phase I expansion of operations;
   ii. *Expanded*, including the initial 82.64 acres to be planted between the collection of baseline and year one eelgrass monitoring data as well as the remaining 82.36 acres of the 165 acres total proposed for Phase I. The initial 82.64 acres shall be made up of ~~two~~ 2.4 acres within and immediately surrounding each of the individual 0.6 acre plots to be used for monitoring the expansion areas (which shall be selected to be representative of the bed in which they are located) and additional acres located as described in **Special Condition 4**;
   iii. *Converted from the existing cultivation method to another cultivation method*, including where 18.4 acres in cultivation beds EB 6-1, EB 6-2 and EB 6-3 are proposed to be converted from longlines to baskets on longlines;

B. **Periods and Duration.** The temporal nature of the monitoring will differ between treatments such that:
   i. For removal treatments, monitoring shall include capture of baseline conditions within the eelgrass growing season for northern California defined in the California Eelgrass Mitigation Policy and Implementing Guidelines (CEMP; NOAA Fisheries 2014). Thereafter, annual monitoring shall be conducted during the eelgrass growing season for five years.
   ii. For expansion and converted treatments, monitoring shall include capture of baseline conditions within the eelgrass growing season for northern California defined in the CEMP prior to planting of cultivation gear or conversion.
   iii. Following issuance of the collection of information on baseline conditions, the monitoring shall continue on an annual basis for five years in order to ensure that eelgrass response to treatments has been accurately assessed.

C. **Key Parameters.** Within all areas from which cultivation equipment is installed, removed or converted from one method to another, monitoring shall include measures of turion density~~,~~ ~~percent vegetated cover,~~ and ~~spatial~~ aerial extent, pursuant to the CEMP.

D. **Methods.** A thorough description of the survey and analysis techniques to be used for measuring the key parameters shall be provided. A combination of monitoring methods may be used, as follows:
   i. *Remote-sensing*, specifically the use of low-altitude aerial imagery captured by UAVs, to census:
      a. ~~Spatial~~ Areal extent ~~and percent vegetated cover~~, for all treatments and areas to be monitored;

b. Turion density, in removal treatments areas as estimated using bins with 10-turion increments from 0 to >50 (noting an anticipated upper detection limit of the method). The method should target an accuracy rate of ~~95~~ 95% and achieve a minimum accuracy rate of ~~90~~ 85% for correctly classifying eelgrass during aerial monitoring.

ii. *In situ* sampling, to evaluate:

a. Turion density, in expansion and conversion treatment areas as counted using 0.25m² quadrats, unless it can be determined to the satisfaction of the Executive Director that 0.0625 m^2 quadrats are statistically similar to 0.25 m^2 quadrats;

The sampling design shall be sufficiently statistically robust to allow an assessment of not only eelgrass response across the whole of Arcata Bay, but also within the expansion beds in at least three sub-regions (Mad River, Bird Island, and East Bay) and with a minimum statistical power of 0.8 when controlling for type I and type II error <0.2.

E. **Criteria for Detecting Adverse Impacts and Performance Success.** At a minimum, discrete criteria to evaluate adverse impacts in expansion and conversion treatments (subpart 1), and performance success in removal treatments (subpart 2), shall be specified such that for:

i. *Adverse impacts*, any statistically significant loss of the following relative to appropriate reference sites:

a. More than 25% loss in eelgrass turion density (measured as the ~~upper limit of the confidence interval around the~~ mean of replicate density treatments as compared to the mean of control plot densities using a before-after-control-impact (BACI) study design when alpha = 0.2 and beta = 0.2); or

b. ~~Any percent vegetated cover of eelgrass (measured as the percent of the bed physically occupied by aboveground eelgrass); or~~

c. Any eelgrass ~~spatial~~ areal extent (measured as the percent of the bed physically occupied by aboveground eelgrass as measured using UAV observations).

ii. *Performance success*, measurable recovery and expansion of eelgrass density and/or ~~percent vegetated cover~~ areal extent have occurred, relative to appropriate reference sites, by Year 3 and been sustained through Year 5 of monitoring.

Criteria shall be evaluated at the scales of the designated sub-regions as well as across the whole of Arcata Bay.

Should the methods in any cultivation ~~bed(s) or~~ area(s) fail to achieve, in any one year, the minimum accuracy rate (for census) or statistical power required above in Section D of this condition, ~~relevant analyses for those cultivation bed(s) or area(s) shall be considered inconclusive and~~ the monitoring design and/or methods shall be revised in consultation with Commission staff and implemented in the subsequent year to facilitate achievement of the minimum accuracy rate and power in those ~~sites~~ areas. If in the year the revised design and/or methods are implemented, the required accuracy rate and/or statistical power allow for conclusive analyses, then the inconclusive analyses from the preceding years shall be interpreted as having been the same as for the current year. If in the year such revisions are implemented the analyses of a particular cultivation ~~bed(s) or~~ area(s) continue to prove inconclusive, then those areas shall be considered to have failed to meet the performance metrics, thus triggering the adaptive management measures described in ~~Subpart A or B (whichever is more relevant) of~~ **Special Condition 8**.

F. **Impact and Performance Assessments.** Adverse impacts and performance success shall be assessed on an annual basis over the 5-year monitoring term. The determination of any adverse impacts, including two consecutive years of inconclusive results - as defined in Section E of this condition - shall trigger adaptive management measures described in Subpart A or B (whichever is more relevant) of **Special Condition 8.**

G. **Reporting.** Annual reporting of monitoring results, including raw sampling data, statistical analysis results, and a complete description of when and where sampling was carried out shall be provided as soon as possible after the completion of data collection efforts;

H. **Adaptive Capacity of the Plan.** The Eelgrass Monitoring Plan shall be considered a living document, with the potential to adapt to insight gained over the duration of the permit, with approval of the Executive Director and state and federal agency partners.

Discussion: The important recommended change concerns the proposal to measure impacts by using the upper limit of the confidence level from the mean. The mean, or average, represents a likely result in terms of probability. The upper limit of the confidence level, on the other hand, represents a very unlikely result on the bell curve. The problem here is that eelgrass turion densities are naturally variable creating a level of variance that cannot be reduced through technology or methodology for measuring eelgrass turions, which is to say that the confidence intervals may be relatively broad for density measurement. This is not a matter of throwing money at monitoring, but of the science itself. While using the upper limit (an improbable scenario) can be rationalized as promoting better monitoring technology (which is beyond Coast's control) or in the name of being "precautionary," it results in Draconian results for Coast if the science does not improve. The results could show a probable impact of + or – 5%, but if the confidence level is 30%, Coast could be told to stop production or planting. Coast has already provided mitigation for impacts of up to 25% of the proposed expansion. Basing performance thresholds on low probability, worst case scenarios is neither good science nor fair to Coast. Using the mean, or something closer to it, would be both more representative of reality and fairer to Coast. Use of the mean is also reflective of standard scientific practice, including in regulatory contexts. Hypothesis testing (see below) may be used to determine whether a given threshold is exceeded or not.

This is particularly a concern for eelgrass monitoring, where eelgrass has been found to have high natural variability related to climatic variables. For example, Thom et al. (2003) reported for Willapa Bay that "Between 1998 and 2000, mean biomass over all sites increased approximately 5.0 fold." Observations for SeagrassNet in Humboldt Bay similarly suggest that Humboldt eelgrass beds also have considerable variability. There is also a possibility that the real impact is lower than the mean, but there is no way to confirm for certain which is correct. Furthermore, in Humboldt Bay and elsewhere, eelgrass has been shown to recover rapidly in areas where culture activities cease. This suggests that there is limited risk to eelgrass in evenly distributing uncertainty between culture activity and eelgrass.

A 2007 study (Krueger et al. 2007) evaluated sample sizes required to detect changes in eelgrass density. This study found that the magnitude of change in density (effect size) has a large effect on the level of sampling required to demonstrate whether that threshold for change in eelgrass density had been exceeded. Further, the relationship between the amount of sampling required and the effect size is non-linear such that sufficient sample sizes to detect change are relatively high for low effect sizes with large incremental changes in monitoring requirements at low effect sizes and small incremental changes in monitoring requirements at large effect sizes. For example, Krueger et al (2007) reports that for a given alpha (0.1) and beta (0.2) their study showed that approximately 882 samples would be necessary to detect a 10% decrease in eelgrass density, 140 a 25% decrease, 36 to detect a 50% change in eelgrass

density. This study demonstrates that the lower the level of predicted impact, the greater the monitoring effort required to demonstrate that threshold is not exceeded, with effort roughly quadrupling as the effect size changes from 50% change to 25 % change and then increases a further 7-fold as the effect size changes from 25% to 10%.

The Coast expansion project has already incorporated several recommended measures to reduce the size of confidence intervals, including before-after control-impact study design using multiple control sites and the use of pre-study data to conduct power analysis to facilitate efficient survey efforts. However, further reduction of the impact threshold by allocating all of the variance associated with the confidence interval as potential impacts caused by Coast operations may create excessive sampling requirements that make monitoring infeasible due to the inability to demonstrate that the mean and confidence interval are below thresholds and due to potential trampling impacts to eelgrass resulting from monitoring efforts.

The proposed change in Section 6.D.i reflects an accuracy rate similar to other large-scale eelgrass surveys on the West Coast. For additional discussion and references regarding these accuracy rates, please see our notes transmitted to Coastal Commission staff on May 10, 2017. We also recommend that references to vegetated cover and spatial extent be revised to address impacts to the areal extent of eelgrass beds, consistent with monitoring requirements discussed in the CEMP. Additional discussion of changes associated with this condition is provided in the discussion of Condition 8, below. Coast transmitted an updated Eelgrass Monitoring Plan to the Commission and other resource agencies on May 24, 2017 that reflects revisions based on an email dated April 28, 2017 and a multi-agency meeting on May 12, 2017.

2. **Condition 7 (Brant Monitoring Plan).** We recommend the following revisions:

Brant Monitoring Plan. PRIOR TO INSTALLATION OF CULTIVATION EQUIPMENT WITHIN EXPANSION CULTIVATION BEDS, Coast shall submit, for Executive Director review and written approval, a revised version of the April 21, 2017 brant monitoring plan capable of detecting and visually documenting and recording brant foraging activity on eelgrass beds within expansion cultivation beds (i.e. specifically feeding on eelgrass growing within beds rather than drift feeding) and comparing brant foraging within expansion beds to foraging in areas outside cultivation beds ~~determining if any such foraging is occurring at the same level as foraging occurring outside cultivation beds~~. Survey techniques shall primarily rely on the use of remote cameras but may be augmented with other techniques, including field surveys and acoustic detection. The revised brant monitoring plan shall include, at a minimum, surveys carried out during the appropriate seasons at Year 1, 2, and 5 post-installation of cultivation equipment in expansion areas. Coast shall not initiate installation of cultivation equipment within expansion cultivation beds until the brant monitoring plan has been approved in writing by the Executive Director.

Discussion: The problem with the proposed language is that it sets the project up for automatic failure. The Final EIR already acknowledges that brant avoid longlines at certain tidal heights when longlines are exposed. While this avoidance is anticipated to be less for 10-ft. spaced longlines, it is unclear how much brant will forage in between longlines when they are exposed. To have a standard that requires exactly the same foraging behavior is a Catch-22, given that we know that the brant are unlikely to forage right next to the longlines, even if they otherwise forage unfettered in the spaces in between. Furthermore, impacts to eelgrass (brant's preferred food resource), are evaluated separately and fully mitigated.

The EIR resolved this issue. Based on the carrying capacity analysis and evaluation of tidal elevation data developed for the project, Phase I culture would be exposed approximately 13% of the time and Phase II culture would be exposed approximately 18% of the time.[1] Based on this calculation and 2015 survey observations of brant interactions with Coast's longlines that showed brant did not avoid longline culture (with 2.5-ft spacing) when culture gear was not exposed, the Final EIR concluded that the project would have a less than significant impact to brant because they would be able to forage in between longlines during most tidal heights. Therefore, an appropriate threshold for monitoring is whether brant are excluded from Coast's longlines for substantial periods of time (i.e. when gear is not exposed).

The goal is for brant to achieve comparable feeding and fattening rates after culture is installed as compared to pre-installation conditions. Behavioral avoidance or movement does not necessarily suggest significant reductions in foraging, fattening or fitness. In other words, there is not necessarily an impact to brant if they choose to forage immediately outside longlines as compared to within longlines unless data shows that the eelgrass available for brant foraging is at carrying capacity. The goals of this monitoring plan should focus on impacts to baywide brant populations, the scale at which this resource is managed.

While the staff report quotes extensively from Eric Nelson's letter, it ignores the response from the Final EIR which includes critical clarifications regarding Mr. Nelson's evaluation of brant displacement from Coast's longline plots, particularly as it relates to brant foraging:

> The impacts analysis in the R-DEIR uses . . . empirical observations to explicitly account for brant avoidance of aquaculture infrastructure and the associated loss of foraging opportunities as part of the project-specific modeling. This project-specific modeling used empirically estimated eelgrass shoot lengths, biomass, and digital elevation models specific to North Bay, and compared the proposed project plots with specific tidal elevations. The comment assumes a bed elevation of 0 ft relative to MLLW to infer that brant will be excluded from aquaculture sites at tide elevations less than 3.8 ft and 1.5 ft MLLW for basket-on-longline and cultch-on-longline areas, respectively. However, aquaculture infrastructure and dense eelgrass beds occur across a range of tidal elevations, which is explicitly accounted for in the project-specific modeling. Thus, the project-specific modeling provides a more precise assessment of the loss of foraging opportunity that incorporates specific tidal elevation data in comparison to the calculations provided in the comment, and support the conclusion in the R-DEIR that there would not be a significant impact to brant foraging.

In short, even assuming that brant forage mostly at non-high tides, the empirical evidence indicates that brant can forage significantly while longlines are not exposed and eelgrass is accessible.

Coast also strongly disagrees with the comments in the staff report that brant will completely avoid longlines. This is simply not true. Video and photographic evidence included in the R-DEIR shows brant swimming and feeding between Coast's existing longlines, even at closer 2.5-ft. spacing, when longline

[1] Note that these calculations were made based on the 622-acre expansion described in the R-DEIR. It considered double-hung longlines and other culture gear, but is only an approximate estimation of gear exposure for the project as currently proposed. However, there is no reason to believe that the exposure rates would be significantly different, given that the height of the proposed gear would be the same.

gear is not exposed, including photos of brant tipping between longlines to bed feed on submerged eelgrass between lines. *See* Attachment 1.

Coast also disagrees with the comments quoted in the staff report that any exclusion of brant from Coast's longline areas should trigger adaptive management and/or removal of Coast's gear. Stillman *et al.* (2015) establishes that brant are not at ecological carrying capacity in Humboldt Bay and there is currently plenty of eelgrass to support existing levels and increased Humboldt Bay stopovers of brant populations. The available empirical data on eelgrass and brant populations in Humboldt Bay do not reveal a clear link between brant population levels or baywide use days and eelgrass levels (Moore *et al.* (2004), Moore and Black (2006)). This does not deny that eelgrass is very important resource for brant populations, but that eelgrass has not recently been at levels where a small temporal restriction in the availability of eelgrass within Coast's plots will significantly affect the overall ability of brant to forage within Humboldt Bay or successfully migrate to and from the bay.

Further, while the staff report notes that Stillman *et al.* (2015) paper did not establish a threshold for CEQA purposes, it is entirely appropriate to rely upon the modeling efforts and data presented therein to develop such a threshold, particularly given that it evaluates the levels at which the functional loss of eelgrass in Humboldt Bay would be predicted to adversely affect the ability of spring-staging brant to fatten up and successfully migrate to breeding grounds. The interpretation provided in the monitoring plan is that the results of the Stillman *et al.* (2015) modelling effort suggest that a 10% functional loss of eelgrass availability at a bay-wide level is likely to reduce mass gain and increase stopover time for brant, and that in excess of a 30% loss is likely to reduce the brant emigration rate. Dr. Black's overall conclusion that "any additional loss of eelgrass habitat or further reduction of foraging time by brant due to human activity is unacceptable" is not based on any scientific data from the Stillman *et al.* (2015) work, which did not evaluate model losses to foraging availability less than 10%, but is instead his opinion as to what the Commission's policy should be. While we appreciate his passion, the Coastal Act and CEQA are concerned with significant impacts. Coastal Act Section 30230 specifically provides that uses be carried out in a manner that "maintain[s] healthy populations of all species of marine organisms" and is thus focused on impacts to population levels, rather than any effect or disturbance to brant (Henry (1980), Schmidt (1999), Moore and Black (2006).

Focusing on population effects to brant is particularly appropriate given that there are other impacts to brant in Humboldt Bay that are far more disruptive. The Pacific Flyway Management Plan (USFWS 2004) describes harvest pressure on brant and describes California's annual harvest as averaging approximately 500 birds per year. Significant additional harvest by recreational hunters occurs in Mexico, Washington, B.C., and Alaska, in addition to subsistence harvest in B.C. and Alaska. Recreational harvest closures occasionally occur and are due to total abundances falling below historical thresholds within the harvest management unit.

Therefore, while Coast continues to believe that the threshold provided in the EIR is entirely appropriate to evaluate impacts to brant, the threshold proposed herein provides a more sensitive analysis for evaluation of project impacts to inform adaptive management, which focuses on whether brant will be excluded from Coast's longline plots for significant periods of time, which would therefore restrict their ability to access eelgrass.

3. Condition 8 (Adaptive Management). We recommend the following revisions:

Adaptive Management. Subsequent to the ~~phased~~ implementation schedule process required through **Special Condition 4** (used to manage expansion activities until baseline and two additional years of eelgrass monitoring results are available), the Executive Director shall review the information provided through Coast's annual reporting and the monitoring carried out in conformance with **Special Conditions 6 and 7** to determine if any of the thresholds for action included below have been met. If the Executive Director determines that a threshold has been met, Coast shall implement the associated adaptive management actions (~~all~~ any removal of cultivation equipment shall be carried out consistent with **Special Condition 13**):

A. If ~~any~~ subarea results in a loss of eelgrass ~~percent vegetated cover or spatial~~ areal extent or a loss of eelgrass density greater than 25% occurred beyond pre-project conditions when compared to appropriate reference sites ~~and measured using the upper limit of the confidence interval around the mean of replicate density measurements~~, ~~those expansion beds or areas~~ Coast will be considered to have exceeded the maximum anticipated impacts and Coast shall implement appropriate corrective actions as approved by the Executive Director, which may include removal of ~~remove all~~ cultivation gear within those expansion beds or areas;

B. If, when compared to appropriate reference sites, measurable recovery and expansion of eelgrass density and/or ~~percent vegetative cover~~ areal extent has not occurred within any area from which longlines were removed, and Coast's expansion area shows a statistically significant reduction in eelgrass density and/or areal extent, ~~that~~ any such removal area will be considered to have failed as mitigation and Coast shall remove cultivation equipment from within expansion cultivation beds ~~at~~ until a ratio of 4:1 (area of ~~removal~~ expansion:area of ~~failed~~ successful mitigation is achieved). Once recovery or expansion ~~exceeds~~ is statistically similar to reference conditions, additional measurable recovery or expansion shall not be required to satisfy this threshold and the threshold shall transition to be that those conditions are maintained for the remainder of the monitoring period;

C. If brant monitoring data show a statistically significant difference between brant foraging in cultivation beds as compared to reference sites when culture gear is not exposed, or a less than 50% increase in brant foraging in expansion areas when culture gear is exposed (as compared to 2.5-ft. spaced longlines), Coast shall implement appropriate corrective actions as approved by the Executive Director, which may include removal of cultivation gear within those expansion beds or areas ~~do not show brant "bed-feeding" on eelgrass occurring within cultivation beds at the same level as foraging occurring outside cultivation beds, those cultivation beds shall be removed~~;

D. If Coast fails to successfully implement and maintain measures to both significantly reduce the loss of aquaculture gear (in particular, cultivation baskets) from its operation and increase the effectiveness of recovery efforts, Coast shall convert all of its expansion basket on longline cultivation beds to ten foot spaced longline beds (adjacent paired longlines separated by 10 feet from the next pair).

See the discussion of Conditions 6 and 7 above for a discussion of the appropriate adaptive management thresholds for the eelgrass monitoring plan and brant monitoring plan, respectively. Additional mitigation should not be required under Condition 8.B if there is not a statistically significant reduction in eelgrass associated with Coast's expansion; if there is no reduction in eelgrass associated with Coast's expansion, whether or not the mitigation is successful becomes a moot point.

4. Appendix A (Year 1 and 2 Adaptive Management). We recommend the following revisions:

One Year of Monitoring Results
Once the results of the first year of post-installation and post-removal eelgrass and brant monitoring data are available, the Executive Director shall consider Coast's condition compliance and marine debris management and determine if Coast shall carry out additional expansion, halt expansion until another year of monitoring data is available, or be required to implement additional adaptive management ~~remove additional cultivation equipment~~, as described below:

I. The Executive Director shall provide written confirmation to Coast that further expansion may occur if, based on the information described above, the Executive Director determines that: (1) ~~in all of the expansion beds,~~ all subareas have no loss of ~~eelgrass vegetated cover~~ areal extent and no more than a 25% reduction in eelgrass density ~~beyond pre- project conditions occurred when compared to appropriate reference sites and measured using the upper limit of the confidence interval around the mean of replicate density measurements (for example, a reduction in density of 20% ± 10% would exceed this threshold because the upper limit would be a 30% reduction and would be greater than the 25% limit)~~; (2) within the areas from which longlines were removed, measurable recovery and expansion of eelgrass density and/or percent vegetative cover has occurred when compared to appropriate reference sites; (3) brant "bed-foraging" on eelgrass inside cultivation beds when culture gear is not exposed is statistically similar as ~~occurred at a minimum of the same level as~~ foraging ~~occurred~~ outside cultivation beds, and there is at least a 50% increase in brant foraging in expansion areas when culture gear is exposed (as compared to 2.5-ft. spaced longlines); (4) Coast is in compliance with all other special conditions of its coastal development permit; and (5) Coast has successfully implemented measures to both significantly reduce the loss of aquaculture gear (in particular, cultivation baskets) from its operation and increase the effectiveness of recovery efforts.

II. The Executive Director shall not provide written confirmation and Coast shall not carry out any expansion beyond the installation of oyster cultivation equipment in 82.64 acres of expansion beds prior to the review of the results of a second year of "post-installation" and "post removal" data if, based on the information described above, the Executive Director determines that (1) ~~in the expansion beds, (2)~~ subareas result in no loss of ~~eelgrass vegetated cover or bed~~ areal extent ~~occurred~~ but there is a reduction in eelgrass density of between ~~20~~ 29% and ~~25~~ 41% ~~occurred~~ beyond pre-project conditions when compared to appropriate reference sites ~~and measured using the upper limit of the confidence interval around the mean of replicate density measurements~~; or (2) within the areas from which longlines were removed, no measurable recovery and expansion of eelgrass density and/or ~~percent vegetative cover~~ areal extent occurred, when compared to appropriate reference sites; or (3) brant "bed-foraging" on eelgrass inside cultivation beds occurred during times when culture gear was not exposed but was lower than the level of foraging that occurred outside cultivation beds or there is less than a 50% increase in brant foraging in expansion areas when culture gear is exposed (as compared to 2.5-ft. spaced longlines); or (4) Coast is out of compliance with one or more special conditions of its coastal development permit; or (5) Coast has not successfully implemented measures to both significantly reduce the loss of aquaculture gear (in particular, cultivation baskets) from its operation and increase the effectiveness of recovery efforts.

III. If the Executive Director determines that any ~~expansion bed(s) or~~ area(s) experienced (1) no brant "bed-foraging" on eelgrass; or (2) a loss of eelgrass vegetated cover or bed extent or a reduction in eelgrass density of greater than ~~25~~ 41% occurred beyond pre-project conditions when compared to appropriate reference sites ~~and measured using the upper limit of the confidence interval around the mean of replicate density measurements, Coast shall remove all cultivation gear within those expansion beds or areas~~ Coast shall implement appropriate corrective actions as approved by the Executive Director, which may include removal of cultivation gear within those expansion beds or areas. ~~(3) In addition, Coast shall remove all cultivation gear within expansion beds at a ratio of 2:43:1 (expansion area:removal area) for every acre or fraction of an acre within the areas from which longlines were removed that the Executive Director determines experienced a measurable loss or reduction of eelgrass density and/or percent vegetative cover. This ratio is based on the initial installation:removal ratio represented by 82.64 acres installed to 34 acres removed between the collection of baseline monitoring data and the first year of post- installation results. All~~ Any removal activities described above shall be carried out consistent with **Special Condition 13** ~~and shall be completed within 30 days~~.

Under Scenario I, upon issuance of the Executive Director's written confirmation that Coast may proceed with expansion, Coast may install cultivation equipment and oysters within the approximately 31.9 remaining acres of the approximately 114.54 total acres of expansion cultivation beds Coast is authorized to install prior to the submittal and review of the second year of "post-installation" and "post-removal" eelgrass monitoring data in 2019.

Two Years of Monitoring Results

The Executive Director shall review monitoring results from the second year post-installation and post-removal and shall determine if the project is in either Scenario I or III above. Eelgrass density thresholds for the second year post-installation are less than 25% for Scenario I, 25% to 29% for Scenario II and greater than 29% for scenario III. ~~and~~ Coast may carry out additional expansion (up to the maximum of 165 acres of expansion allowed per **Special Condition 2**) or be required to implement further adaptive management measures required by the Executive Director ~~remove cultivation equipment from expansion beds or areas~~. If additional expansion may occur, the Executive Director's shall provide written confirmation to Coast. ~~All~~ Any removal activities shall be carried out consistent with the requirements of **Special Condition 13.**

Three or more Years of Monitoring Results

Review of monitoring results and adaptive management in years three and beyond shall be carried out as described in **Special Condition 8**.

Discussion: The changes to the Year 1 monitoring results adaptive management plan are similar to the revisions made to Condition 8. Overall, adaptive management needs to be flexible to address the multitude of potential results associated with the various monitoring plans. An additional concern is that each of the identified monitoring efforts (brant, eelgrass, and debris) has a different monitoring period specified. Some efforts will be implemented immediately, while some efforts may be delayed. For example, culture removal will occur as beds identified for removal/mitigation are ready for harvest. Therefore, it is unclear what the 'one year of monitoring results' date applies to and whether this applies to when the last monitoring report of this series is available or if each is analyzed as it becomes available.

The variability in timing for monitoring results and comparison of different background, planting, and harvesting conditions warrant a flexible approach where the parties have the opportunity to interpret the results and discuss what appropriate corrective action, if any, is warranted.

The scenarios for eelgrass density impacts are contingent on the overall level of expansion that has occurred and the outcome of prior observation periods. A way to enunciate this approach is that for any year when eelgrass density is reduced by 25%, the Executive Director may authorize expansion up to the maximum acreage identified in the implementation schedule. If eelgrass densities are reduced by more than 25%, then the Executive Director will require a pause in further expansion. If the density reductions ever exceed a 4:1 ratio of eelgrass density reduction to mitigation, then the Executive Director will require removal of expansion culture in an amount sufficient to achieve the required mitigation ratio.

Regarding scenario II, 82.64 acres represents an approximately 2.4:1-acre mitigation ratio (assuming 34 acres of removal). Loss of eelgrass would need to exceed 41% for the mitigation ratio to equal the impacts and require further mitigation or adaptive management. It is unclear why the proposed scenario II prohibits further expansion when mitigation is more than fully provided. In this scenario, the standard has shifted from "25%" to "between 20% and 25%." These standards appear contrary to CEMP guidance cited in the staff report regarding mitigation ratios and Coast has provided compensatory mitigation for this level of potential impact. Further, the CEMP notes that oyster culture provides many ecological functions that are complimentary to eelgrass, and, in particular, many studies have documented higher fish abundances in eelgrass with culture as compared areas with eelgrass alone (see Dumbauld et al. 2009), including a study by Pinnix et al (2005) in Humboldt Bay which found "Species richness was greatest in oyster culture habitats, followed by eelgrass habitats, and least in mud flat habitats." Such a single resource focus is potentially detrimental to the Humboldt Bay ecosystem. Therefore, these impact thresholds have been revised to accurately address when additional monitoring or mitigation would be required.

Further, if the observed mean reductions in eelgrass density is not applied to determine thresholds attainment, rather than applying confidence intervals, we recommend using density thresholds based on statistical hypothesis tests and statistical assumptions described in Coast Seafoods' May 2017 Eelgrass Monitoring Plan. These hypothesis tests are designed to assess whether, following a BACI study design, the expansion beds have met or exceeded the threshold for 25% reduction in eelgrass density. The null hypothesis is that the mean of the mean differences for impact sites is equal to or less than a 25% reduction in the mean of the mean differences for the reference sites. The alternative hypothesis is that the mean of the mean differences for impact sites is more than 25% lower than the mean of the mean differences for reference sites. Accepting the null hypothesis is consistent with meeting the thresholds for continued expansion, while accepting the alternative hypothesis would require either no further expansion or removal of expansion.

5. **Condition 17. East Bay Bed Removal.** We request that this condition be stricken in its entirety.

Discussion: As noted in the staff report, existing Cultivation Bed EB 7-2 has been a significant topic of discussion in previous conversations with the Coastal Commission and other regulatory agencies. The Coastal Commission originally approved Coast's operations on Cultivation Bed EB 7-2, noting that "in recent spawning events in East Bay, higher-density spawn has occurred at lower elevations, specifically in areas near the channel immediately south of the Arcata Channel . . . The East Bay plot furthest from the channel is EB 7-2." This bed was also specifically discussed at Coast's December 2016 meeting with

the Coastal Commission and other agencies, where Coast understood that Coastal Commission staff was supportive of Coast continuing to farm the bed, based on the other concessions made by Coast that were reflected in the project approved by the Humboldt Bay Harbor, Recreation, and Conservation District. This understanding was reaffirmed in the Coastal Commission's extension of Coast's permit for its existing cultivation, including Cultivation Bed EB 7-2, wherein it determined that a six-month extension of Coast's permit for its existing acreage (as conditioned) would not result in significant impacts to herring or black brant.

The staff report contains several factual errors related to this condition. First, the cultivation bed is now entirely planted, including new planting since Coast submitted its annual report to the Coastal Commission in December 2016. Given that Coastal Commission staff had indicated that it was in support of continuing planting on the bed during meetings with Coast and approved continued cultivation of the bed in February 2017, Coast had no reason not to plant the remaining portion of the bed. Coast plans to grow the oysters on EB 7-2 to a larger size than usual to service a specific client demand, and therefore does not plan to harvest the oysters for 3 to 4 years. This timeframe will provide the Coastal Commission with a significant amount of time to review monitoring data associated with herring, eelgrass, and brant before a significant portion of the bed is harvested and replanted.

Second, the condition is partially based upon staff's claim that "Coast has not reported any observations of herring spawn since Special Condition 3 was established in 2008." As shown in Attachment 2, Coast has been working with CDFW to document herring spawn on aquaculture gear. While there previously has been no herring spawn reported on Coast's gear, possibly due to low reported herring spawn populations and lack of recent CDFW surveys, during the 2017 herring spawning season Coast and CDFW noted several instances where herring spawned on eelgrass adjacent to or on Coast's gear. As noted in the staff report, imposition of Special Condition 11 will continue to provide protection for herring spawn when detected.

While EB 7-2 is located in the EBMA, which has been identified as primary location for herring spawn, there is no evidence that herring spawn are space-limited in Humboldt Bay. The Coastal Commission's 2006 analysis, notes that CDFW found that "high-density spawn has occurred . . . specifically in areas near the channel immediately south of the Arcata Channel," far from the EB 7-2 site. As noted in the Final EIR, "Based on information provided from previous reports by CDFW, when herring spawner biomass was higher, herring used approximately 10% of the available habitat per year. This does not indicate that herring are limited by spawning substrate." Herring spawn are indiscriminate spawners and the bed constitutes only 0.9% of the EBMA area.

Furthermore, culture on longlines reaches approximately 6-inches diameter, meaning that the maximum of approximately 20% of the planview area of each culture bed is occupied by culture gear, and in many cases natural spawning substrates such as eelgrass are present below the culture gear. Therefore, while some herring spawn may be detected on culture gear, even in areas where culture gear is present, most herring spawn (approximately 80%) is expected to be deposited on natural substrates. Finally, as noted in the R-DEIR, spawn on culture gear may experience different stressors than spawn on eelgrass; however, these differences may contribute to reductions in mortality from some sources (e.g., predation)

and an increase in mortality from other sources. Overall, there is no scientific evidence to support that removal of this bed is necessary to mitigate adverse impacts to herring.[2]

Coast's existing aquaculture plots have been fully mitigated based on the previous 2006 CDP approval, where the mitigation adopted by the Coastal Commission continues to provide ecological value. Therefore, if EB 7-2 is required to be removed, that removal should provide mitigation at the same rate of mitigation as recommended by the Coastal Commission for other removed plots, and Coast should be permitted to plant an additional 46 acres.

While the staff report also notes that this condition would be required to mitigate adverse impacts to public recreational uses and black brant, it does not provide any analysis as to why removal of EB 7-2 is required to mitigate those impacts. Presumably, the reasoning would be that there would be more eelgrass for brant to consume. However, as noted elsewhere, the project is anticipated to result in no net loss of eelgrass with imposition of Coast's proposed removal of 42 acres of existing culture for Phase I and 22.7 acres of existing culture for Phase II, which do not include the removal of EB 7-2. Removal of culture from this bed is also contrary to the Coastal Commission's recommended approach in Special Condition 4.B, which directs Coast to plant in areas that are historic dredge harvesting sites. EB 7-2 is one such bed; however, it has now recovered and recent photographs (attached as Attachment 3) show that the eelgrass inside Coast's cultivated bed and surrounding uncultivated areas is almost indistinguishable. Given that eelgrass appears to be thriving on the site, there is no justification for the removal of culture gear.

Similarly, there is no basis for removing EB 7-2 to address hunting impacts. As noted above, Coast already modified its project to address hunters' concerns through eliminating all proposed expansion areas in the EBMA. While the staff report cites correspondence that claims that "during hunting season, it is estimated to support a minimum of 50 hunters per day," Coast seriously questions the accuracy of that statement. In operating in Humboldt Bay on a daily basis, Coast has not observed hunter populations anywhere close to that number. Further, EB 7-2 is located the farthest distance away from the channel and is not located near any access areas for recreational or hunting uses.

The proposed condition is particularly frustrating for Coast, given that Coast's investment was a significant contributing factor in improving EBMA habitat. For example, in the 1960s Coast, the California Department of Health ("CDPH"), and the State Water Board sought funding to build a single modern and sophisticated treatment plant for Eureka to replace the multiple plants around Eureka with pump stations. Coast participated in this effort by doing water testing, lobbying for funding, and made sure that the outfall discharged into the ocean. Coast was also instrumental in advising the City of Arcata in their treatment plant upgrade in terms of discharge locations. The design for this system included a revolution revolutionary way to treat water, using a marsh to filtrate the water prior to flowing into Humboldt Bay. In the 1990's, the monthly samples taken during sanitary surveys were used by a legislatively approved Shellfish Technical Advisory Committee ("STAC") to consider water quality and the root causes for regular closures. STAC's are made up of growers, dischargers, local nongovernmental organizations, and city, county, state, and federal staff. The STAC

[2] The citation to a letter from CDFW concerning herring impacts is also inappropriate (pg. 33). The CDFW letter was in response to Coast's initial proposal, which proposed 310 acres of expansion area within the EBMA. In response to this comment and others, Coast eliminated all proposed expansion areas within the EBMA.

for Humboldt Bay developed and implemented a sampling plan to identify sources and loading using funds from growers, Humboldt County, and the State. One of the major improvements from this work that involved Coast was the City of Arcata coming to Coast to upgrade several pieces of equipment to repair their wastewater collection system. Coast chose to forgo a $600,000 claim so that the City of Arcata could use the money to buy a camera, roto rooter, and slip line system to fix their collection problem areas. These efforts, and others by the County, resulted in the CDPH upgrading the closure rules, and Humboldt Bay went from 90 closure days a year to less than 20 closure days. As a direct result of these efforts, the water quality within the EBMA, and critical habitat that depends on high water quality, improved as a direct result of Coast's efforts.

Because removal of EB 7-2 does not appear to be required to mitigate for any identified impact, we request that Condition 17 be eliminated.

6. Condition 2: Operational Footprint. We recommend the following revisions:

Operational Footprint. At no time during the term of this permit shall the combined footprint of all of Coast's intertidal cultivation beds in Arcata Bay exceed ~~414~~ 423 acres. This total shall be made up of approximately ~~245~~ 258 acres within the area of existing operations and approximately 165 acres of operations expanded into new areas. With the exception of the relocation of (1) the longlines of proposed cultivation bed MR 2-3, consistent with **Special Condition 3**; (2) the proposed Indian Island rack and bag cultivation area, consistent with **Special Condition 22**; and (3) at least half of the initial 82.64 acres of expansion, consistent with **Special Condition 4**, at no time shall Coast carry out intertidal oyster culture outside of the 17 Phase I areas and the existing culture areas shown in **Exhibit 2b**. The timing of the proposed expansion shall be carried out consistent with **Special Condition 3** and shall not exceed the phased implementation schedule established in **Special Condition 4**.

Discussion: The changes proposed above apply for Phase I, without removal of Cultivation Bed EB 7-2, discussed above. Coast also requests that staff reconsider its denial of Phase II of the project. Coast is amenable to only allowing Phase II to move forward based on the results of the extensive brant and eelgrass monitoring, and can use the same criteria established above to permit Phase II to move forward. In the event that Coast's analysis is correct concerning brant and eelgrass impacts, there does not appear to be a material reason to require Coast to go through another extensive review process when the analysis has already been performed and verified through monitoring. Requiring Coast to go through the entire process again would impose significant additional costs to Coast in permitting and legal fees and represents a significant departure from what was discussed with Commission staff in December 2016. The cultivation proposed under Phase II is critical for Coast to make the overall project pencil and for Coast to meet its production goals, particularly when 42 acres of its existing culture will be removed in Phase I and Coast will be required to finance an eelgrass monitoring plan that will cost hundreds of thousands of dollars. Further, the Executive Director would retain the authority to deny installation of Phase II if the project impacts are greater than Coast anticipates.

PAUL
HASTINGS

We look forward to further discussing these changes with Commission staff to provide language that protects Humboldt Bay natural resources while allowing Coast to operate a successful shellfish farm and continue to provide sustainable food, local jobs, and other benefits to the surrounding community.

Sincerely,

Peter H. Weiner
of PAUL HASTINGS LLP

Attachments

Attachment 1


61°F 04/10/2015 12:21PM COAST 1


36°F 04/12/2015 11:14AM COAST 1


36°F 04/12/2015 11:14AM COAST 1


36°F 04/12/2015 11:16AM COAST 1


36°F 04/12/2015 11:17AM COAST 1

Attachment 2

HERRING OBSERVATIONS 2017

DATE	BED	POS/NEG	TIME	COMMENTS
1/16/2017	MR SEAPA	NEG	7:00PM TO 9:00PM	No bird activity or eggs in the work area
1/17/2017	MR 6-2	NEG	11:00AM TO 12:00PM	No bird activity or eggs in the work area
1/23/2017	MR SEAPA	NEG	12:30PM TO 1:00PM	No bird activity or eggs in the work area
1/23/2017	MR2	NEG	1:00PM TO 1:30PM	No bird activity or eggs in the work area
1/23/2017	MR11	NEG	1:30PM TO 2:00PM	No bird activity or eggs in the work area
1/23/2017	MR 6-2	NEG	2:00PM TO 2:30PM	No bird activity or eggs in the work area
1/24/2017	GI 1-1	NEG	2:00PM TO 2:45PM	No bird activity or eggs in the work area
1/24/2017	MR 2	NEG	2:45PM TO 3:30PM	No bird activity or eggs in the work area
1/24/2017	MR11	NEG	3:30PM TO 4:00PM	No bird activity or eggs in the work area
1/25/2017	BI SOUTH	POS	4:00PM TO 5:00PM	Possibly some sparce eggs on eelgrass
1/27/2017	AC NURSERY	POS	5:00PM TO 5:30PM	Herring eggs on cultch bags, all work stopped
1/27/2017	SI 1-2	POS	5:30PM TO 6:00PM	Herring eggs on eelgrass between channel and bed. All work stopped.
1/30/2017	GI NURSERY	NEG	5:00AM TO 5:15AM	Gulls resting, no eggs in work area
1/30/2017	EB SEAPA	POS	5:15AM TO 5:30AM	Largenumbers of birds, eggs on eelgrass stopped all work in this area
1/30/2017	MR SEAPA	POS	5:45PM TO 6:00PM	Herring eggs on all surrounding eelgrass, none on baskets or lines. All work stopped
1/30/2017	MR 2	POS	6:00PM TO 6:15PM	Herring eggs on all surrounding eelgrass, none on lines. All work stopped
1/30/2017	MR 9	POS	6:15 TO 6:30PM	Herring eggs on all surrounding eelgrass, none on lines. All work stopped
1/30/2017	MR R&B WET STORAGE	POS	6:30 TO 6:40PM	No eggs on shell reef, but on all surrounding eelgrass All work stopped
1/30/2017	MR 6-1, 6-2	NEG	7:30PM TO 8:30PM	No bird activity or eggs in the work area
1/31/2017	MR 6-1, 6-2	POS	7:00AM TO 7:30AM	Found few eggs on two small patches of eelgrass outside of bed, No eggs on bed. All work stopped
1/31/2017	MR 8-1	POS	7:30AM TO 7:45AM	Heavy eggs on eelgrass surrounding all sides of bed No eggs on lines. All work stopped
1/31/2017	MR SOFT	POS	7:45AM TO 8:00AM	Eggs on all surrounding eelgrass, none on lines All work stopped
1/31/2017	BI AREA	POS	8:00AM TO 8:15AM	Found eggs throughout the growing area All work stopped
1/31/2017	GI NURSERY	NEG	8:15AM TO 8:30AM	No bird activity or eggs in the work area
2/1/2017	CLAM RAFTS	POS	6:00AM TO 7:00AM	Found small amount of eggs on one rope
2/1/2017	MR 3-1, MR3	NEG	8:00AM TO 8:15AM	Very few eggs outside of bed, none on bed. All work stopped
2/1/2017	SI NORTH	POS	8:15AM TO 8:30AM	Found eggs on eelgrass on western border of bed None on lines or bed. All work stopped
2/1/2017	GI 1-2	NEG	8:30AM TO 8:45AM	Found eggs outside of bed on North side eelgrass No eggs on bed. All work stopped
2/1/2017	GI NURSERY	NEG	8:45AM TO 9:00AM	No bird activity or eggs in the work area
2/1/2017	MR SEAPA	NEG	8:35AM TO 8:20AM	No bird activity or eggs in the work area
2/3/2017	MR SEAPA	NEG	10:00AM TO 11:30AM	No bird activity or eggs in the work area
2/5/2017	MR SEAPA	NEG	11:50AM TO 12:45PM	No bird activity or eggs in the work area
2/5/2017	GI NURSERY	NEG	12:00PM to 2:00PM	No bird activity or eggs in the work area
2/6/2017	MR 3-1, MR3	NEG	6:00AM to 9:00AM	No bird activity or eggs in the work area
2/1/2017	CLAM RAFTS	NEG	6:00AM TO 7:30AM	No bird activity or eggs in the work area
2/3/2017	CLAM RAFTS	POS	6:00AM TO 7:00AM	No birds, some eggs on one stack of trays
2/6/2017	CLAM RAFTS	NEG	6:00AM TO 7:00AM	No bird activity or eggs in the work area
2/13/2017	MR SEAPA	NEG	6:10AM TO 7:00AM	No bird activity or eggs in the work area
2/14/2017	GI NURSERY	NEG	7:00AM TO 7:05AM	No bird activity or eggs in the work area
2/14/2017	EB SEAPA	POS	7:10AM TO 7:20AM	Few eggs on surrounding eelgrass. Eye spots showing
2/14/2017	MR SEAPA	NEG	7:25AM TO 7:35AM	No eggs in work area. Few on surrounding eelgrass

DATE	BED	POS/NEG	TIME	COMMENTS
2/14/2017	MR 2	NEG	7:40AM TO 7:50AM	No eggs on bed. No eggs on surrounding eelgrass
2/14/2017	MR 4-1	NEG	7:55AM TO 8:05AM	No eggs on bed. No eggs on surrounding eelgrass
2/14/2017	MR 8-1	NEG	8:10AM TO 8:20AM	No eggs on bed. Some hatched eggs on eelgrass outside of bed
2/14/2017	MR 9	NEG	8:25AM TO 8:35AM	No eggs on bed or surrounding eelgrass.
2/14/2017	MR 6-2	NEG	8:40AM TO 8:50AM	No eggs on bed or surrounding eelgrass.
2/14/2017	MR 3	NEG	8:55AM TO 9:05AM	No eggs on bed or surrounding eelgrass.
2/15/2017	MR SEAPA	NEG	7:10AM TO 8:15AM	No eggs on bed or surrounding eelgrass.
2/17/2017	MR SEAPA	NEG	9:40AM TO 10:40AM	No eggs on bed or surrounding eelgrass.
2/21/2017	MR SEAPA	NEG	2:00PM TO 3:40PM	No eggs on bed or surrounding eelgrass.
2/21/2017	MR9	NEG	10:00AM TO 2:00PM	No eggs on bed or surrounding eelgrass.
2/22/2017	MR SEAPA	NEG	1:20PM TO 2:10PM	No eggs on bed or surrounding eelgrass.
2/22/2017	BI SOUTH	NEG	2:30PM TO 3:30PM	No eggs on bed or surrounding eelgrass.
2/23/2017	BI SOUTH	NEG	5:00AM TO 10:00AM	No eggs on bed or surrounding eelgrass.
2/23/2017	BI SOUTH	NEG	5:00PM TO 6:30PM	No eggs on bed or surrounding eelgrass.
2/23/2017	GI 1-1	POS	3:00PM TO 3:20PM	No eggs on bed, lots of eggs on surrounding eel grass
2/23/2017	MR2	NEG	3:30PM TO 5:30PM	No eggs on bed or surrounding eelgrass.
2/23/2017	MR SEAPA	NEG	1:25PM TO 2:20PM	No eggs on bed or surrounding eelgrass.
2/24/2017	BI 3-2	NEG	3:30PM TO 5:30PM	No eggs on bed or surrounding eelgrass.
2/24/2017	EB 2-1	POS	4:20PM TO 4:30PM	Many new eggs on eelgrass
2/24/2017	SI 2-1	POS	4:10PM TO 4:20PM	No eggs on bed, sparse eggs on eelgrass
2/24/2017	MR 8-1	NEG	4:00PM TO 4:10PM	No eggs on bed or surrounding eelgrass.
2/24/2017	MR 4-1	NEG	3:50PM TO 4:00PM	No eggs on bed or surrounding eelgrass.
2/24/2017	MR 2	NEG	3:40PM TO 3:50PM	No eggs on bed or surrounding eelgrass.
2/24/2017	BI SOUTH	NEG	3:30PM TO 3:40PM	No eggs on bed or surrounding eelgrass.
2/24/2017	AC NURSERY	NEG	3:20PM TO 3:30PM	No eggs in nursery, eggs on eelgrass to North
2/24/2017	EB SEAPA	NEG	3:10PM TO 3:20PM	No eggs on bed or surrounding eelgrass.
2/24/2017	GI NURSERY	NEG	3:00PM TO 3:10PM	No eggs on nursery, eggs on eelgrass to North
2/26/2017	MR SEAPA	NEG	4:00PM TO 6:50PM	No eggs on bed or surrounding eelgrass
2/27/2017	BI SOUTH	NEG	2:00AM TO 5:00AM	No eggs on bed or surrounding eelgrass.
2/27/2017	MR SEAPA	NEG	5:10AM TO 6:05AM	No eggs on bed or surrounding eelgrass.
2/28/2017	MR SEAPA	NEG	5:10AM TO 6:35AM	No eggs on bed or surrounding eelgrass.
2/28/2017	BI SOUTH	NEG	10:00AM TO 1:30PM	No eggs on bed or surrounding eelgrass.
3/1/2017	MR SEAPA	NEG	5:45AM TO 6:54AM	No eggs on bed or surrounding eelgrass.
3/1/2017	MR 8-1	NEG	4:00AM TO 10:00AM	No eggs on bed or surrounding eelgrass.
3/2/2017	MR SEAPA	NEG	6:17AM TO 7:10AM	No eggs on bed or surrounding eelgrass.
3/3/2017	MR 8-1	NEG	1:00AM TO 5:00AM	No eggs on bed or surrounding eelgrass.
3/6/2017	MR SEAPA	NEG	8:20AM TO 9:10AM	No eggs on bed or surrounding eelgrass.
3/6/2017	MR SEAPA	NEG	9:30AM TO 11:10AM	No eggs on bed or surrounding eelgrass.
3/6/2017	GI NURSERY	NEG	9:30AM TO 9:40AM	No eggs on bed or surrounding eelgrass.
3/6/2017	GI 1-1	POS	9:20AM TO 9:30AM	Sparse eggs on eelgrass
3/6/2017	EB SEAPA	NEG	9:40AM TO 9:50AM	No eggs on bed or surrounding eelgrass.
3/6/2017	EB 6-2	POS	9:50AM TO 10:00AM	Sparse eggs on eelgrass
3/6/2017	AC NURSERY	NEG	10:00AM TO 10:10AM	No eggs on bed or surrounding eelgrass.
3/6/2017	SI 2-1	NEG	10:10AM TO 10:20AM	No eggs on bed or surrounding eelgrass.
3/6/2017	MR SEAPA	NEG	10:10AM TO 11:10AM	No eggs on bed or surrounding eelgrass.
3/6/2017	GI 1-2	NEG	11:00AM TO 1:00PM	No eggs on bed or surrounding eelgrass.
3/6/2017	MR 2	NEG	11:00AM TO 1:00PM	No eggs on bed or surrounding eelgrass.
3/6/2017	MR 8-1	NEG	4:00AM TO 7:00AM	No eggs on bed or surrounding eelgrass.
3/7/2017	MR 8-2	NEG	4:30AM TO 7:30AM	No eggs on bed or surrounding eelgrass.
3/7/2017	MR 11	NEG	11:00AM TO 3:00PM	No eggs on bed or surrounding eelgrass.
3/7/2017	MR SEAPA	NEG	11:15AM TO 12:10PM	No eggs on bed or surrounding eelgrass.
3/8/2017	MR 8-1	NEG	5:00AM TO 8:00AM	No eggs on bed or surrounding eelgrass.
3/8/2017	MR SEAPA	NEG	12:15PM TO 1:10PM	No eggs on bed or surrounding eelgrass.
3/9/2017	MR SEAPA	NEG	1:30PM TO 2:20PM	No eggs on bed or surrounding eelgrass.
3/10/2017	MR SEAPA	NEG	2:10PM TO 5:50PM	No eggs on bed or surrounding eelgrass.
3/13/2017	MR SEAPA	NEG	5:30AM TO 6:20AM	No eggs on bed or surrounding eelgrass.

DATE	BED	POS/NEG	TIME	COMMENTS
3/13/2017	MR 8-1	NEG	12:00AM TO 6:00AM	No eggs on bed or surrounding eelgrass.
3/14/2017	MR SEAPA	NEG	5:40AM TO 7:05AM	No eggs on bed or surrounding eelgrass.
3/14/2017	MR 8-1	NEG	12;00AM TO 6:30AM	No eggs on bed or surrounding eelgrass.
3/15/2017	MR SEAPA	NEG	6:46AM TO 7:40AM	No eggs on bed or surrounding eelgrass.
3/15/2017	MR 8-1	NEG	1:00AM TO 6:30AM	No eggs on bed or surrounding eelgrass.
3/15/2017	MR SEAPA	NEG	6:50AM TO 8:00AM	No eggs on bed or surrounding eelgrass.
3/15/2017	MR 2	NEG	8:30AM TO 10:00AM	No eggs on bed or surrounding eelgrass.
3/15/2017	SI 1-2	NEG	9:00AM TO 10:30AM	No eggs on bed or surrounding eelgrass.
3/16/2017	MR 8-1	NEG	2:00AM TO 8:00AM	No eggs on bed or surrounding eelgrass.
3/16/2017	MR 6-2	NEG	9:00AM TO 11:00AM	No eggs on bed or surrounding eelgrass.
3/16/2017	MR 3-1	NEG	9:30AM TO 11:00AM	No eggs on bed or surrounding eelgrass.
3/17/2017	MR SEAPA	NEG	7:30AM TO 9:00AM	No eggs on bed or surrounding eelgrass.
3/17/2017	AC NURSERY	NEG	10:00AM TO 11:30AM	No eggs on bed or surrounding eelgrass.

Attachment 3

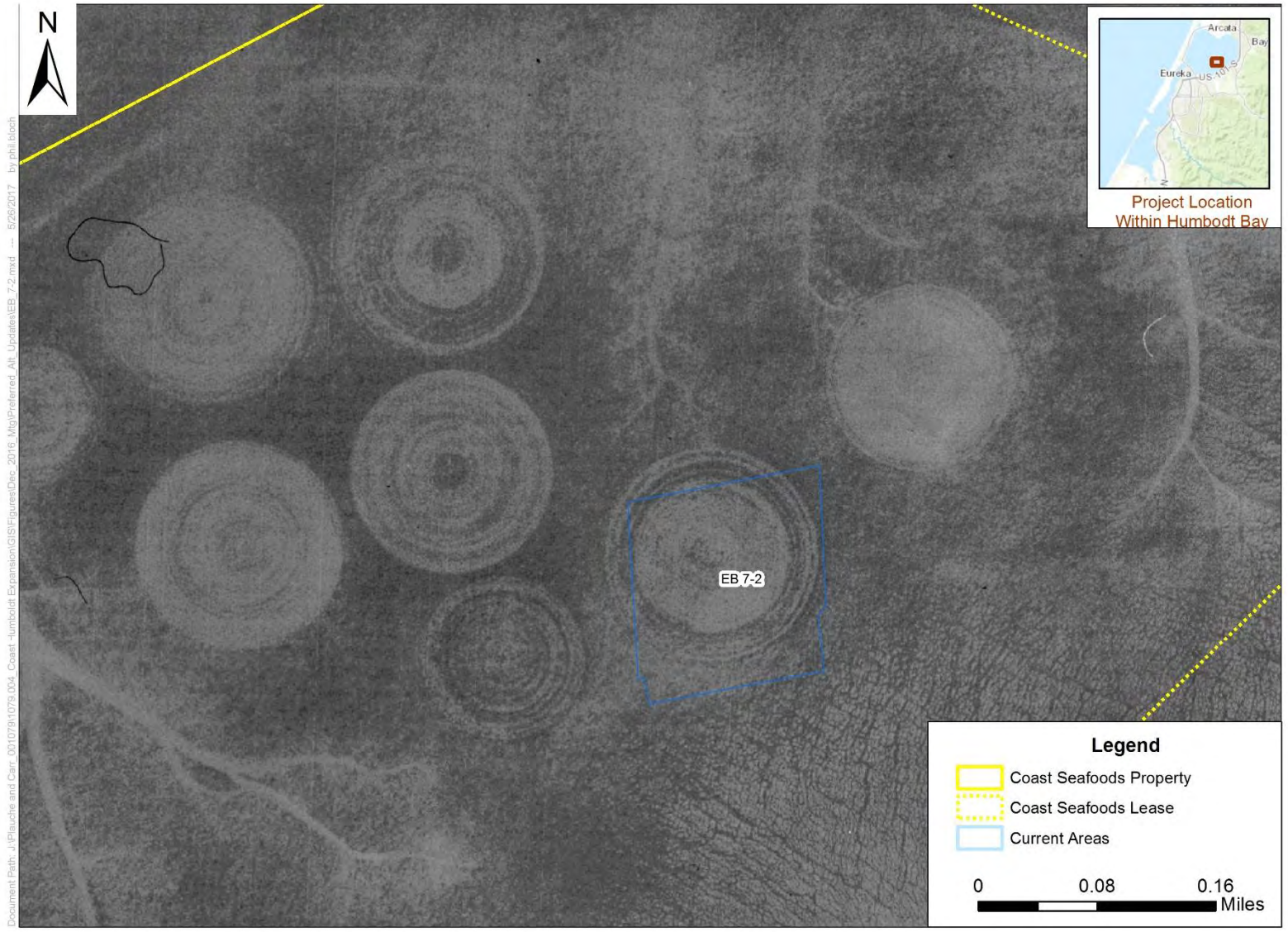

Figure 1: Bed EB 7-2 and vicinity in 1993. Ground culture activities clearly visible interrupting eelgrass areas in East Bay

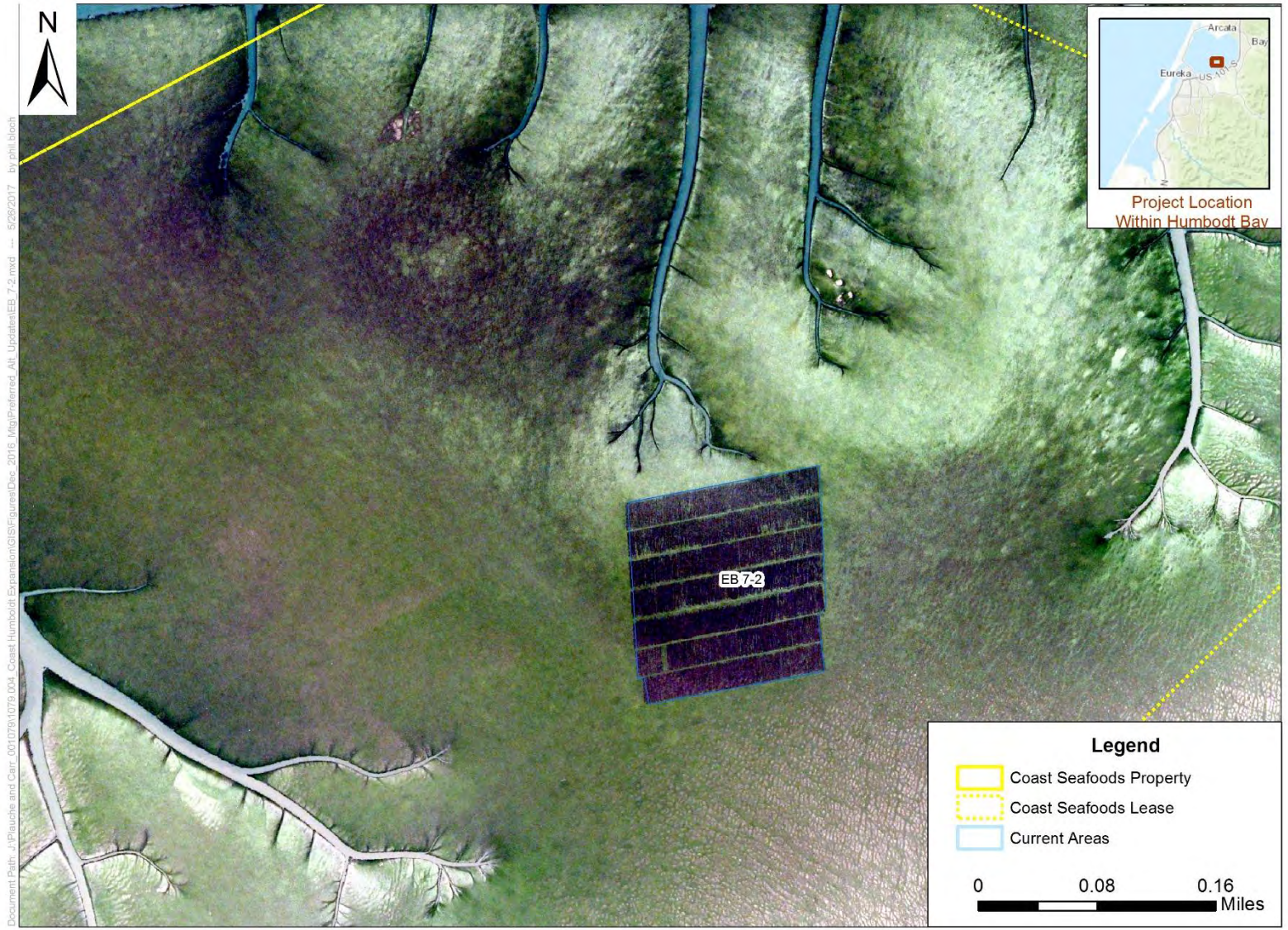

Figure 2: Recovery of eelgrass in former ground culture areas in the vicinity of and including EB 7-2 based on 2009 observations.

Figure 3: 2016 eelgrass observations suggest continued success of eelgrass within and adjacent to EB 7-2.

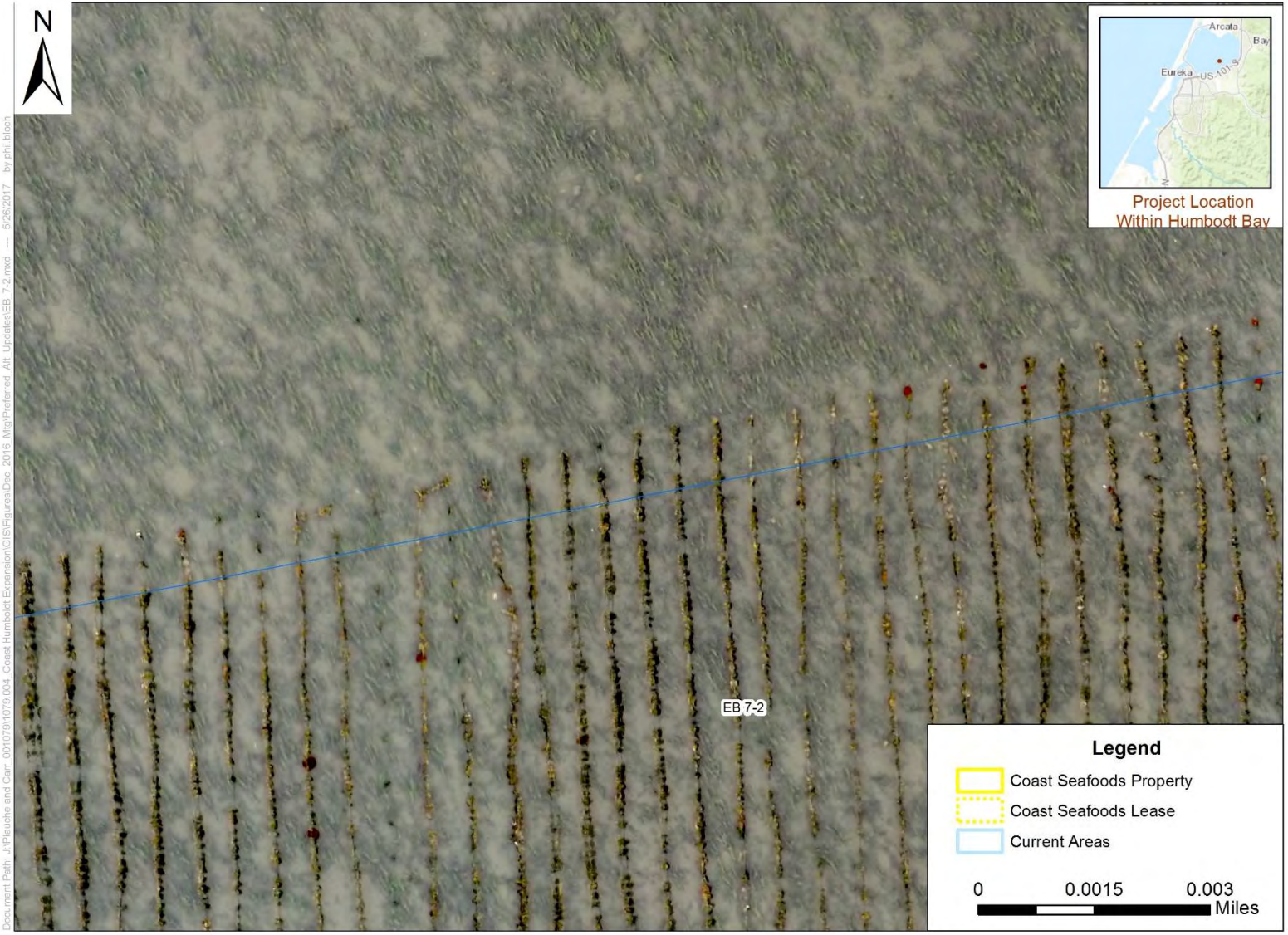

Figure 4: Low elevation UAV observations of north edge of EB 7-2 suggest eelgrass distribution is similar within and adjacent to EB 7-2.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Marine Region
1933 Cliff Drive, Suite 9
Santa Barbara, CA 93109
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

June 1, 2017

Cassidy Teufel
California Coastal Commission
45 Fremont Street Suite 2000
San Francisco, CA 94105
Cassidy.Teufel@coastal.ca.gov

Subject: Comments on the California Coastal Commission Staff Report for the Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project

Dear Mr. Teufel:

The California Department of Fish and Wildlife (Department) has reviewed the California Coastal Commissions' (CCC) Staff Report (SR) for the Coast Seafoods Company Humboldt Bay shellfish aquaculture, permit renewal and expansion project (Project). The Project as described in the CCC SR includes the continuation of existing operations consisting of 228 acres of single hung 2.5 foot spaced cultch on longlines (COLL), 10.86 acres of basket on longlines (BOLL) with 3 lines spaced 3 feet apart then a 20 foot gap; ~ 6 acres of rafts and nursery areas; and floating upwelling system rafts. The Project proposes to add or change the following to the existing operations: add 82.64 acres of 10 foot spaced COLL; add 72 acres of BOLL with 2 lines spaced 9 feet apart then a 16 foot gap; expand the floating upwelling system rafts; include oysters on the list of species allowed to be grown in existing clam rafts; remove existing cultivation bed EB 7-2; and remove 34.0 acres of existing 2.5 foot spaced COLL including beds SI 2-1, SI 2-2, SI 1-2A. SI Nk, SI 1-2, and SI 1-1. This would increase the operational footprint of CSF's operations by 38% from 298.7 acres to a total of 411 acres.

As a trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection and management of fish, wildlife, and habitats necessary for biologically sustainable populations of those species (Fish and G. Code §1802). In this capacity, the Department administers the California Endangered Species Act, the Native Plant Protection Act, and other provisions of the California Fish and Game Code that afford protection to the State's fish and wildlife resources. The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act (MLPA) in coastal marine waters of California and is recognized as a "Trustee Agency" under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.; hereafter CEQA; Cal. Code Regs., § 15000 et seq.; hereafter CEQA Guidelines). Pursuant to our jurisdiction, the Department offers the following comments and recommendations regarding the Project.

The Department appreciates the efforts of the CCC to reduce impacts from the proposed Project and supports the changes to the Project included in the SR. The Department concurs with the modifications put forth in the SR and agrees with the plan to implement an incremental build-out of expansion areas to ensure the estimated impacts are not exceeded for Eelgrass and Black Brant. The Department also concurs with the CCC regarding consolidating and removing a subset of existing operations, particularly bed EB 7-2. Given its location in the Bay, this removal will be beneficial for reducing impacts to shorebirds, waterfowl and recreational users by providing a large continuous area within the East Bay, an important area to wildlife and recreational users. The Department looks forward to participating in the review of all required reports to ensure that the success criteria identified in the Special Conditions are met.

The Department appreciates the opportunity to review and comment on the SR and Department personnel are available to discuss our comments in greater detail. For further information regarding hunting and waterfowl issues please contact Melanie Weaver, Senior Environmental Scientist, California Department of Fish and Wildlife, 1812 9th Street, Sacramento, CA 95811, phone (916) 445-3717, email Melanie.Weaver@wildlife.ca.gov; for other topics please contact Rebecca Garwood, Environmental Scientist, California Department of Fish and Wildlife, 619 2nd Street, Eureka, California, 95501, phone (707) 445-6456, and email Rebecca.Garwood@wildlife.ca.gov.

Sincerely,

Craig Shuman, D Env.
Regional Manager
Marine Region

ec: Becky Ota, Environmental Program Manager
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Eric Nelson, Refuge Manager- Humboldt Bay Wildlife Refuge
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North Coast Regional Water Quality Control Board

June 2, 2017

Ms. Dayna Bochco
California Coastal Commission
Attn: Mr. John Ainsworth
45 Fremont Street, Suite 2000
San Francisco, CA 94105
John.Ainsworth@coastal.ca.gov

Dear Ms. Bochco:

Subject: Staff Report for Coastal Development Permit Application No. 9-15-1931, Coast Seafoods Oyster Expansion Project

North Coast Regional Water Quality Control Board (Regional Water Board) staff have reviewed the California Coastal Commission's Staff Report for the Coast Seafoods Oyster Expansion Project Coastal Development Permit, Application No. 9-15, 1931 (Staff Report). On July 20, 2016 Coast Seafoods has also submitted a federal Clean Water Act section 401 water quality certification (401 certification) permit application to the Regional Water Board for the same project. Our agency protects many of the same beneficial uses of Humboldt Bay as the California Coastal Commission (Commission), including marine habitat, wildlife habitat, recreation, and special-status species. The intent of our comments below are to highlight elements in the Staff Report that the Regional Water Board supports.

We support the Staff Report recommendation to limit the permit scope to Phase 1 activities, and not permit Phase 2 activities at this time. The current project proposal from Coast Seafoods calculates mitigation measures based on untested assumptions of impacts, and proposes monitoring the effects of Phase 1 activities to test those assumptions and the adequacy of the associated mitigation measures. Phase 2 would then be implemented only if the assumptions proved correct through the Phase 1 monitoring. The Regional Water Board finds that it is prudent and reasonable to wait until all Phase 1 monitoring is complete and the results accepted by the regulatory agencies before considering permitting Phase 2. In the case of the Regional Water Board's 401 certification, if we find that the Phase 1 monitoring shows the initial assumptions are correct, then either a separate 401 certification can be issued for Phase 2 activities, or the existing 401 certification may be amended to allow the activities to move forward. By providing this permitting separation between the two project phases, it would provide an opportunity for additional agency and public review should assumptions prove incorrect or any unforeseen issues arise during Phase 1 implementation.

The Staff Report includes recommendations to consolidate oyster beds and remove oyster bed 7-2 from production to protect beneficial uses of Humboldt Bay, including marine habitat, special status species, and water recreation. Under the Clean Water Act section 401 regulatory framework, the Regional Water Board evaluates a project's potential to avoid, minimize and then mitigate impacts to water quality and beneficial uses during the permitting process. The Regional Water Board also considers public comments when evaluating whether project changes are necessary to protect beneficial uses. While we have not yet issued a public notice for this project's 401 certification application, we may also seek project changes to ensure project compliance with the CWA section 401 regulatory framework, to protect beneficial uses and to consider any public comments received. Because oyster bed 7-2 is isolated from all other oyster cultivation plots in east Humboldt Bay, its presence significantly extends oyster operation activities into an area that would otherwise be free from these disturbances. Insofar that oyster bed 7-2 would significantly impact beneficial uses such as recreation, herring, eelgrass and black brant goose habitats, we support its removal from production in terms of impacts avoidance and minimization.

Appendix A of the Staff Report presents mean eelgrass density thresholds that must be met prior to additional oyster expansion activities. We strongly support the Staff Report recommendation to use the upper confidence interval of the mean as a threshold trigger rather than the mean itself. Due to the inherent variability of eelgrass density, the mean may not be a reliable indicator of actual density values. Using an upper confidence interval as a threshold trigger would be conservative and help protect potential underestimation of eelgrass density loss, as well as encourage robust sampling to reduce variability and thereby improve the quality of the data.

Thank you for considering these comments. If you have any questions or comments, please contact Stephen Bargsten of our staff at (707) 576-2653.

Sincerely,

Matthias St.John
Digitally signed by Matthias St.John
Date: 2017.06.02 14:41:21 -07'00'
Water Boards

Matthias St. John
Executive Officer

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cc: Cassidy Teufel, CA Coastal Commission, Cassidy.Teufel@coastal.ca.gov
Kasey Sirkin, Corps of Engineers, L.K.Sirkin@usace.army.mil
Rebecca Garwood, CDFW, Rebecca.Garwood@wildlife.ca.gov
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Becky Ota, CDFW, Becky.Ota@wildlife.ca.gov
Lisa Van Atta, NOAA, Alecia.VanAtta@noaa.gov

CALIFORNIA STATE LANDS COMMISSION
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JENNIFER LUCCHESI, *Executive Officer*
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Established in 1938

June 5, 2017

John Ainsworth
Executive Director
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105

RE: Application No. 9-15-1931, Coast Seafoods (Agenda Item W13a)

Dear Mr. Ainsworth:

The California State Lands Commission staff (Lands Commission) reviewed the staff report and special conditions proposed for Application No. 9-15-1931 (Agenda Item W13a) at the June 7, 2017 meeting concerning the Coast Seafoods Company application. The Coastal Commission's approval would authorize Coast Seafoods to continue oyster aquaculture operations on approximately 234 acres, continue operation of 30 floating clam culture rafts, and expand oyster cultivation by an additional 256 acres. The expansion has two phases and would include eelgrass and black brant monitoring to ensure impacts to these resources do not exceed staff estimates. Coastal Commission staff is recommending special conditions to resolve Coastal Act consistency concerns, including limiting the approval to Phase 1, requiring additional consolidation of proposed operations to reduce eelgrass and recreation impacts, reducing the approval by an additional 11.5 acres, and requiring modifications to Coast's proposed eelgrass monitoring plan to ensure the mitigation obligations are met.

Lands Commission staff, in coordination with Coast Seafoods, the Humboldt Bay Harbor, Recreation and Conservation District, and state and federal agencies, has participated over the past year on the development of the proposed project and monitoring plans. Lands Commission staff submitted comment letters to the District in September 2016 and January 2017 that relate to the District's Environmental Impact Report and submitted comments to Coast Seafoods'consultant in April 2017 about the eelgrass monitoring plan. Additionally, The California Waterfowl Association, the Black Brant Group, and Audubon California provided public comment directly to Lands Commission on December 6, 2016, expressing concern about the potential adverse impacts to sovereign public trust resources resulting from Coast Seafood's proposal.

With respect to potential adverse impacts to public trust resources and values, Lands Commission staff expressed concern with potential eelgrass and tidal mud flat habitat fragmentation, degradation of ecosystem integrity, and loss of ecological

function. As noted in the Coastal Commission staff report, eelgrass beds in Humboldt Bay represent the third largest eelgrass meadows found along the west coast and host over 60 percent of the total black brant population each spring during their migration from southern wintering sites to northern breeding grounds[1]. Due to the sensitivity of eelgrass habitat and its significant ecological and economic importance, and the scale of project activities proposed to occur within it, Lands Commission staff believes that the special conditions proposed to address Coastal Act concerns will help assuage concerns about adverse impacts to sovereign public trust resources. Lands Commission staff therefore supports including the recommended special conditions in the coastal development permit for this project, should the permit be approved by the Coastal Commission.

Sincerely,

Sheri Pemberton
Chief, External Affairs Division

cc: Dayna Bochco, Chair, California Coastal Commission
Jennifer Lucchesi, Executive Director, State Lands Commission

[1] Status of Fisheries Report, 2008 (chapter 16): https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=34430.

United States Department of the Interior
FISH AND WILDLIFE SERVICE

Humboldt Bay National Wildlife Refuge Complex
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Loleta, CA 95551
Phone (707) 733-5406 / Fax (707) 733-1946
Web: www.fws.gov/refuge/humboldt_bay

2 June 2017

Cassidy Teufel
Senior Environmental Scientist
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Subject: Comments on the CA Coastal Commission Staff Report for the Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project

Dear Mr. Teufel:

The staff at the Humboldt Bay National Wildlife Refuge has reviewed the staff report (SR) which addresses potential impacts of the proposed Coast Seafoods Permit Renewal and Expansion Project. We thank you for the opportunity to comment on your SR and your considerable efforts with the incredibly tough challenge of balancing the protection and conservation of nonrenewable coastal trust resources with coastal dependent development. We concur with all of the staff recommendations to some degree but think some should be modified.

In general we agree with the recommendation(s) for incremental oyster culture development such as limiting the permit to Phase 1 only and consolidation of existing development. We support basing permission for future development on monitoring responses to development of both eelgrass and brant. However, we suggest that initial expanded development be limited to only those areas which will be monitored, which would appear to be ~45 acres. We think that permitting an initial expansion of ~83ac of the Phase One 114 ac is too much, especially given that the only information currently available indicates that brant do not forage in oyster culture areas. In this same vein, our recommendation is that if initial brant monitoring does not show bed-feeding at equal levels in developed and control areas, then no expansion should occur, as that would demonstrate that the development is resulting in the functional removal of brant habitat.

We also strongly support special condition 17 to remove existing bed EB 7-2 from the East Bay Management Area (EBMA). This site is currently quite isolated from other development areas in an area heavily used by brant, other waterfowl and shorebirds, and recreational users. Removal of 7-2 would leave a relatively (and the only) large undisturbed area with eelgrass in North (Arcata) Bay.

We outline and document additional concerns about the proposed project below.

Humboldt Bay is well documented as a key Pacific Flyway migratory stopover location for brant and numerous other species of waterbirds, as well as many other species of fish and wildlife. As you have documented in the SR, many of these are species of special conservation concern and many others are part of estuarine webs that support other types of resource harvest, from crabs to fish to waterfowl, that impact hundreds, or thousands of people in the Humboldt Bay area and other communities. Other agencies (including the CCC and CDFW) and individuals have adequately addressed some of these species and concerns, and so the bulk of this comment letter will focus on brant, which is an area where we can offer our expertise.

We suggest there has been and continues to be an underestimation of the cumulative impacts, especially the "disturbance" impacts to brant and other migratory birds that would result from the proposed expansion. There also has been a lack of consideration for the impact reduced brant grazing would have on the eelgrass beds themselves, and potential cumulative impacts to brant from this and other proposed aquaculture projects combined with ever increasing incidental disturbance to brant from both commerce and recreation.

Wintering and migratory locations for brant need healthy eelgrass beds as eelgrass makes up 90+% of their diet at these locations. Humboldt Bay supports the largest stands of eelgrass between the brant wintering grounds in Baja, Mexico and Willapa Bay, Washington, making it a crucial stopover site. In recent history brant reliance on healthy eelgrass beds meant that North Bay was functionally useless as a result of the on-ground aquaculture practices of the past. Brant use of Humboldt Bay has also been shown to be very sensitive to increased disturbance in spring, with steep declines in use due to spring hunting from the 1950's-1980's (Moore and Black 2006a). During this same time period brant distribution on Humboldt Bay was ~80% on South Bay and 20% on North Bay (Henry 1980, Moore 2004). However, as eelgrass has returned to North Bay, the brant have as well. Recent surveys indicate brant distribution on Humboldt Bay has shifted significantly, with monitoring in spring of 2015 showing greater use of North Bay (192,400 bird use days) compared to South Bay (147,930 bird use days). While the exact reason has not been documented, hypotheses include increased disturbance on South Bay and improved eelgrass beds in North Bay, or likely a combination thereof. However, studies

on both Willapa and Dungeness Bays in Washington state during the 1980's and early 90's showed that a reduction in eelgrass led to a corresponding reduction in brant use; on Willapa Bay aquaculture operations were associated with declines in dense eelgrass beds which resulted in a significant reduction in brant use of those areas (Wilson and Atkinson 1995) .

A comprehensive evaluation of disturbance to brant must consider more than direct human contact causing birds to flush. Due to brant's dietary specialization, tidal restrictions in foraging space and time and the relatively low nutritional value of eelgrass, mean that a reduction in foraging time caused by infrastructure and/or human use should be considered a disturbance. More specifically, a reduction in "bed-feeding" could be especially impactful on migrating individuals' ability to acquire sufficient nutrient reserves. While brant will feed on loose, floating pieces of eelgrass (drift-feeding), they show significantly higher intake rates while feeding on eelgrass blades still attached to the turion (bed-feeding; Elkinton 2013). In line with what those knowledgeable about brant behavior might have presumed, H.T. Harvey's report found that brant did not use areas of longline aquaculture once the tide was low enough for infrastructure to be an impediment to swimming (CSF 2015). If we estimate that brant require ~0.5 ft for their feet to clear while swimming, this would mean that brant will abandon areas with cultch-on-longline when the water is 1.5 ft above the substrate and 3.8 ft for areas with basket-on-longline (longlines 1 ft and 3.3 ft above substrate), as shown in figure 1. Currently, operations occur on substrate elevations as high as +3 ft relative to MLLW, with the proposed areas of expansion -2.0 ft to +1.5 ft relative to MLLW (CSF2105). Utilizing a substrate elevation of 0 ft, then accounting for infrastructure height, and foot clearance, brant will not use areas of basket-on-longline when tide height is below 3.8 ft, and cultch-on-longline below 1.5 ft MLLW. Previous researchers have found that brant are able to bed-feed at 2.95 ft (0.9 m MLLW; Moore and Black 2006b, Elkinton 2013), with the majority of the flock bed-feeding when the tide is below 1.64 ft (0.5 m MLLW). Utilizing the eelgrass same shoot length equation as in the Initial Study, turions growing at 0 ft MLLW would extend shoots approximately 1.9 ft (0.59 m). This would render areas with cultch-on-longline unavailable for the majority of the tide window at which bed-feeding occurs, and areas with basket-on-longline would be functionally useless for bed-feeding. Again, for a species as specialized as brant, any human-caused reduction in foraging time should be considered a disturbance. We believe the impact of disturbance is underestimated when also considering loss of foraging time across all hours of the day and night as a result of infrastructure.

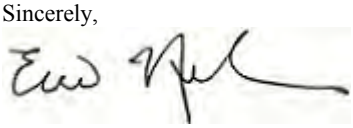
While numerous other agencies and experts have voiced concerns regarding the impact of aquaculture on eelgrass, there is an additional potential impact on eelgrass as a result of reduced brant grazing. Enhanced production by monocots after moderate grazing has been demonstrated in both terrestrial and marine ecosystems (McNaughton 1983, Moran and Bjorndal 2005, Valentine and Duffy 2006). Ferson (2007) conducted an experiment in Humboldt Bay to mimic the relationship between brant grazing and eelgrass productivity. The results showed that moderate grazing increased the below-ground biomass (rhizomes) and above-ground shoot biomass. These results exemplify an important symbiosis between graminoid and grazer that exists in other ecosystems as well. Therefore, a significant reduction in brant grazing time is likely to impact the long-term health of eelgrass beds.

Finally, there are the cumulative impacts. This project alone proposes a significant areal impact on eelgrass, and therefore, as documented above, brant. There are also other project proposals in the works to allow additional aquaculture in North Bay along the west shore of Indian Island and in the NE portion of North Bay. In addition to these proposed aquaculture projects and their impacts is the ever increasing disturbance from increasingly popular recreational activities (ie. touring and fishing kayaks, kiteboards, paddleboards, jetskis, etc.) which occur throughout the bay.

In summary, healthy eelgrass beds are an increasingly rare ecosystem susceptible to minute environmental changes with potentially devastating consequence. Brant is a species of concern in California which is dependent on the ecosystem for survival. Humboldt Bay is the second largest estuary in California, and supports the largest stands of eelgrass between brant wintering grounds in Baja, Mexico and Willapa Bay, Washington. Other California estuaries such as San Diego Bay, and increasingly Morro and Tomales Bay have lost much of their eelgrass and almost all brant. As stewards and trustees of these unique natural resources we ask that you critically consider the full implications of the proposed expansion project, and adjust a couple of your recommendations accordingly. Given the facts above it appears that the project, as proposed, would very likely have a significant impact on these important natural resources of the bay, which should be given appropriate weight in the final decision.

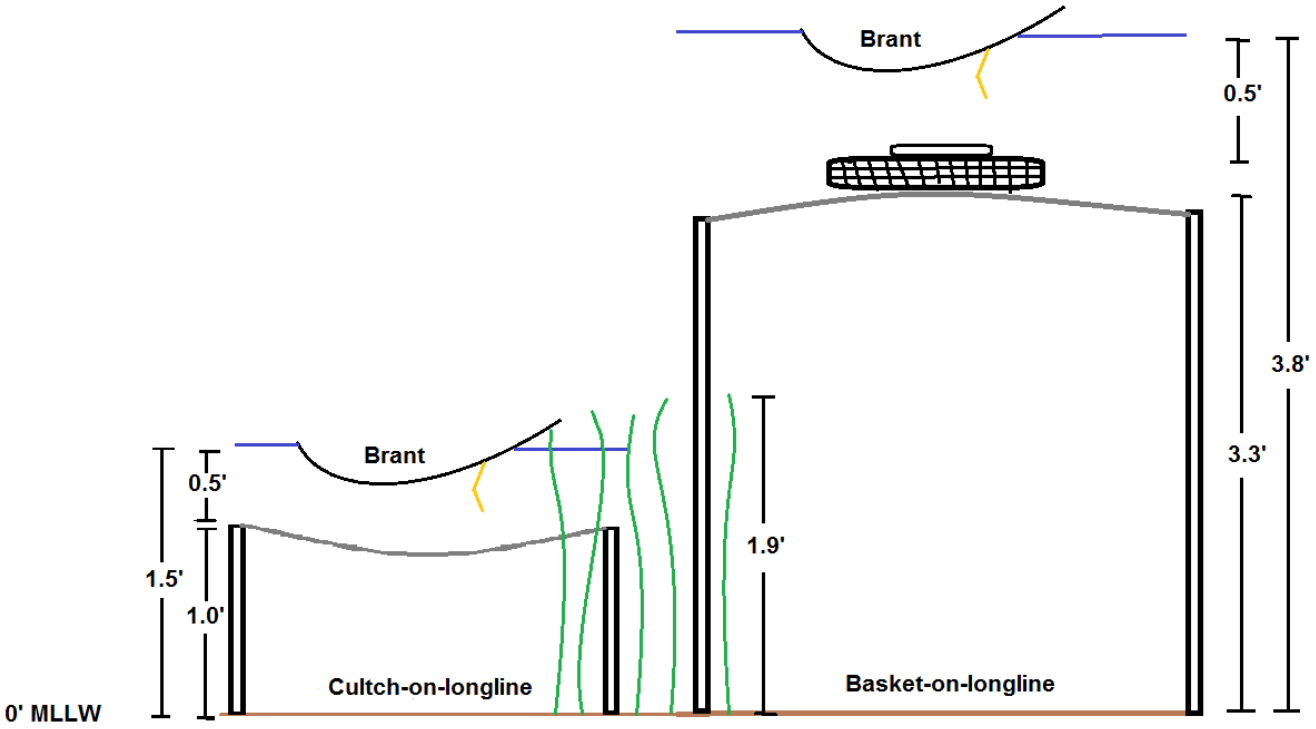
We appreciate the opportunity to comment and are available for any additional questions or information.

Sincerely,



Eric Nelson,
Refuge Manager
Humboldt Bay National Wildlife Refuge
US Fish and Wildlife Service

Figure 1.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June 2, 2017

Dayna Bochco, Chair and all Coastal Commissioners
Cassidy Teufel, Senior Environmental Scientist
California Coastal Commission
45 Fremont St.
San Francisco, CA 94105-2219
Via e-mail: Cassidy.Teufel@coastal.ca.gov

Re: Staff Report, Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company

Dear Chair Bochco, Coastal Commissioners, and Mr. Teufel:

Audubon California (Audubon), California Waterfowl Association (California Waterfowl), and Earthjustice, representing our combined members and supporters, are writing to request that the staff report recommendations and special conditions regarding the Coast Seafoods Coastal Development Permit (CDP) be revised to satisfy Coastal Act requirements under sections 30230 (Marine Resources), 30231 (Biological Productivity), and 30210, 30220, 30224 (Coastal Access and Water Oriented Recreation). As the report details, the proposed project would have significant adverse effects on Humboldt Bay itself, as well as on resources throughout the Pacific Flyway and the California Current Ecosystem. We request that the recommendations in this staff report be amended to better reflect the report's Findings and Declarations (Section IV) and the standards of the Coastal Act to "maintain, enhance and restore" intertidal wetlands, Species of Special Concern, threatened and endangered species, commercial and recreationally important fish and invertebrates, other species, and recreational access and safety.

It is important to recognize that the permit applicant bears the burden to demonstrate that its proposal is consistent with Coastal Act requirements. Given the Commission's role to protect public trust resources, any uncertainty regarding the likely negative effects of this proposal must be resolved in favor of protecting those resources.

Summary of Requests

The best available information demonstrates that Coast's existing aquaculture operations have adversely affected public trust resources and uses, and expanded operations would likely result in significant additional harm to multiple species and uses. Given the weight of the evidence, the

report should be amended to recommend permitting only Coast's existing operational footprint of 300 acres. If any expansion is permitted, it should be for the sole purpose of rigorously testing the effects of Coast's proposed operations, and should be limited to the approximately 45 acres required to carry out the scientific studies focused on better understanding the impacts of aquaculture on brant[1], eelgrass[2], and other species and resources.

Monitoring and adaptive management plans related to any potential constrained expansion must be subject to outside peer review and public review and conditioned to ensure that these plans will accurately detect effects and provide robust results. In addition to monitoring and evaluation plans for eelgrass and black brant, such plans should be required for Pacific herring, shorebirds, and other resources that may be harmed by the project. The expansion areas must be removed if the results fail to meet performance criteria for any of these resources.

Finally, existing operations should be completely removed from the East Bay Management Area and consolidated into the west side of the bay in order to protect Pacific herring, waterbirds, shorebirds, and other species.

Audubon and California Waterfowl Engagement

Since 2015, our organizations have submitted detailed comment letters to the Coastal Commission staff (letters dated May 11, 2017, and February 3, 2017); the lead agency (the Humboldt Bay Harbor, Recreation and Conservation District ("Harbor District")); other permitting agencies, including the U.S. Army Corps of Engineers and the City of Eureka; as well as consulting agencies including the National Marine Fisheries Service and the Pacific Fishery Management Council. We have met with Commission staff on a number of occasions in person and on the phone; we greatly appreciate time and consideration the staff has given us.

We also met with staff of Coast Seafoods and its parent company, Pacific Seafoods, as well as staff of the Harbor District, seeking to collaborate through a spatial planning approach to siting aquaculture in the bay. These efforts did not prove fruitful. On March 30, 2017, the National Audubon Society and California Waterfowl filed suit against the Harbor District in regard to certifying the Coast Seafoods EIR and approving Coast's expansion proposal, the equivalent project to its Coastal Development Permit application to the Commission.

Most recently, in our letter to Mr. Cassidy Teufel dated May 11, 2017, in regard to Coast's Coastal Development Permit application, we recommended the Coastal Commission require a science-based marine spatial planning process in Humboldt Bay before permitting any aquaculture expansion. This is even more important in light of the Harbor District's plans to develop aquaculture in an additional 329 acres of tidelands in the north bay.[3] The combined total of permitting 411 Coast acres and 329 Harbor District acres would more than double the existing

[1] Black Brant Phase 1 Monitoring Plan. HT Harvey and Associates. April 2017. Prepared for Robert Smith, Plauche and Carr LLP, attorneys for Coast Seafoods.
[2] Humboldt Bay Permit Renewal and Expansion Project: Eelgrass Monitoring Plan. HT Harvey. March, 2017. Report provided to the California Coastal Commission.
[3] http://humboldtbay.org/sites/humboldtbay2.org/files/Intertidal%20Pre-Permitting%20NOP_March%2023%202017%20FINAL.PDF

operational footprint of all intertidal aquaculture in the Arcata Bay (300 Coast acres plus ~50-60 non-Coast acres), from 350-360 acres to 740 acres. **This would develop fully 10% of Arcata Bay's internationally important intertidal wetlands.**[4] We also recommended in our May 11, 2017 letter that uncertainty about impacts of 10-foot-spaced double-hung culch, and 10-foot-spaced baskets, to eelgrass, brant, and other wildlife be addressed before permitting any long-term expansion of Coast's existing operational footprint. In the meantime, Coast can continue its profitable operations within its existing 300 acre footprint.[5]

Staff Report

We thank Commission staff for their hard and diligent work developing the staff report, in particular the Findings and Declarations section. As this section well explains, Humboldt Bay is "one of the most ecologically important areas on the entire west coast" for eelgrass, herring, waterbirds, shorebirds, waterfowl, black brant, Dungeness crab, salmon, and green sturgeon. Many of the species that rely on Humboldt Bay, including salmon, shorebirds, and waterfowl, are highly migratory, meaning that adverse impacts these species might experience in Humboldt Bay would be reflected in decreased numbers and health throughout their entire range along the West Coast and out into the Pacific Ocean. Similary, herring is an essential prey species for numerous marine predators, including salmon, humpback whales, harbor seals, and others, such that decreases in the herring population would affect dozens of species up the food chain. We therefore agree with the staff report's finding that "[t]his ecological richness has also made Humboldt Bay a locally and regionally significant recreational resource, supporting a range of water-oriented recreational pursuits from boating, kayaking, and wildlife viewing to hunting and fishing." The Findings section also notes that "Arcata Bay includes both areas and species of special biological and economic significance that are required to be provided with special protection under Section 30230 of the Coastal Act."

We recognize steps taken in the staff recommendations to reduce the project's impacts. For example, Special Condition 3 (Consolidation of Operations) moves the operational footprint away from the six Sand Island beds as well as Mad River 2-3, (Special Condition 3), and EB 7-2 (Special Condition 17). Concentrating aquaculture operations at sites that have been more historically heavily impacted by dredge scarring, shell deposition, and other effects at Bird Island, Mad River, and the southeastern corner of the bay should result in reduced disturbance in these areas to waterbirds, brant, and shorebirds.

However, the overall extent of permitted expansion recommended in the staff report is far too generous in light of the substantial potential harm from proposed operations and the Commission's legal duty to protect public resources. The staff report's detailedFindings and Declarations do not support its recommendation to allow potential expansion of Coast's permit from 299 acres to 411 acres. This would represent a 27% expansion into eelgrass habitat primarily on publicly owned tidelands. As the Findings note, eelgrass is a rare, declining, and special-status habitat in California and the focus of extensive efforts and investment to protect and restore this habitat in our state. Humboldt Bay harbors approximately half of the state's total

[4] 7,354 acres of intertidal area in Arcata Bay. Staff Report at pg 20.

[5] Gross profits for shellfish aquaculture in Humboldt Bay in 2016 were approximately $10,058,798.40. The majority of this income originates from Coast operations (~300 of up to 325 total farmed acres). Source: CDFW.

remaining eelgrass. Current Coast Seafoods aquaculture operations have resulted in substantial (though unquantified) net loss to eelgrass function on 300 acres of mostly dense eelgrass[6] – approximately 5.3% of the bay's eelgrass and 2.65% of the state's eelgrass.[7] Approximately two-thirds of these operations are located on publicly held tidelands. (staff report at pg 20).

In addition to known negative impacts of Coasts' existing operations to eelgrass, this operational footprint is likely having significant, unmitigated impacts to brant, shorebirds, waterbirds, Pacific herring, and possibly other species; has negatively impacted recreational boating and hunting; and has increased hazards to vessel safety in the bay. Simply permitting Coasts' continued footprint – even with Special Conditions- will result in continued negative impacts to these protected resources and uses. Any expansion would worsen these impacts. Therefore, we disagree that Special Condition 2, with a cumulative 111 acres of expansion, meets Coastal Act requirements and standards.

Adverse impacts to species from Coast's existing and proposed operations include, but are not limited to the following.

Brant

Any expansion of Coast's operations in Arcata Bay is likely adversely to affect black brant by reducing food availability, excluding brant from feeding sites through installation of equipment, and excluding brant from essential gritting, feeding, staging, and resting sites through disturbance. Because much of the population depends on Humboldt Bay as a wintering site where the geese must gain enough weight to breed successfully, adverse impacts on the birds' ability to feed, rest, and gain weight in Humboldt Bay would likely result in population-level declines. In fact, degradation of wintering habitat has recently been proposed as the most likely reason for significant declines in first-year and adult survival of female brant across their breeding grounds.[8] As detailed in prior comments to the Commission and other permitting agencies, existing operations already exclude brant from feeding in aquaculture areas and frequently disturb these sensitive birds.

Degradation to wintering grounds has been quantified and may be occurring in Humboldt Bay. According to local experts, "There is little evidence to suggest eelgrass abundance (biomass) and distribution (spatial extent) are stable in Humboldt Bay. There have been few quantitative bay-wide surveys of trends for the distribution and abundance of eelgrass in this bay since 2009. A 2015 survey associated the RDEIR for this project showed a 20% decline from 2009 levels. Available evidence indicates that losses will likely continue as they have done in 5 of 6 major embayments with eelgrass in southern California and Baja California through degradation from coastal use and and climate change impacts. Significant declines have been reported at Morro

[6] California Coastal Commission. Staff Report on E-02-005-A6 and E-06-003-A5, Coast Seafoods Company. Extension of Permit Terms. January.

[7] Based on the best available information on the 5646 acres of eelgrass in Humboldt Bay and 12,421 acres of eelgrass in California. From: Schlosser, S. and A. Eicher. 2012. The Humboldt Bay and Eel River Estuary Benthic Habitat Project. California Sea Grant Publication T-075.

[8] Leach, A. et al. 2017. Survival and recovery rates of Black Brant from arctic and subarctic breeding areas. *The Journal of Wildlife Management*. In review.

Bay, where spatial extent has dropped by 96% from 2007 to 2015, and at Mission Bay, where spatial extent has decreased by 25% since 1997. The eelgrass distribution has remained relatively stable in San Diego Bay; however, estimates in 2014 are below levels in the mid-2000s. Negative trends in spatial extent have also been reported in Baja California at San Ignacio Lagoon (37% decline since 2000) and San Quintin Bay (35% decline since 1987).[9]

In light of these losses to eelgrass habitat in wintering grounds, and declines in adult and juvenile survivorship, brant experts recommend against any further expansion of aquaculture in the Humboldt Bay:

"We consider any additional loss of eelgrass habitat or further reduction in brant foraging time as unacceptable."[10]

"There is so much visual and tactile disturbance by the pipes and cultch, even beyond the eelgrass that is trapped beneath them, that effective undisturbed grazing on exposed beds would seem impossible. Indeed, when the oyster lines are exposed, brant will not even fly over them. Hence, the eelgrass in these areas is functionally inaccessible to brant; to a brant, the loss of feeding habitat is more closely described by a polygon around all the polygons mapping Coast's mariculture."[11]

"this is the ONLY area for regular brant use from Willipa Bay , WA to Bodega Bay, CA. And Humboldt Bay has the largest numbers of brant from San Quintin, Mexico to Vancouver Island, Canada. This is THE most important bay in the lower 48 for black brant. We have already lost San Diego, Mission, San Francisco, and Bolinas for brant bays."[12]

The U.S. Fish and Wildlife Service, Humboldt Bay National Wildlife Refuge, in its 2017 letter to the U.S. Army Corps of Engineers, estimates that areas with cultch-on-longline are unavailable to brant for eelgrass bed-feeding for the majority of the tide window at which bed-feeding occurs, and areas with basket-on-longline are functionally useless for bed-feeding.

The Special Conditions provided in the staff report are not sufficient to bring the recommended expansion into compliance with Coastal Act requirements. Even with those conditions, the expanded would significantly reduce eelgrass availability and increase disturbance. In regard to Special Condition 7, Brant Monitoring Plan: the staff report defines performance success as any reduction in foraging activity within 10-foot longlines or baskets, in a 5-year monitoring framework. While we applaud this appropriate performance standard, unfortunately, monitoring approaches would likely be unable to assess the biggest problem for brant posed by existing or expanded aquaculture in the bay, other than exclusion from feeding in longline areas: disturbance by aquaculture-related vessels in the bay, which will be approximately six times greater in basket areas than longline areas.

[9] Ward, D. and J. Black. 2017. Letter to the California Coastal Commission. June 1, 2017.
[10] Black, J. Letter to the California Coastal Commission. May 1, 2017.
[11] Todoroff, R. Cited on pg 55 of Staff Report.
[12] Nicolai, C. Letter to the California Coastal Commission. June 1, 2017.

For this reason, experts including David Ward (U.S. Geological Survey Brant scientist) and Jeff Black (Humboldt State University Brant scientist) have found the proposed monitoring and adaptive management approach for brant inadequate to address impacts to the species.. For example, they note in a May 31, 2017 letter to the Coastal Commission that "monitoring plans that are being circulated by DH Harvey and others to assess bird behavior seem to be missing the main point of concern, which is additional human disturbance on the entire bay, not just near the oyster lines. We already see the birds being impacted by boat traffic and human presence on the bay and ask that no additional disturbance be allowed."

In conclusion, we ask that the staff report be revised to recommend maintaining the existing acreage of operational footprint and further consolidating operations into less sensitive, historically impacted areas in order to prevent further harm to this sensitive and potentially declining Species of Special Concern.

Shorebirds

As noted in the staff report's Findings, Humboldt Bay is extraordinarily important for shorebirds, supporting the highest diversity of species in California (pg 42). The Bay supports a stunning 23% of the global population of western sandpiper, and 43% of the Pacifica subspecies of dunlin for spring migration; and 10% of the global population of marbled godwit, and 600 critically imperiled long-billed curlew for over-wintering. Western sandpiper and dunlin are known to avoid structured habitat, natural or artificial, rendering cultivated areas unavailable to these species. Shorebirds are generally in decline, and in California, the highest densities of shorebirds occur on tidal mudflats, highlighting the essential importance of conserving even small mudflat areas.[13]

The staff report also acknowledges that, while studies on impacts to shorebirds in Humboldt Bay are sparse, numerous shorebird experts have emphasized the potential for significant harm and the need to take a precautionary approach. For example, the Findings note that Dr. Mark Colwell, the leading expert on shorebirds in Humboldt Bay noted to the Harbor District that "to claim that loss and degradation of tidal flats, of whatever the area, would have less than significant impact on shorebirds and other waterbirds that rely on this habitat is… at worst, a misrepresentation of current knowledge on the subject. ….7% of the bay is already in aquaculture production with unknown impacts on shorebirds." Dr. Colwell also points out the Humboldt Bay "is likely a critical link in the chain for many species of shorebird because it provides essential food resources for millions of birds," and is "worthy of greater consideration in conservation decisions." Another leading shorebird expert, Dr. John Kelly, notes that shorebirds avoid foraging near or under any structural features on the tide flats that interferes with their visibility of the surrounding area[14] (pg 43).

[13] Stralberg, Diana et al. 2011. Identifying habitat conservation priorities and gaps for migratory shorebirds and waterfowl in California. Biodivers Conserv 20:19–40

[14] Kelley, J., J. Evens, R. Stallcup, and D. Wimpfheiner. 1996. Effects of aquaculture on habitat use by wintering shorebirds in Tomales Bay, California. California Fish and Game 82(4): 160-174.

The staff report's conclusions that reducing the operational footprint from 490 acres to 411 acres and consolidating operations in certain areas will sufficiently reduce the likelihood of harm to shorebirds are not supported by these findings. Special Condition 20 would provide only "minor" improvement for shorebirds (pg 48) and Special Condition 21 is "expected to provide only a limited ability to reduce disturbance." Special Condition 3, by consolidating operations, would provide some benefit over the Project alone. Overall, the Special Conditions would be unlikely to make up for the loss of habitat and increase in disturbance from the 111 acre expansion.

In addition, while the report notes some uncertainty regarding effects on shorebirds, the Monitoring and Adaptive Management Plans recommended in the report do not address shorebirds. Any expansion permitted must include rigorous monitoring of effects on shorebirds and their habitats.

Herring

Pacific herring is one the most critical prey items on the West Coast, supporting salmonids, birds, pinnipeds, whales, and many other predators. Humboldt Bay is the third most important herring spawning area of only a few such sites in the state, and the East Bay Management Area of Arcata Bay is the most important area within the entire bay for herring spawning. Unfortunately, herring spawning stocks have generally been declining on the U.S. West Coast since 1980, making successful spawning in Humboldt Bay all the more important.[15]

The Findings note the importance of the East Bay Management Area to herring and that "herring eggs on oyster longlines are not likely to survive and persist as effectively as eggs laid on eelgrass due to the different amounts of sun and air exposure between the two and the increased potential for desiccation and predation." However, the Special Conditions recommended in the report do not address reduced survivorship. For example, Special Condition (#11) only requires coordination between Coast and the California Department of Fish and Wildlife regarding the timing of Coast's operations during the spawning season. Special Condition 17, requiring the removal of 11.6 acres in herring spawning habitat, would provide some benefit to herring. However, any expansion – even if impacts to eelgrass were fully mitigated – would impact herring via increased exposure of eggs to dessication, and potentially also through disturbance. Furthermore, as the Findings note, there is considerable uncertainty in regard to whether herring will spawn in aquaculture areas at all, to a lesser degree, or at the same level as in non-aquaculture areas. This question must be answered to understand and mitigate for impacts to this important species, before permitting any expansion.

Recreation

Humboldt Bay provides great value to the public in the form of multiple recreational uses, including hunting, birdwatching, and paddling. While the staff report attempts to address some

[15] Thompson, S.A., J. Thayer, A. Weinstein, K. Krieger, W.J. Sydeman, and D. Hay. 2017. Trends in Pacific herring (*Clupea pallasii*) in the California Current Ecosystem. In press. June.

impacts to these uses, the recommended expansion would severely impede public access to and use of a large portion of Arcata Bay.

Humboldt Bay is one of the last places left in California where brant can be successfully hunted due to a significant loss of eelgrass in the handful of other bays and estuaries that hosted this important habitat. Brant hunting has been a significant recreational and cultural activity in Humboldt Bay for over 100 years, and hunting for other waterfowl species also occurs throughout the hunting season. Specially designed unmotorized scull boats were designed for use in the bay. Numerous hunters have submitted letters to the Commission, the Harbor District, and other permitting agencies providing detailed comment about the ongoing impacts of the existing 300 acre operations to hunting and vessel access and safety.

Hunting for waterfowl is not only dependent upon healthy waterfowl food resources (i.e., eelgrass) in the Bay to attract waterfowl and provide suitable habitat, but also adequate navigability during varying tide levels and sometimes inclement weather (e.g. fog, high winds) for scull boats and other craft used for pursuing waterfowl. Please note that waterfowl hunting often involves the use of boats for transit and placement/removal of decoys, including during low light conditions prior to or after shooting hours (which run from ½ an hour before sunrise to sunset).

Longtime brant hunter, Mr. Stan Brandenburg, summarizes these concerns as follows: "Man-made hazards to navigation are very dangerous and have the potential to cause serious material damage, injury, or death. Posting coordinates on a website and assuming a 10' or 16' longline spacing to mitigate for placing these hazards in Public, Navigable Waters is irresponsible at best and borders on negligence. A map will not help when it is dark, foggy, windy, or no GPS. And to assume a fixed safe navigational direction ignores the fact that the wind does not care about direction.

"I cannot count how many times that I have used the eelgrass meadows as a safe haven from the wind and the current in North Bay's channels while hunting. Wherever this aquaculture gear is placed makes what was previously a safe haven *very* dangerous given the right conditions. This gear sticks up out of the mud from a three foot minimum to a maximum of 5' and is poorly marked. This is the kind of gear maintenance that can be expected from Coast. … To say that there is no significant impact ignores the realities of safe navigation. I am very concerned about the safety of junior inexperienced hunters and recreational boaters colliding with these man-made structures."

In addition, even with the recommended corridors, the expanded operational footprint would force non-motorized boat and motorized boat traffic into a more constricted space, creating additional hazards for paddlers and scullers. We ask that the Commission protect public access to and use of this treasured area by denying the proposed expansion of Coast's operations.

Recommendations

Considering the documented negative impacts of basket and longline aquaculture to eelgrass, black brant, waterbirds, shorebirds, Pacific herring, threatened and endangered salmonids and

sturgeon, hunting, and other forms of waterborne recreation, the report's recommendation to permit expanded operations is not supported by its detailed and well-documented findings and is inconsistent with the Coastal Act. In addition, the proposed Monitoring and Adaptive Management Plans are insufficient to avoid or minimize harm to the many species that the project is likely to adversely affect. With respect to brant, impacts from disturbance around Arcata Bay may not be possible to measure or quantify. Moreover, these plans do not address impacts to shorebirds or fish species that Coast's proposed significant expansion would likely harm.

Therefore, we recommend the following: Revise the staff report to recommend permitting Coast's operational footprint of 300 acres, with no expansion. If any expansion is permitted, rather than the 111 acres recommended in the report, it should be constrained to the approximately 45 acres required to carry out the scientific studies focused on better understanding the impacts of aquaculture on brant[16], eelgrass[17], and other species and resources. This approach is supported by comments on the 490-acre Project from the Pacific Fishery Management Council[18], as well as our May 11, 2017 letter to the Coastal Commission. It is also consistent with the need for caution that is well documented in the Findings and Declarations section of the report in regard to eelgrass, brant, threatened and endangered fishes, shorebirds, waterbirds, herring, recreation, and vessel safety. Retaining Coast's existing overall footprint will ensure an uninterrupted, profitable[19] operation for the company. Retaining the existing number of acres—in a configuration that better protects eelgrass and marine species—would also serve to protect numerous public trust resources and help retain the many economic benefits that depend on the Bay's natural resources, including hunting, fishing, wildlife watching, and recreational boating.

Moreover, prematurely permitting aquaculture expansion in the absence of adequate information about its negative impacts on eelgrass, brant, other migratory birds, protected fish species, and other important resources would be a recipe for future problems. Among the mitigation measures proposed in the staff report is the removal of aquaculture infrastructure from expansion sites if aquaculture proves to significantly impact eelgrass or brant. To permit commercial expansion before the extent of adverse impacts from such expansion has been adequately studied will invite future conflicts between Coast Seafoods and the Coastal Commission. Coast will have expended resources on developing the prematurely permitted expansion areas and can reasonably be expected to resist efforts to vacate those areas. Anything other than very limited, solely experimental aquaculture in currently undeveloped areas of the bay is simply not justified by the staff report's findings, which provide clear evidence of a wide variety of significant impacts posed by any expansion into eelgrass and other sensitive habitats.

[16] Black Brant Phase 1 Monitoring Plan. HT Harvey and Associates. April 2017. Prepared for Robert Smith, Plauche and Carr LLP, attorneys for Coast Seafoods.
[17] Humboldt Bay Permit Renewal and Expansion Project: Eelgrass Monitoring Plan. HT Harvey. March, 2017. Report provided to the California Coastal Commission.
[18] "Specifically, "the Council recommends a controlled field experiment on limited acreage, as determined by experimental design. Results of the study should be analyzed and used to inform future buildout..." PFMC, April 18, 217 letter to Army Corps of Engineers. Report at p. 72.

Operations should be completely removed from the East Bay Management Area and consolidated into the west side of the bay in order to protect Pacific herring, waterbirds, shorebirds, and other species.

Monitoring and adaptive management plans related to a potential constrained expansion must be subject to outside peer review and public review before they are approved and implemented. Monitoring and adaptive management should be expanded to include herring, waterbirds, shorebirds, recreational access, and vessel safety.

Following a five-year monitoring phase, any expansion areas should be removed if the results fail to meet performance criteria for any of these endpoints.

Remove the invitation to Coast to apply for a permit amendment to carry out more expansion (pg 3) should adaptive management performance criteria for eelgrass and brant be met. It is premature to make this invitation when available evidence indicates that expanded operations would adversely affect multiple resources and work has not been completed to address the extent and severity of such impacts.

Remove the recommendation for expansion areas EB 1-3, 1-4, 2-4, 2-2, and 6-4. These 60 potential acres of longlines on baskets overlap with black brant loafing, feeding, and gritting areas and with an important waterbird area providing a combination of eelgrass, mudflat, subtidal, and upland habitat. The report fails to include a gritting area located at this site and described and mapped by Mr. Stan Brandenburg. As the staff report points out, “the proposed project would result in the placement of over 60 acres of cultivation gear within some of the most heavily used and important recreational access pathways into the central portion of the bay.” These baskets would damage or destroy these essential habitats for many waterbirds and brant, would pose a severe impediment to boater access, and would unacceptably compromise boater safety. Establishing corridors in this area is insufficient to protect public access and safety. Special Condition 5 – access channels – would not meaningfully address this safety and access issue. According to local hunters with decades of experience on the bay, the wind and tide can shift unpredictably, driving non-motorized boats into basket areas. For these reasons, boaters avoid areas of the bay with baskets.

Modify the “Brant Hunting” Special Condition (p. 16) to reflect the recently expanded brant season dates (Nov. 8 – Dec. 14) and require Coast to “avoid on-water operations within its leased areas depicted in Exhibit 1 from one hour before sunrise until sunset” on waterfowl hunt days (Wednesday, Saturday, and Sunday) not just during brant season but the entire regular waterfowl season. The regular waterfowl season runs from the third Saturday in October until the first Sunday in February (which includes the special youth hunt).

Reduce navigational hazards for brant hunting in key transit areas. The east bay plots 1-3,1-4,2-2,2-4 and 6-4 will effectively block the safest recreational ingress and egress for small craft in North Bay (T Street). A 10' setback from edge of channel is not much when the channel is only 20' wide, and when the tide covers the baskets they cannot be seen. These baskets stick up 3 feet or more and are an artificial reef where none currently exists. This is an extremely dangerous situation in inclement weather when returning to the launch point.

Note that the Humboldt Bay Harbor, Recreation and Conservation District is proposing an additional 329 acres of aquaculture in intertidal habitats of Arcata Bay.[20] Cumulatively, the two projects would encompass 740 acres in this small bay—a more than doubling of the footprint of aquaculture, with unknown consequences to protected marine resources.

Explicitly state the number of acres required for the eelgrass and brant monitoring and assumptions testing (approximately 45 acres or less).[21]

Conclusion

In sum, we urge that the report be amended and that the Commission permit no further expansion of Coast's aquaculture footprint in sensitive habitats and require consolidation of operations in the west side of the bay. If expansion is permitted, it should be constrained to the area required for scientific studies needed to understand the extent of aquaculture's impacts to brant, eelgrass, and other biological resources. The proposed new area with baskets in the lower East Bay Management Area should be removed from consideration, and there should be a higher level of peer and public review of any monitoring and adaptive management plans for brant and eelgrass.

We appreciate the opportunity to comment and thank the staff and Commission for your time and attention, and for all you do to protect our coast and ocean.

Thank you,

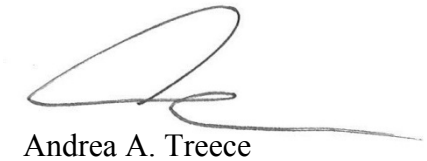
Anna Weinstein
Marine Program Director
Audubon California

Mike Lynes
Director of Public Policy
Audubon California

Mark Hennelly
Vice President, Legislative Affairs and Public Policy
California Waterfowl

[20] http://humboldtbay.org/sites/humboldtbay2.org/files/Intertidal%20Pre-Permitting%20NOP_March%2023%202017%20FINAL.PDF

[21] We understand this number to be approximately 45 acres: (0.6)(17)+(2.0)(17)= 44.2 acres



Andrea A. Treece
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June 2, 2017

Dayna Bochco, Chair
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Via e-mail: Cassidy.Teufel@coastal.ca.gov

Re: Staff Report, Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company

Dear Ms. Bochco and Mr. Teufel,

The undersigned organizations write to express concern about Coast Seafood's proposed project in Humboldt Bay and to encourage the California Coastal Commission (Commission) to ensure that the bay's natural resources are protected from further development at least until the potential impacts can be studied, understood, and fully avoided and mitigated.

As the Coastal Commission staff report states, Humboldt Bay is "one of the most ecologically important areas on the entire west coast" for eelgrass, herring, waterbirds, shorebirds, waterfowl, black brant, Dungeness crab, salmon, green sturgeon and Pacific black brant. The report further states:

> This ecological richness has also made Humboldt Bay a locally and regionally significant recreational resource, supporting a range of water-oriented recreational pursuits from boating, kayaking, and wildlife viewing to hunting and fishing. (Report, p. 2)

Further, the report finds that "Arcata Bay includes both areas and species of special biological and economic significance that are required to be provided with special protection under Section 30230 of the Coastal Act."

One of Humboldt Bay's defining features is that it is home to at least 30 - 50% of the remaining eelgrass in California. Eelgrass is foundational to the coastal marine ecosystem, as a nursery for forage fish and crustaceans, and as a potential buffer against sea-level rise and ocean acidification. The National Oceanic and Atmospheric Administration (NOAA) has determined that there should be no net loss of eelgrass, a policy adopted by the California Department of Fish and Wildlife for other aquaculture operations in California.

Humboldt Bay is particularly important for the Pacific black brant, hosting approximately 60% of its population during migration and over the winter. Black brant subsist almost entirely on eelgrass and their numbers have declined to the point of extirpation in other parts of California where eelgrass has

diminished or disappeared, leaving Humboldt Bay as one of the last places left in California where brant can be successfully hunted. Black brant hunting has been a significant recreational and cultural activity in Humboldt Bay for over 100 years, while hunting for other waterfowl species also occurs throughout the hunting season.

The Coast Seafoods project would expand from its current footprint of 299 acres to at least 411 acres, much of it in prime eelgrass beds on publicly-owned tidelands. As the Commission staff report indicates, this will have significant negative consequences on eelgrass, shorebirds, and black brant. Brant are exceedingly sensitive to disturbance and will be excluded from areas up to 1000 meters away from active aquaculture operations, meaning the disturbance footprint of the project is much larger than the 411 acres allowed for in the staff report. Also, as the staff report states, there is no way to accurately estimate the full extent of the impacts of the proposed project until more studies are done.

In order to protect important species and the intertidal habitat they rely on, and recreational access, we request the staff report be amended to do the following:

- assure no further expansion of the operational footprint of Coast Seafoods' aquaculture operations in Arcata Bay;
- further consolidation of operations in more heavily impacted areas on the west side of the bay;
- a higher level of peer and public scrutiny for monitoring and adaptive management plans related to eelgrass and Pacific black brant;
- modify the "Brant Hunting" Special Condition (p. 16) to reflect the recently expanded brant season dates (Nov. 8 – Dec. 14) and require Coast to "avoid on-water operations within its leased areas depicted in Exhibit 1 from one hour before sunrise until sunset" on waterfowl hunt days (Wednesday, Saturday and Sunday) not just during brant season but the entire regular waterfowl season. The regular waterfowl season runs from the third Saturday in October until the first Sunday in February (which includes the special youth hunt); and,
- reduce navigational hazards for brant hunting in key transit areas. The east bay plots 1-3,1-4,2-2,2-4 and 6-4 will effectively block the safest recreational ingress and egress for small craft in North Bay (T Street). A 10' setback from edge of channel isn't much when the channel is only 20' wide and when the tide covers the baskets they cannot be seen. These baskets stick up 3 feet or more and are an artificial reef where none currently exists. This is an extremely dangerous situation in inclement weather when returning to the launch point.

Ultimately, the expansion areas should be removed if the results fail to meet performance criteria for brant and eelgrass.

Protection of natural resources and profitable aquaculture operations in Humboldt Bay can be maintained with a balanced approach. Retaining Coast's existing overall footprint will ensure an uninterrupted, profitable[1] operation for the company and the 60 jobs it claims to provide. Retaining the existing number of acres in a configuration that better protects eelgrass and marine species would also serve to help retain many other jobs related to the Bay's natural resources including hunting, fishing and wildlife watching.

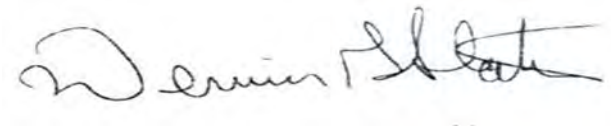
The Commission's decision on this issue will have far-ranging consequences. The Humboldt Bay Harbor, Recreation and Conservation District is proposing an additional 329 acres of aquaculture in intertidal

[1] Gross profits for shellfish aquaculture in Humboldt Bay in 2015 were $9,314,128.20. The vast majority of this income is Coast operations. Source: CDFW.

habitats of Arcata Bay.[2] Cumulatively, the two projects would encompass 740 acres in this small bay—a 60% increase in the footprint of aquaculture, with unknown consequences to protected marine resources.

We thank you for all your work to protect coastal species and recreational access in California. We ask again that you ensure that the Coast Seafoods project does not go forward until it meets Coastal Act requirements to protect sensitive species, habitats and recreational access and safety.

Sincerely,



Dennis Slater
Tulare Basin Wetlands Association

Don Kirby
Cal-Ore Wetlands and Waterfowl Council

Maddy Folk
Black Brant Group

Steve Chappell
Suisun Resource Conservation District

[2] http://humboldtbay.org/sites/humboldtbay2.org/files/Intertidal%20Pre-Permitting%20NOP_March%2023%202017%20FINAL.PDF

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June 2, 2017 Agenda Item 13.a

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Via e-mail: Cassidy.Teufel@coastal.ca.gov

Re: Staff Report, Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company

Dear Ms. Bochco and Mr. Teufel:

Ocean Conservancy[1] is concerned that recommendations in the staff report fall short of meeting Coastal Act requirements under sections 30230 and 30231 (Marine Resources and Biological Productivity). We request that the recommendations in this staff report be amended to better reflect the report's Findings and Declarations (Section IV), and the standards of the Coastal Act to "maintain, enhance and restore" intertidal wetlands, Species of Special Concern, threatened and endangered species, commercial and recreationally important fish and invertebrates, other species, and recreational access and safety.

Primarily, we request the report be amended to require no further expansion of Coast Seafoods (Coast) operational footprint of 300 acres; further consolidation of operations in the more heavily impacted and disturbed west side of the bay; and a higher level of outside peer review and public review of monitoring and adaptive management plans should they be needed.

We thank Commission staff for its hard work developing the staff report, in particular the Findings and Declarations section. As this section well explains, Humboldt Bay is "one of the most ecologically important areas on the entire west coast" for eelgrass, herring, waterbirds, shorebirds, waterfowl, black brant, Dungeness crab, salmon, green sturgeon and black brant. The report further notes (page 2) "This ecological richness has also made Humboldt Bay a locally and regionally significant recreational resource, supporting a range of water-oriented recreational pursuits from boating, kayaking, and wildlife viewing to hunting and fishing." The Findings section also notes that "Arcata Bay includes both

[1] Ocean Conservancy is working to protect the ocean from today's greatest global challenges. Together with our partners, we create science-based solutions for a healthy ocean and the wildlife and communities that depend on it.

areas and species of special biological and economic significance that are required to be provided with special protection under Section 30230 of the Coastal Act."

However, the recommendations appear to depart from the report's own Findings and Declarations in recommending potential expansion of Coast's permit from 299 acres to 411 acres—a 27% expansion into eelgrass habitat primarily on publicly owned tidelands. As the Findings note, eelgrass is a rare, declining and special status habitat in California, and the focus of extensive efforts and investment to protect and restore this habitat in our State. Humboldt Bay harbors approximately half of the state's total eelgrass. Current Coast Seafoods aquaculture operations already have damaged or destroyed 300 acres of mostly dense eelgrass – approximately 5.3% of the bays eelgrass and 2.65% of the state's eelgrass.[2]

Considering the documented negative impacts of basket and longline aquaculture to eelgrass, black brant, waterbirds, shorebirds, Pacific herring, threatened and endangered salmonids and sturgeon, hunting and other forms of waterborne recreation, the report's expansion recommendation appears inconsistent with the Coastal Act. Also, the proposed Monitoring and Adaptive Management Plans fall short in that they only address eelgrass and brant, and are not available for public review.

In order to protect public trust resources and recreational access and safety, we urge no further expansion of Coast Seafoods aquaculture operations in Humboldt Bay. If expansion is permitted, it must not exceed the ~45 acres required to carry out the scientific studies focused on better understanding the impacts of aquaculture on brant[3] and eelgrass.[4] The expansion areas should be removed if the results fail to meet performance criteria for brant and eelgrass. Furthermore, we urge further consolidation of these operations into the west side of the bay and out of the East Bay Management Area.

Retaining Coast's existing overall footprint will ensure an uninterrupted, profitable[5] operation for the company, and the associated 60 jobs. Retaining the existing number of acres - in a configuration that better protects eelgrass and marine species - would also serve to protect numerous public trust resources and help retain many other jobs related to the Bay's natural resources including hunting, fishing and wildlife watching.

Specifically, we recommend the following additional changes to the staff report:

- Remove the recommendation for expansion areas EB 1-3, 1-4, 2-4, 2-2, and 6-4. These 60 potential acres of longlines on baskets overlap with black brant loafing, feeding and gritting areas, and an important waterbird area providing a combination of eelgrass, mudflat, subtidal and upland habitat. These baskets would damage or destroy these essential habitats for many waterbirds and brant, pose a severe impediment to boater access, and unacceptably compromise boater safety. As report points out, "the proposed project would result in the

[2] Schlosser, S. and A. Eicher. 2012. The Humboldt Bay and Eel River Estuary Benthic Habitat Project. California Sea Grant Publication T-075.
[3] Black Brant Phase 1 Monitoring Plan. HT Harvey and Associates. April 2017. Prepared for Robert Smith, Plauche and Carr LLP, attorneys for Coast Seafoods.
[4] Humboldt Bay Permit Renewal and Expansion Project: Eelgrass Monitoring Plan. HT Harvey. March, 2017. Report provided to the California Coastal Commission.
[5] Gross profits for shellfish aquaculture in Humboldt Bay in 2015 were $9,314,128.20. The vast majority of this income is Coast operations. Source: CDFW.

placement of over 60 acres of cultivation gear within some of the most heavily used and important recreational access pathways into the central portion of the bay." Establishing corridors in this area is insufficient to protect public access and safety. According to local hunters with decades of experience on the Bay, the wind and tide can shift unpredictably, driving non-motorized boats into basket areas. For these reasons, boaters avoid areas with baskets.

- Remove the statement on page 3 of the report that "if the assumptions (related to eelgrass and brant) are upheld, Coast would be provided with eight years to implement and maintain its 111 acres of net expansion and could also apply for a permit amendment to carry out additional expansion." It appears inconsistent with Commission policy to offer Coast an invitation to apply in the near future for a permit amendment to further expand—especially in light of the known and potential impacts to species other than eelgrass and brant, which would not be evaluated or considered in the Monitoring and Adaptive Management framework.

- Include assurances that the Brant and Eelgrass Monitoring and Adaptive Management Plans (cited previously) associated with a maximum ~45 acre expansion, will be subject to formal peer review, and the public will be provided with an opportunity to review.

- Note that the Humboldt Bay Harbor, Recreation and Conservation District proposes an additional 329 acres of aquaculture in intertidal habitats of Arcata Bay.[6] Cumulatively, the two projects would encompass 740 acres in this small bay—a 60% increase in the footprint of aquaculture, with unknown consequences to protected marine resources.

In sum, we urge the report be amended and the Commission permit no further expansion of Coast's aquaculture footprint in the sensitive wetlands, and consolidation of operations in the west side of the bay. If expansion is permitted, it must be constrained to the area required for monitoring and adaptive management related to brant and eelgrass. A new area with baskets in the lower East Bay Management Area should be removed from consideration, and there should be a higher level of peer and public review of any monitoring and adaptive management plans for brant and eelgrass.

Sincerely,

Corey Ridings

Corey Ridings
Policy Analyst, Fish Conservation Program

[6] Notice of Preparation, Draft Environmental Impact Report for the Humboldt Bay Intertidal Mariculture Pre-Permitting Project and Yeung Oyster Farm. <http://humboldtbay.org/sites/humboldtbay2.org/files/Intertidal%20Pre-Permitting%20NOP_March%2023%202017%20FINAL.PDF>

June 2, 2017

Dayna Bochco, Chair
Cassidy Teufel, Senior Environmental Scientist
California Coastal Commission
45 Fremont St.
San Francisco, CA 94105-2219
Via e-mail: Cassidy.Teufel@coastal.ca.gov

Re: Staff Report, Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company

Dear Ms. Bochco and Mr. Teufel:

Wholly H20 and the Center for Food Safety write to express strong support for protecting the natural resource in Humboldt Bay and to urge the California Coastal Commission (Commission) to deny any expansion of aquaculture operations in the bay until the potential impacts can be studied, understood, and fully avoided or mitigated. Specifically, we are concerned about Coast Seafood's current application to expand its 299-acre oyster farm to 492 acres, primarily in prime eelgrass beds on publicly-owned tidelands.

Humboldt Bay is "one of the most ecologically important areas on the entire west coast" for eelgrass, herring, waterbirds, shorebirds, waterfowl, black brant, Dungeness crab, salmon, green sturgeon and Pacific black brant (Coastal Commission Staff Report, May 26, 2017, at p. 2). The report further states:

> This ecological richness has also made Humboldt Bay a locally and regionally significant recreational resource, supporting a range of water-oriented recreational pursuits from boating, kayaking, and wildlife viewing to hunting and fishing.

(*Id*.) Further, the report finds that "Arcata Bay includes both areas and species of special biological and economic significance that are required to be provided with special protection under Section 30230 of the Coastal Act."

Coast Seafoods already operates a profitable oyster farm on 299 acres in areas that were once covered in dense eelgrass. Now it has asked to expand to a total of 490 acres, a project with significant environmental impacts that are not fully understood. As the Commission staff report indicates, this will have significant negative consequences on eelgrass, shorebirds, and black brant.[1] (Report, at pp. 2-3) These impacts to eelgrass and other resource from the proposed project cannot be adequately predicted and additional studies are needed. Given that uncertainty, and the need to protect this vital coastal resource, more study is needed before any expansion project should be permitted.

One of Humboldt Bay's defining features is that it is home to at least 30 to 50% of the remaining eelgrass in California. Eelgrass is foundational to the coastal marine ecosystem, as a nursery for forage fish and crustaceans, and as a potential buffer against sea-level rise and ocean acidification. The National Oceanic and Atmospheric Administration (NOAA) has determined that there should be no net loss of eelgrass, a policy

[1] Humboldt Bay is particularly important for the Pacific black brant, hosting approximately 60% of its population during migration and over the winter. Black brant subsist almost entirely on eelgrass and their numbers have declined to the point of extirpation in other parts of California where eelgrass has diminished or disappeared, leaving Humboldt Bay as one of the last major sites left in the state for the species.

adopted by the California Department of Fish and Wildlife for aquaculture operations in other parts of California where the Fish and Game Commission has permitting jurisdiction.

In order to protect important species and the intertidal habitat they rely on, and recreational access, we request the staff report be amended to do the following:

- assure no further expansion of the operational footprint of Coast Seafoods' aquaculture operations in Arcata Bay;
- further consolidation of operations in more heavily impacted areas on the west side of the bay; and
- a higher level of peer and public scrutiny for monitoring and adaptive management plans related to eelgrass and Pacific black brant.

The staff report should also be amended to require that the proposed expansion areas be removed if the results fail to meet performance criteria for brant and eelgrass.

Moreover, we urge that the Commission permit no further expansion of Coast's aquaculture footprint in sensitive habitats and require consolidation of operations in the west side of the bay. If expansion is permitted, it must be constrained to the area required for scientific studies needed to understand the extent of aquaculture impacts to brant, eelgrass, and other species and resources. In addition, any monitoring and adaptive management plans for brant, eelgrass, and other species and resources should be subject to thorough scientific peer review and public comment.

Protection of natural resources and profitable aquaculture operations in Humboldt Bay can be maintained with a balanced approach. Retaining Coast's existing overall footprint will ensure an uninterrupted, profitable[2] operation for the company and the 60 jobs it claims to provide. Retaining the existing number of acres in a configuration that better protects eelgrass and marine species would also serve to help retain many other jobs related to the Bay's natural resources including hunting, fishing and wildlife watching.

The Commission's decision on this issue will have far-ranging consequences. The Humboldt Bay Harbor, Recreation and Conservation District is proposing an additional 329 acres of aquaculture in intertidal habitats of Arcata Bay.[3] Cumulatively, the two projects would encompass 740 acres in this small bay—a 60% increase in the footprint of aquaculture, with unknown consequences to protected marine resources.

We thank you for all your work to protect coastal species and recreational access in California. We ask again that you ensure that the Coast Seafoods project does not go forward until it meets Coastal Act requirements to protect sensitive species, habitats and recreational access and safety.

Respectfully submitted,

Rebecca Specter
West Coast Director
Center for Food Safety

Dr. Elizabeth Dougherty
Director
Wholly H2O

[2] Gross profits for shellfish aqauculture in Humboldt Bay in 2015 were $9,314,128.20. The vast majority of this income is Coast operations. Source: CDFW.
[3] http://humboldtbay.org/sites/humboldtbay2.org/files/Intertidal%20Pre-Permitting%20NOP_March%2023%202017%20FINAL.PDF

PACIFIC BIRDS
HABITAT JOINT VENTURE

Creating the Ideal Environment for Bird Habitat Conservation

June 2, 2017

Cassidy Teufel
California Coastal Commission
45 Fremont Street, Suite 2000
San Francisco, CA 94105-2219

Dear Mr. Teufel:

Thank you for this opportunity to comment on the application for Coastal Development Permit 9-15-1931, relating to Coastal Zone consistency determinations for expansion of shellfish aquaculture in Humboldt Bay by Coast Seafoods Company and necessary permitting by the Humboldt Bay Harbor, Recreation and Conservation District. We have reviewed the Commission's staff report W13a, as well as comments submitted by agencies and organizations affected by your decisions and offer our assessment of critical considerations for this permit application.

Pacific Birds is an international partnership of federal, state, provincial, local, and non-governmental organizations working to conserve important habitats for migratory birds from the north coast of California to Alaska and out to island habitats in the Pacific, including Hawaii. We have been working with our partners to protect and restore coastal wetlands in Mendocino, Humboldt and Del Norte counties since 1991. Most recently, our Management Board, made up of members from Canada and the U.S., have elevated the importance of coastal estuaries as a top conservation priority for our partnership from California to Alaska.

Coastal wetlands within Pacific Birds' boundaries provide critical habitat for migratory birds that utilize the Pacific Americas and other flyways. Estuaries and freshwater wetlands in the coastal lowlands from northern California to Alaska are used as breeding, migration and wintering sites by millions of birds. These coastal lowlands have been significantly reduced or degraded in most areas outside of Alaska. For example, nearly 85% of all tidal and freshwater habitats in Puget Sound have been lost since Euro-American settlement because they were susceptible to conversion for agriculture, commercial development and urban expansion. Similar wetland conversions have occurred along the Oregon coast and in other major estuaries, such as Humboldt Bay and the Eel River estuary. These habitats support over 100 species of waterbirds, shorebirds, and waterfowl. A functioning network of interconnected

coastal estuaries and wetlands, which includes Humboldt Bay, is essential to sustain bird populations along the Pacific Flyway.

Pacific Birds' staff have reviewed the staff recommendations for renewing and expanding aquaculture operations on Humboldt Bay and offer the following comments:

- First, we highly commend Commission staff for compiling a thorough body of information on the marine environment, fish and wildlife of Humboldt Bay. The analysis is soundly based in science and diverse public input, and the alternatives and recommended Special Conditions are both practical and effective in serving the public interest.

- The importance of eel grass (*Zostera marina*) for a variety of fish and wildlife is well documented and we specifically support concerns that have been conveyed by the U.S. Fish and Wildlife Service, Pacific Flyway Council and the Pacific Fishery Management Council. Eelgrass beds, found in bays and estuaries from northwest Alaska to the coast of Mexico, are a particularly vital habitat for invertebrates, juvenile fish and migratory birds, but the quality and extent of eelgrass is declining and has been degraded from southern British Columbia throughout Baja Mexico. Collectively, the loss of and degradation of eelgrass in Pacific estuaries, including Humboldt Bay, is significantly reducing the productivity of intertidal zones and the capacity to support local and migratory fish and wildlife populations.

- We particularly are concerned about the status of black brant, a species protected under the Migratory Bird Treaty Act and shared by diverse stakeholders across jurisdictions, from northeastern Russia, Alaska and Arctic Canada through the coastal states and the western mainland and Baja Peninsula of Mexico. The welfare of the black brant population is dependent on the chain of eelgrass estuaries, including Humboldt Bay, that provide conditioning during spring and fall staging and sustenance during migrations of over 6,000 miles each way. The combined detrimental impacts on black brant from degradation of eel grass beds and disturbance affects both the condition of migrating brant and the extent of their use of California estuaries.

- There are also concerns about shore and water birds that utilize mud flats in the area, as Humboldt Bay is a crucial migratory stopover for birds that travel thousands of miles during their annual life cycle. Like black brant, shorebirds rely on numerous productive migratory stopover habitats along their extensive flyways to maintain their body condition and survival as outlined in a recently published Pacific Americas Shorebird Conservation Strategy (https://www.shorebirdplan.org/wp-content/uploads/2017/03/Pacific-Americas-Strategy-2016.pdf).

- We support consolidating shellfish aquaculture within existing commercial use areas and other areas that are already disturbed. We recommend no expansion into new areas until robust monitoring programs for eelgrass and black brant are developed, vetted with the scientific community, and are implemented.

Expansion in new areas should be in small increments with sequential expansions only allowed when minimal impacts to estuary habitats and migratory birds are documented through the analysis of monitoring data. Overall, the long-term goal for Humboldt Bay should be no net loss of eel grass beds, negligible impact on bird use, and consideration of restoration mitigation for the existing operations, based on the monitoring data and other studies of impacts.

In summary, the many comments you have received from management agencies and conservation organizations are well founded and should be considered in your final ruling. Once crucial habitats are altered, the many roles they play for the environment and wildlife are lost and in many cases not replaceable. We urge extreme caution in managing permitted aquaculture operations in Humboldt Bay and consideration of future expansion, plus continued consultation with all interested parties.

Thank you for considering our comments and carrying out the vital functions of Coastal Zone Management for the benefit of the environment, communities and the many public values embodied along the Pacific Coast.

Sincerely,

Dr. Fern P. Duvall II
U.S. Co-Chair (Acting)

c. Jack Crider, Exec. Dir., Humboldt Bay Harbor, Recreation and Conservation District (jcrider@humboldtbay.org)

L. Kasey Sirkin, USACE, SFO (l.k.sirkin@usace.army.mil)

International Management Board, Pacific Birds Habitat Joint Venture

California Program Office
980 Ninth Street, Suite 1730 | Sacramento, California 95814 | tel 916.313.5800
www.defenders.org

June 2, 2017

Dayna Bochco, Chair
Cassidy Teufel, Senior Environmental Scientist
California Coastal Commission
45 Fremont Street
San Francisco, CA 94105-2219
Via e-mail: Cassidy.Teufel@coastal.ca.gov

Re: Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company

Dear Ms. Bochco and Mr. Teufel;

Defenders of Wildlife (Defenders) urge the California Coastal Commission to not allow any further expansion of Coast Seafoods aquaculture operations in Humboldt Bay. Defenders is a non-profit national environmental organization with 1.2 million members and supporters nationally, including 120,000 in California. Defenders is dedicated to protecting all wild animals and plants in their natural communities. To this end, we employ science, public education and participation, media, legislative advocacy, litigation, and proactive on-the-ground solutions in order to impede the accelerating rate of extinction of species, associated loss of biological diversity, and habitat alteration and destruction.

The proposed expansion of aquaculture operations, even with adoption of staff's recommended mitigation measures, including monitoring and adaptive management, is inconsistent with the standards of the Coastal Act, namely to maintain, enhance and restore intertidal wetlands, Species of Special Concern, threatened and endangered species, commercial and recreationally important fish and invertebrates, other species, and recreational access and safety.

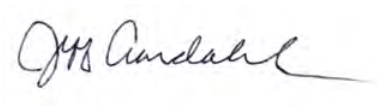
Retaining Coast Seafoods existing operation allows it to continue profitable operations on approximately 300 acres. Preventing the proposed expansion of aquaculture operations on an additional 112 acres of habitat in Humboldt Bay would protect eelgrass and marine species, and would also serve to protect numerous public trust resources and help retain many other jobs related to the Bay's natural resources, including hunting, fishing, wildlife watching, and recreational boating.

The California Coastal Commission staff report on the proposed expansion found that Humboldt Bay is "one of the most ecologically important areas on the entire west coast" for eelgrass, herring, waterbirds, shorebirds, waterfowl, black brant, Dungeness crab, salmon, and green sturgeon. eelgrass is a rare, declining, and special-status habitat in California and the focus of extensive efforts and investment to protect and restore this habitat in our state. The staff report also found that Humboldt Bay supports approximately half of California's eelgrass habitat, and that the existing

operation has adversely impacted 300 acres of eelgrass habitat which is 5.3 percent of that occurring in Humboldt Bay and 2.65 percent of that in California.

Thank you for considering our recommendations and we hope the Commission will deny the expansion of aquaculture operations in order to fully protect remaining public trust resources in Humboldt Bay.

Sincerely,



Jeff Aardahl
California Representative
Defenders of Wildlife
46600 Old State Highway, Unit 13
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jaardahl@defenders.org

From: Jeff & Gilly Black
To: Teufel, Cassidy@Coastal
Cc: leefee4@aol.com
Subject: Oyster farming in Humboldt Bay
Date: Wednesday, May 31, 2017 9:32:08 PM

Dear Cassidy - Would you please forward my letter of concern to your Chair person? Please see below. Many thanks, Jeff

Letter to Dayna Bochco

Chair of the California Coastal Commission

Subject: proposed Coast Seafoods Company Shellfish Culture Permit Renewal and Expansion Project Humboldt County, California

Dear Dayna

We are concerned that the proposed project by DH Harvey on behalf of Coast Seafoods fails to acknowledge the significant environmental impacts associated with the proposed aquaculture expansion in North Bay of Humboldt Bay. For the reasons outlined below, we ask you to disallow any further development of this kind.

Eelgrass populations are the foundation habitat structure for Humboldt Bay, conferring substantial benefits to local and global communities, including support of invertebrates, fishes, waterfowl, and other marine wildlife. Besides providing habitat at various life stages for economically important species, eelgrass populations deliver other ecosystem services in the form of sequestering carbon in the underlying sediments (NOAA 2014). Seagrasses sequester 15 times as much carbon as tropical forests per hectare of area, and thus, play a critical role in the reduction of global carbon levels.

Eelgrass in Humboldt Bay represents about 30% of the remaining eelgrass habitat in California and the largest remaining bed of intertidal eelgrass along the Pacific coast between Mexico and Washington. All other large bays in California have lost and degraded their intertidal eelgrass beds from human development and activities (Wyllie-Echeverria and Short 1996). Humboldt Bay's location in northern California, distant from other large embayments, and its unique combination of dense cover of intertidal and subtidal eelgrass populations creates a highly productive and species diverse ecosystem.

In addition, Humboldt Bay is considered a key spring staging location for black brant returning from north from Mexico, where the majority of the Pacific Flyway (PF) population winters. Black brant stop here because of its high eelgrass abundance and its relative isolation from adjacent stopover locations (Moore et al. 2004). Black brant at Humboldt Bay are already readily disturbed by human activities on the water and beaches (Bjerre 2007). We do not know how black brant would respond to additional oyster culture structures placed on eelgrass beds, but we can confirm that PVC pipes placed at 0.8 m intervals successfully inhibited black brant from approaching and entering experimental eelgrass plots (Ferson 2007).

The monitoring plans that are being circulated by DH Harvey and others to assess bird behavior seem to be missing the main point of concern, which is additional human disturbance on the entire bay, not just near the oyster lines. We already see the birds being impacted by boat traffic and human presence on the bay and ask that no additional disturbance be allowed.

These birds are hard pressed for time enough to acquire food to fuel migration. The next nearest bay with substantial eelgrass is over 400 miles (Moore et al. 2004), so this bay is an important stopping place for many of the birds in the population (Lee et al. 2007). Humboldt Bay fuels thousands of migratory waterbirds, all of which are susceptible to human activity. Additional interruptions to the birds' foraging routines may influence their willingness to stop at Humboldt Bay in the future – which may be detrimental to populations.

Delays in migration or premature migration without adequate body reserves can have negative consequences on the probability that northern breeding waterfowl will succeed in breeding attempts, with losses occurring at the egg or chick stage (Owen & Black 1989, Prop et al. 2003, Sedinger et al. 2011, Schamber et al. 2012). Currently, the Pacific Flyway population of black brant is in decline caused by reductions in juvenile survival and recruitment that is likely linked to reductions in eelgrass during winter and migration (Sedinger et al. 2011).

Furthermore, the DH Harvey documents used to promote the expansion plans have misapplied statements published in the journal *Ecosphere* (i.e. Stillman et al. 2015). We were coauthors of the Stillman et al. (2015) publication, which provided information about the geese and eelgrass for the mathematical model described in the paper. It seems that the '10% threshold' attributed to Stillman et al. (2015) was applied inappropriately. Stillman et al. (2015) were not commenting on whether 10% or any % was acceptable. The model did not predict a level of acceptable loss of eelgrass or change in bird behavior.

The various DH Harvey documents suggests that the reduction in bay-wide eelgrass biomass would be low (3%) and have insignificant impact to brant foraging. Why is 3% deemed insignificant? Due to the threatened status eelgrass and sensitive nature of black brant, we would consider any additional loss of eelgrass habitat or further reduction of foraging time by brant due to human activity as unacceptable.

In conclusion, there is little evidence to suggest eelgrass abundance (biomass) and distribution (spatial extent) are stable in Humboldt Bay. There have been few quantitative bay-wide surveys of trends for the distribution and abundance of eelgrass in this bay since 2009. A survey in 2015 associated this RDIR showed a 20% decline from 2009 levels. We would argue that losses will likely continue as they have done in 5 of 6 major embayments with eelgrass in southern California and Baja California through degradation from human and environmental impacts. Significant declines have been reported at Morro Bay, CA where spatial extent has dropped by 96% from 139 ha in 2007 to 5 ha in 2015 (Merkel 2015) and at Mission Bay, where spatial extent has decreased by 25% since 1997 (Merkel 2013). The eelgrass distribution has remained relatively stable in San Diego Bay; however, estimates in 2014 are below levels in the mid-2000s (Merkel 2014a). Negative trends in eelgrass spatial extent have also been reported in Baja California at San Ignacio Lagoon (37% decline since 2000; López-Calderón (2012), and San Quintin Bay (35% decline since 1987; Ward et al. 2003, Simancas 2013).

Recent eelgrass losses reported above have been greatest for intertidal populations, the eelgrass population that will be potentially most affected by the expansion. San Quintin Bay has lost 45% of its intertidal eelgrass (1046 ha in 2000 to 433 ha in 2014), including nearly all of its dense cover of intertidal eelgrass (604 ha in 2000 to 5 ha in 2014) over the last decade (Ward et al. 2003, Simancas 2013). Only sparse eelgrass remains. Similarly, Morro Bay has lost virtually all of its intertidal eelgrass beds. Humboldt Bay managers should guard against similar losses in Humboldt Bay.

From our perspective of having monitored and described coastal ecosystems and associated animals for 30+ years, we encourage the California Coastal

Commission to promote actions that enhance, not reduce, eelgrass habitat. Given the potential downward trends in eelgrass spatial extent at Humboldt and other embayments of California, we believe that it unwise for the Coast Foods oyster expansion to occur in Humboldt Bay because of the likely negative impacts to the intertidal eelgrass beds and the community it supports. Eelgrass populations along the Pacific coast are currently under stress and it would be imprudent to add additional stresses to this threatened and cherished biotype.

Sincerely,

David Ward, MS, (eelgrass and waterfowl biologist) – 6700 Fernhill Ave. Anchorage, AK, 99516

Jeff Black, PhD, DSc (HSU Professor and waterfowl biologist) – 1440 Union Street, Arcata, CA, 95521

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James S. Sedinger
30 Sagittarius Court
Reno, NV 89509

2 June 2017

Cassidy Teufel, Senior Environmental
Scientist California Coastal Commission
CTeufel@coastal.ca.gov

Subject: Staff Report W13a

Dear Mr. Teufel:

I am an academic scientist with 34 years' experience studying demography and population dynamics of Pacific Black Brant. I am writing to express my professional concern about the proposed expansion of oyster aquaculture in Arcata Bay by Coast Seafoods. Staff Report W13a assesses potential impacts of the expansion on use of Arcata Bay and foraging and nutritional status of Black Brant. I concur with numerous comments cited in the report that the physical structures and human activity associated with Coast's operations likely negatively affect the ability of Black Brant to acquire nutrients required for migration and breeding, resulting in reduced rates of nutrient acquisition. The result is that individuals will leave Humboldt Bay later or in poorer condition, or both. Numerous studies of Arctic breeding geese demonstrate that it is the combination of nutritional status and timing that determine whether geese will breed successfully, so even a delay of a few days can negatively influence the likelihood of successful breeding. Because the citations in Staff Report 13a address potential impacts on Black Brant in Arcata Bay, I use the remainder of this letter to address evidence that habitat conditions on the Pacific Coast are already at a point that is likely causing decline of the Black Brant population.

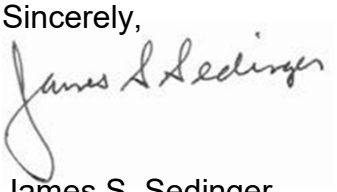
Our work has shown that reproductive performance of brant is directly tied to their access to eelgrass (Sedinger et al. 2006, 2011) and older work shows that brant disproportionately use bays with greater abundance of eelgrass (Wilson and Atkinson 1995). We have shown that the probability of individual Black Brant breeding on their principal breeding area on the Yukon Kuskokwim Delta Alaska is directly tied to access to food on wintering and migration areas along the Pacific Coast. Sedinger et al. (2006) showed that probability of breeding was reduced by 25-30% by the 1997-98 El Nino event, which reduced eelgrass abundance in Black Brant wintering areas. Sedinger et al. (2011) showed that Black Brant using specific wintering areas in Baja California, which supported greater biomass of eelgrass, consistently nested at higher rates than individuals using wintering areas supporting lower eelgrass biomass. New (unpublished) analyses show that Black Brant have become less tolerant of sea surface temperature (SST) anomalies. That is, we are observing maximal breeding effort over a narrower range of SST than was the case in the early 1990s, which points to a deterioration of habitat conditions on wintering and migration areas. Evidence that

changing winter-spring habitat conditions are declining also comes from fall age-ratios (proportion young in the fall population), which are declining rapidly (C. Amundson unpublished manuscript) and have been below the level needed to maintain populations for the past several. These declines represent in part events on breeding areas in Alaska (Sedinger et al. 2016) but declining productivity could also reflect declining habitat quality on wintering and migration areas (see above).

Long-term patterns in annual survival provide additional evidence of declining habitat conditions away from breeding areas. Annual survival of both first-year brant and adults, from both southwestern Alaska and the north slope of Alaska has declined substantially since 2000 (Leach et al. 2017, in press Journal of Wildlife Management). Adult survival from both breeding areas declined from 0.88 to 0.82 over this period; this apparently small decline affects population dynamics, which are very sensitive to changes in adult survival. As importantly, first-year survival has declined form > 0.7 to < 0.4 for young from the Arctic and from > 0.6 to < 0.2 for young from the Yukon-Kuskokwim Delta in southwestern Alaska. Sport hunting accounts for only a small portion of these declines. While habitat quality has declined in southwestern Alaska over that period, habitat on the north slope of Alaska is excellent. Thus, the similar trends in survival of multiple age classes of Black Brant that nest in widely separated areas strongly suggests declines in quality of habitat in wintering and migration areas. These declines in survival when combined with declines in productivity indicate a population in serious peril. Consequently, <u>any conversion or loss of important habitat</u> for Black Brant, especially at a site as important as Arcata Bay, has a high probability of negatively affecting the population.

Thank you for considering my comments.

Sincerely,



James S. Sedinger

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June 2, 2017

Dayna Bochco, Chair
Cassidy Teufel, Senior Environmental Scientist
California Coastal Commission
45 Fremont St.
San Francisco, CA 94105-2219

Via e-mail: Cassidy.Teufel@coastal.ca.gov

Re: Staff Report, Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company

Dear Ms. Bochco and Mr. Teufel,

I was immensely relieved to read this Staff Report, as it directly addresses the concerns I have about the Coast Seafood expansion project. I have a deep appreciation of Humboldt Bay as an ecologically rich and diverse resource; it has very clear water and tidal mudflats bearing a rich variety of benthic organisms and biofilm for shorebirds as well as one of the largest eelgrass beds remaining on the West Coast of the US, which is critical to Black Brant. It is clearly an area of special biological significance, requiring protection under Section 30230 of the Coastal Act. This document reflects the importance of this bay and the Staff's dedication to its preservation, while allowing for coexisting mariculture. I only wish the Lead Agency for the Coast Seafoods EIR had a similar conscience.

Eelgrass has been depleted in many California coastal bays by development, bottom scouring, and nutrient overload/turbidity, among other problems. Humboldt Bay now holds 30% to 50% of this keystone species in California. The National Oceanic and Atmospheric Administration (NOAA) has rightly determined that there should be no net loss of eelgrass, a policy adopted by the California Department of Fish and Wildlife for other aquaculture operations in California.

The well-thought-out special conditions, which include:

- Consolidation including removal of EB 7-2 to restore integrity of that eelgrass bed and minimize disturbance to the east side of Arcata Bay;
- Removal of SI-Nk to minimize disturbance of nesting site cormorants and Caspian terns;
- Relocation of proposed expansion beds from areas of dense eelgrass to areas that still retain scarring from prior operations, where possible;
- Limiting Coast's operational footprint to a maximum of 411 acres;
- Science-based eelgrass monitoring with defined conditions and outcomes, and consequences of adverse impact;
- Definition and protection of boat access channels in southern Arcata Bay;
- Brant monitoring plan that specifically addresses the concern of functional availability of eelgrass in areas of oyster mariculture, with the critical and specific consideration of drift feeding vs. bed-feeding;
- A stringent adaptive management plan and the inclusion of professional review of monitoring results;

- Monitored cleanup of abandoned or fallow beds or plots;
- Debris control and management, with bed cleaning at harvest;
- Clear mapping and marking of cultivation beds
- Avoidance of surface operations during scull boat waterfowl hunting season;
- Brant grit site protection- again, a critical component to their well-being, as the eelgrass they consume cannot be processed for digestion without grit;
- Longline spacing increase at harvest;
- Avoidance of disturbance of any birds or mammals whenever possible;
- Approach to unanticipated discovery of cultural artifacts/ resource

all clearly address concerns that any responsible steward would have, and are critical to the maintenance of this unique bay.

I would like to see the restriction of Coast boating operations on sculling days extend the length of the waterfowl season, which currently runs for the third Saturday in October through the first Sunday in February; this is subject to change annually.

Protected natural resources and profitable aquaculture operations in Humboldt Bay can coexist with this disciplined and informed approach. Retaining Coast's existing overall production acreage will ensure an uninterrupted, profitable operation for the company and the 60 jobs it claims to provide. Retaining the existing number of acres in a configuration that better protects eelgrass and marine species would also serve to help retain many other jobs related to the Bay's natural resources including hunting, fishing and wildlife watching.

The Commission's decision on this matter will be tested again, soon. The Humboldt Bay Harbor, Recreation and Conservation District is proposing an additional 329 acres of mariculture in intertidal habitats of Arcata Bay.[1] Cumulatively, the two projects would encompass 740 acres in this small bay—a 60% increase in the footprint of mariculture, with unknown consequences to protected marine resources. I personally am concerned that oyster mariculture will overtake the entirety of Arcata Bay. The 2007 Humboldt Bay Management Plan, under the advice of then-mariculture industry consultant Greg Dale, who is now the Operations Manager for Coast Seafoods and one of 5 Harbor District Commissioners, calls for the majority of Arcata Bay to be in mariculture[2]. I think that would be a travesty, and so appreciate your efforts to avoid it.

All of us hunters and birders thank you for all your work to protect coastal species and recreational access in California. Please ensure that the Coast Seafoods project does not go forward until it meets Coastal Act requirements to protect sensitive species, habitats and recreational access and safety.

Sincerely,

Richard J. Todoroff, DVM
A concerned local citizen

_____

[1]http://humboldtbay.org/sites/humboldtbay2.org/files/Intertidal%20Pre-Permitting%20NOP_March%2023%202017%20FINAL.PDF

[2]http://humboldtbay.org/sites/humboldtbay2.org/files/documents/hbmp2007/HumBayMgmtPLAN_print.pdf

From:	Jeff Todoroff
To:	Teufel, Cassidy@Coastal
Subject:	Todoroff clarification (Re: Staff Report, Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company)
Date:	Friday, June 02, 2017 8:50:41 AM

Dear Ms. Bochco and Mr. Teufel,

To be clear: In regards to excerpts from my letter of April 20, 2017 that appear on page 55 of this report, I am NOT an expert in waterfowl management.

My interest is real but informal- I just would not be much of an expert witness unless one was interested in surgery of dogs and cats!

Also, having recently spoken to a WSU Extension researcher and also the Waterfowl Section Manager for the State of Washington, I also overstated the "ecologic collapse" in Willapa Bay. It has real *Z. japonica* problems, but ecologic collapse is too strong a phrase.

Real letter to follow, and my gratitude to the CCC staff for such a heroic effort on behalf of a unique resource.

Sincerely,

Richard J. Todoroff, DVM
as a Concerned Citizen

June 2, 2017

Dayna Bochco, Chair
Cassidy Teufel, Senior Environmental Scientist
California Coastal Commission
45 Fremont St.
San Francisco, CA 94105-2219

Via e-mail: Cassidy.Teufel@coastal.ca.gov

Re: Staff Report, Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company

Dear Ms. Bochco and Mr. Teufel,

Thank you for the opportunity to review and comment on the Staff report prior to the Hearing to be held in Arcata, CA on June 7, 2017. Due to a schedule conflict I will be unable to present these comments in person.

Please place them in the appropriate place where all the CA Coastal Commissioners may have access to them during any deliberations and decision making that is anticipated on this important issue.

Please accept my sincere appreciation to all of the CA Coastal Commission (herein CCC) staff that have worked so long and hard on this controversial project. The project proponent and Lead agency have been slow to accept the facts regarding the adverse impacts this proposed project would have had in any of the first three versions described in the initial report, Draft EIR, Recirculated EIR and the Final EIR used by Humboldt Bay Harbor, Recreation, and Conservation District (HBHRCD) to issue a permit that is now the subject to CEQA litigation.

Thank you for listening to the comments that I have submitted previously and eliminating Phase II of the project as it came to you from HBHRCD. The eelgrass monitoring plan described is much improved and described by technically qualified persons as “robust”.

I could go on to identify other changes contained in the staff report, but I simply wish that you and the entire CCC know that I support all of the “restrictions” that Coast Seafoods is now complaining to you about.

My personal and professional experience on Humboldt Bay goes back to 1977. I have been a public user of the Bay and the wonderful natural resources that it contains. As a student, classes, graduate students, and faculty from Humboldt State University have taught me many important lessons that were then applied during a career as a wetlands, and waterfowl biologist.

While it is wonderful that the CCC Staff report has reduced many of the adverse impacts the Coast Seafoods project would certainly have, I must point out a few things that should be further reduced.

First the mitigation ratio for this project is entirely inadequate.

Second any mitigation required should be required “up front” because it appears that the CCC may use a ratio that is less than 1:1.

Third while the eelgrass monitoring plan appears to be solid, we are not yet being informed what or how the Pacific black brant monitoring plan will be constructed. Please include a requirement that before the CCC Executive Director approves any brant monitoring plan that it be both “Peer reviewed” and available for Public review.

The brant monitoring needed to determine if brant forage inside “cultured” areas as they do outside must be based on baseline monitoring on the exact geographic areas that are selected for new expansion. Eric Nelson, Manager of Humboldt Bay NWR has done a great job of explaining that brant are known not to use all portions of the bay equally, even though may appear equal or suitable for “control plots”. Cassidy Teufel was provided a copy of Eric Nelson’s letter to the HT Harvey staff (Scott) who prepared the proposed monitoring plan HBHRCD intended to use.

Fourth the baskets that form an obstacle when boats are launched from the T street boat ramp should be eliminated or set back several hundred feet, not 15 feet as proposed by the staff report.

Lastly, even the documents submitted by Coast Seafoods to the HBHRCD show that brant will not feed freely inside “cultured” areas. We can expect that this will be documented by any valid monitoring program. Therefore it is important to only allow the 34 to 42 acres that are being suggested in study plots. Any additional expansion will simply be required to be removed after the experiments prove what many qualified scientists have stated, that they interfere with brant foraging opportunities.

The environmental impact of installing PVC pipes, long lines and then removing them within 2 years has not been considered in any of the 3 environmental documents prepared up to this point.

Expanding oyster culture will adversely affect brant foraging opportunities and then cause reproductive failures on the nesting areas. Dr. Jeff Black, and David Ward have expressed serious concerns in at least three previous letters.

In closing, please limit Coast Seafoods to no more than 42 acres of expansion. This project must be considered in the context of the next two oyster expansion proposals being processed by HBHRCD. It would be unfortunate to allow the largest oyster producer on the bay to expand before the small local producers have an opportunity to seek permits for small oyster operations.

Sincerely,

Scott E. Frazer

Consulting Wildlife Biologist

P.O. Box 203

Blue Lake, CA 95525

California Coastal Commission
June 1, 2017

Dear Mrs. Dana Bochco,

I am writing to express my extreme concerns over the political pressure being exerted by Coast Seafood Company and its owner, Pacific Seafood Group, as it relates to their negative reaction to the Coastal Commission staff recommendations for the request to expand oyster production in Humboldt Bay. Pacific Seafood, Coast's owner is the largest vertically integrated seafood conglomerate on the west coast. They have made a practice of forcing smaller competitors out of business, buying small seafood businesses only to close them down, using their vast financial capabilities to control ex-vessel prices paid to commercial fishermen and finally when all else fails, Pacific Group enlists their extensive legal team to attack opponents. Pacific Group has been sued by Washington State and Oregon State Attorneys General for monopolistic and unfair business practices. Pacific Group is presently being sued over the purchase of the Trident Seafood Plant in Newport, Oregon. Closer to home, Coast Seafood manager and harbor commissioner Greg Dale, the Humboldt Bay Harbor Commission and their staff are being sued for their conflict of interest in promoting Coast Seafood expansion while purporting to remain neutral as Harbor commissioners.

Pacific Seafood Group has completely and successfully compromised the Humboldt Bay Harbor District by "loaning" the district $1.25 million. Pacific Group's loan will give them a "special deal" on their oyster leases as well as a claim on Harbor District properties for loan security. The local chapter of Baykeeper has also been compromised to the point of uselessness by Baykeeper's acceptance of a $10,000 "donation" by Pacific Seafood Group via their subsidiary, Coast Seafood.

Since 1974, I have lived directly on Humboldt Bay (Indian Island), crossing the bay multiple times each day and have made a significant portion of my income for the past forty years fishing in this bay. I have had to deal with the environmental damage and plastics pollution caused by the company the entire time. While Coastal Commission staff recommendations (as of May 31, 2017) might appear limiting to Coast/Pacific Seafood Group,I find the Coastal Commission recommendations to be considerably more generous than I would ever be. I don't feel that Coast Seafoods should be granted any additional expansion opportunities. Please do not allow this company the opportunity to further damage what's left of this vital estuary.

Thank you,

Ken Bates
F/V Ironic
Indian Island, Eureka, CA
707-498-1904

L. Kasey Sirkin

U.S. Army Corps of Engineers

601 Startare Drive, Box 14

Eureka, California 95501

l.k.sirkin@usace.army.mil

Re: Coast Seafoods Mariculture Permit and Expansion Request

I have resided directly adjacent to Humboldt Bay on Indian Island since 1974. I have fished commercially on Humboldt Bay every year since 1974 and have very extensive direct knowledge of mariculture operations in North Humboldt Bay. In the early 1990's , Jimmy Smith, County Supervisor (now deceased) and I spent over a year trying to get California Fish and Game staff to address massive habitat damage done to the Humboldt estuary by the largest mariculture operator, Coast Oyster Co. Ultimately, Al Petrovich, Deputy Director of Fish and Game arrived to attempt to motivate Coast Oyster Co and the Humboldt Bay Harbor District (the permitting agency) to address the extensive damage in North Bay. The Harbor District made a poor effort at oversight and monitoring and ultimately dropped all efforts to require permit compliance from Coast Oyster Co.

In later years, Coast Oyster, now Coast Seafoods (via sale to Pacific Seafood Group) was required by the Army Corps of Engineers to reduce their mariculture footprint in North Bay from 600 acres to 297 acres, during Coast's permit renewal process. Again, I commented on Coast's damage occurring in North Bay (letter enclosed). I received no comments from the Harbor District.

I am completely opposed to any expansion by Coast Seafoods in North Humboldt Bay. Furthermore, I find the final environmental impact report for Coast Seafood's proposed expansion inadequate and incomplete.

- *Baseline Data* -- It appears that the drafters of this EIR have used Coast Seafood's (CS) current (2007) permit "foot print" as the baseline for evaluating possible future environmental concerns or impacts due to increased mariculture activity in North Humboldt Bay. This is absurd. This would be like defining a forest as an "area with trees, half of which have been cut down by loggers". The proper baseline for any and all evaluations of mariculture impacts is North Humboldt Bay with no mariculture activities. This EIR is not valid based on the faulty premise of applying Coast Seafood's last permit "foot print" as the current baseline.
- *Proposed Mitigation Rate* – Coast Seafood is proposing a 4:1 ratio for mitigation of their proposed impacts to critical habitat in North Humboldt Bay. Again – the metaphor of the forest. The loggers, after cutting half of the trees down are now proposing to cut more and agree to plant one new tree for every 4 they cut. This not only ignores the first half of the forest they have taken, but also ignores the blatant fact that Coast Seafood cannot replace intertidal habitat. It is a documented fact that eelgrass meadow density declines

significantly within long line oyster culture. While scientific papers refer to shading of eelgrass, my concerns for eelgrass damage via trampling by walking on these beds and damage by mechanical harvesting are far more significant and are inadequately addressed by this EIR.

- *Night Operations* – The Coast Seafood EIR inadequately addresses the current changes in Coast Seafood's night operations in North Humboldt Bay. Within the last 2 years, CS has radically increased the intensity and distance of illumination during their nighttime operations. Now, nearly all of their vessels and scows are equipped with very high-intensity LED light bars. My direct experience both on the bay and on the ocean (while commercial fishing), is that these highly intense directional lights can have a blinding affect even when viewed as far away as three nautical miles. The EIR inadequately addresses the impact to waterfowl and migrating fish by intense night time illumination. Coast Seafood is the only oyster grower with major nighttime activities ongoing throughout the year.

- *Required Reporting by Coast Seafood* – As a condition of their expired mariculture permit, Coast Seafood was required to report any event of spawning Pacific Herring, and cease all mariculture operations in the area of the reported spawning activity. Coast Seafood has never reported a herring spawn ever! They have not reported a spawn even as the herring fishery was taking place week after week next to the Coast Seafood East Bay and Gunther Island oyster beds. They have not reported a spawn when the entire East Bay Management Area was covered for two weeks with migratory water birds feeding on herring eggs. They have not reported a spawn when their employees observed herring swimming at their feet nor when herring came up on the harvester conveyor belt. This EIR makes no mention of Coast Seafood's violation of previous permit conditions and so this EIR is incomplete in the evaluation of Coast Seafood's operational impact. This EIR also makes no provision for long term monitoring of impacts to waterfowl feeding behavior and is inadequate.

- *Cumulative Impact* – The Coast Seafood EIR minimizes the long term cumulative impact of all mariculture in North Humboldt Bay. At present, there is over 400 acres of active mariculture in North Humboldt Bay. Coast Seafood's EIR proposes additional acreage while not truthfully evaluating the massive impacts of the Harbor District's Expansion Project, Coast Seafood's current operations and that of existing small community oyster operations. Also not mentioned under cumulative impacts are the areas (both tidal and submerged) negatively impacted by abandoned sites, some dating as far back as 1896. This EIR is incomplete in evaluation of long term cumulative impacts to the north Humboldt Bay environment.

- *Plastic Mariculture Debris* – Coast Seafood EIR makes no mention of the massive amounts of plastic mariculture debris introduced in the last ten years in North Humboldt Bay, primarily by Coast Seafood. Coast Seafood is responsible for "installing" over 40 miles of ¾" PVC pipe

cut into 18" long stakes. These stakes are topped with at least 80 miles of ¼" yellow polypropylene rope strung with oyster clutch. Coast Seafood's newest contribution, black ABS cages (6"X 24") with half of a 6" diameter PVC crab buoy attached with nylon tie-straps and sealed with multi-colored plastic name tags are now becoming a common item in Humboldt Bay Marshes and even on outside ocean beaches. Black, red, and blue plastic vexar bags, 24" X 24" mariculture trays and various lengths of 2" PVC pipe are also common marsh debris. Since 1974, I have fished Pacific Herring, anchovies, and sardines in Humboldt Bay. All of the lost mariculture objects continue to come up tangled in my nets when fishing. Some of the areas in North Humboldt Bay are unworkable due to mariculture junk on the bottom. Probably the most terrifying, are the lost steel cylindrical baskets (3' x 4'- weighing about 80 pounds), which tear completely through my nets. On one occasion, Coast Seafood lost 14 of these baskets. I was able to find and grapple 11 of these baskets. I have the coordinates of one of the baskets that I was not able to retrieve during my attempt to clean the fishing area. Some of the areas that have been traditionally fished by other commercial fishermen are no longer safe for fishing because of lost mariculture debris. The Coast Seafood EIR does not adequately address current and future impacts of the massive introduction of plastic into this marine environment nor does it address requests for a two million dollar performance bond from Coast Seafood for their mariculture debris clean-up. It is a federal offense and violation of international law to introduce any plastic material into bays, estuaries or the ocean. Coast Seafood is in violation of these laws.

The Coast Seafood EIR is incomplete and inadequate in its responses to public concerns for the long term health of Humboldt Bay. Humboldt Bay is a small bay, which most likely reached its natural ecological carrying capacity millennia before the mariculture invasion. Mariculture should be held at current levels with no expansion for Coast Seafood. I also find it significant that the Humboldt Bay Harbor District, (now the defendant in two lawsuits concerning their mariculture activities), has chosen to downplay or ignore massive public protest over mariculture expansion in Humboldt Bay. The Harbor District commissioners and CEO are totally compromised and in extreme "conflict of interest" over their actions to advance Coast Seafood Mariculture expansion, while at the same time trying to alleviate the financial insolvency that the District has created for itself, all the while gladly accepting $1.25 million dollars in loans from its biggest mariculture tenant, Coast Seafoods! The Humboldt Bay Harbor District is ethically bankrupt and unable and unwilling to address the loud public interest in preservation of the Humboldt Estuary. We the public must therefore rely on the Army Corps of Engineers to honestly evaluate and address the public concern.

We are opposed to any mariculture expansion by Coast Seafoods and further suggest that the Harbor District be relieved of tidelands management in Humboldt Bay.

Sincerely,

Ken Bates and Linda Hildebrand

June 2, 2017

Dayna Bochco, Chair
Cassidy Teufel, Senior Environmental Scientist
California Coastal Commission
45 Fremont St. San Francisco, CA 94105-2219

Dear Ms Bocho,

I am an active and concerned member of the community and I have been on the fence regarding mariculture expansion in Humboldt Bay until now. I have been trying to find a balance between commerce and recreational use of the Bay. Recreation is dependent on a healthy ecological environment. Commerce, which is vital to our economy, threatens both the environment and recreational use.

After much investigation and interaction with both sides of the issue, I have decided to oppose mariculture expansion as presented in Humboldt Bay. I do not think the threat to the environment and the loss of recreational use is worth the perceived benefits to our economy. Coast Seafood is not a local company but part of the largest seafood company in America. Its owners have a terrible reputation and are involved in many lawsuits. Locally, I am disappointed with the attitude of most of the Harbor Commissioners. They act like it is a dire imperative that expansion occur and they completely dismiss concerns and opinions from the public. Some folks believe they are "bought and paid for."

Instead of helping a rich conglomerate become richer, we should ask them to develop new mariculture techniques that allow them to utilize the working part of the Bay and avoid conflicts with eel grass, herring, waterfowl, hunters, and other recreational users. New technology is being used on the East Coast and could be modified for use here. There are acres of derelict pilings that could be used for structure and miles of unused shoreline. I am sure Coast Seafood and the Harbor District do not want to incur the expense of new technology development and are simply looking for the best return for their efforts. In this case, it's at the cost of the environment and recreation.

That being said, I applaud the special conditions recommended by Coastal Commission staff and hope there are plans for strict monitoring to insure compliance. The conditions demonstrate the Coastal Commission understands the issues and the community's concerns.

Please consider all this when deciding on the Coast Seafood expansion, leases, and the Harbor District pre-permitting project for mariculture expansion on North Humboldt Bay.

Thank you,

James Casey Allen
Bayside, Ca
707-845-9234

Susan Penn
PO Box 1036
Eureka, CA 95502

Dear Mrs. Dayna Bochco,

I am writing in regards to the staff report prepared for Commission members regarding the proposed Coast Seafoods expansion in Humboldt Bay. The staff talked with many people and many agencies, and I think their report and suggestions are a vast improvement over Coast's proposal. There are some areas where I think restrictions should be stricter than proposed by staff, and I will address those, but first let me tell you what I found most encouraging about the staff's recommendations.

Commission staff changes, recommendations, and restrictions that need to be implemented:

Great respect for the Wiyot's was shown by the decision to move 4 acres of rack and bag from Indian Island which was to be placed very close to Tuluwat, the Wiyot's sacred ceremonial grounds. There are existing beds on Indian Island, but none that close to their site.

Phase 2 was not included in this report, and it really does need its own EIR. If this initial expansion meets the environmental requirements, then Coast will be able to proceed with another proposal. There are too many unknowns to include both phases in this EIR, and this project.

Bed 7-2 in East Bay was removed. East Bay is the prime brant feeding and herring spawning area. This was a proposed 11 acre bed, and its placement there would be against all the recommendations put forth by the science community.

Monitoring should utilize the upper limit of confidence interval to determine impacts to eel grass density. It would be too easy to skew the results by using a lower limit. We need to know what is actually happening.

Areas that should be strengthened:

The first part of the expansion should include just the test plots. This will give Coast 42 acres on which they can demonstrate the impact of their operations. Removing 42 acres of beds, should that prove necessary, would be much less costly than removing 82 (as proposed by staff for the first year) or 116 which could be established by the second year.

The initial monitoring period needs to be lengthened to at least 18 months, perhaps 24, to allow for the inclusion of a harvest cycle. Impacts to eel grass cannot be determined solely by its response to placing gear in the water. **The impacts of harvesting, both by hand and mechanically, need to be assessed.**

New basket plots planned for East Bay, specifically 1-3, 1-4, 2-2, 2-4, and 6-4, should be removed from the project. As stated previously, East Bay development should be restricted, if not eliminated. These are also in an area where they would pose a real danger to small craft navigation.

Thank you for your consideration of this project, the Commission staff's report, and the needs and desires of our bay and the people and animals who live here.

Sincerely,
Susan Penn

From: jhunter323@aol.com
To: Teufel, Cassidy@Coastal
Subject: Coast Seafoods comment
Date: Friday, June 02, 2017 3:04:19 PM

Dear Ms. Dayna Bochco, Chair:

I support the Coastal Commission's decisions in the staff report to:

1) Take out Coast Seafoods Phase 2
2) Remove East Bay 7-2 in order to enhance the habitat
3) hold the monitoring standards to the highest levels by using the upper limit of the confidence when determining impacts of the project on eelgrass density.

CONCERNS:

1) The staff report is a good start, but it is still not enough to protect the marine-avian-eelgrass- human balance and safety in the bay.

2) The only acceptable monitoring outcome for the project will be if there is zero impact to eelgrass density, brant loafing, brant feeding, brant gritting, and avian disturbance in the test plots.

3) Keep the T St. public access to the bay (Samoa Bridge boat ramp) as a **critical** entrance for all recreational users. **Do not** have **ANY** interference in the area of exhibit 5.8 #1-3; 1-4; 2-2; 2-4; 6-4 or it is going to impede small, motor-less boats by making it impassible for egress and ingress to the East Bay area.

4) The entire hunting season is not being addressed. i.e. brant and duck (Oct.-Jan.)

5) Feeding, loafing, and gritting of ALL birds is not being realistically addressed, studied, and recorded.

6) There is a negative impact to the environment and the balance of the ecosystem because of the disturbance of the planting and the harvesting of oysters. i.e. equipment being installed, equipment being removed, lights, boats, tearing up of the eelgrass, noise commotion in travel, pollution, and the equipment impedes the activity of the birds and the safety of boaters

7) The expansion of 111 acres should be reduced to 42 acres of experimental plots for the first full oyster cycle of approximately 2 years (the planting and harvesting) and 2 brant migration cycles, so the total impact of the devastation of the harvesting of the oysters can also be part of the impact analysis.

8) There needs to be peer review and public review given BEFORE any permit is signed off by the executive director of the California Coastal Commission.

Sincerely,

John Hunter
1151 Adkins Road
McKinleyville, CA, 95519

From: Ted Romo
To: Teufel, Cassidy@Coastal
Subject: Coast Sea food expansion permit
Date: Friday, June 02, 2017 2:04:46 PM

June 2, 2017

Dayna Bochco, Chair
Cassidy Teufel, Senior Environmental Scientist
California Coastal Commission
45 Fremont St.
San Francisco, CA 94105-2219

Via e-mail: Cassidy.Teufel@coastal.ca.gov

Re: Staff Report, Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company

Dear Ms. Bochco and Mr. Teufel,

I'm writing to express my concern about Coast Seafood's proposed project in Humboldt Bay and to encourage the California Coastal Commission (Commission) to ensure that the bay's natural resources are protected from further development at least until the potential impacts can be studied, understood, and fully avoided and mitigated.

As the Coastal Commission staff report states, Humboldt Bay is "one of the most ecologically important areas on the entire west coast" for eelgrass, herring, waterbirds, shorebirds, waterfowl, black brant, Dungeness crab, salmon, green sturgeon and Pacific black brant. The report further states:

> This ecological richness has also made Humboldt Bay a locally and regionally significant recreational resource, supporting a range of water-oriented recreational pursuits from boating, kayaking, and wildlife viewing to hunting and fishing.

(Report, p. 2) Further, the report finds that "Arcata Bay includes both areas and species of special biological and economic significance that are required to be provided with special protection under Section 30230 of the Coastal Act."

One of Humboldt Bay's defining features is that it is home to at least 30 - 50% of the remaining eelgrass in California. Eelgrass is foundational to the coastal marine

ecosystem, as a nursery for forage fish and crustaceans, and as a potential buffer against sea-level rise and ocean acidification. The National Oceanic and Atmospheric Administration (NOAA) has determined that there should be no net loss of eelgrass, a policy adopted by the California Department of Fish and Wildlife for other aquaculture operations in California.

Humboldt Bay is particularly important for the Pacific Black brant, hosting approximately 60% of its population during migration and over the winter. Black brant subsist almost entirely on eelgrass and their numbers have declined to the point of extirpation in other parts of California where eelgrass has diminished or disappeared, leaving Humboldt Bay as one of the last places left in California where brant can be successfully hunted. Black brant hunting has been a significant recreational and cultural activity in Humboldt Bay for over 100 years, while hunting for other waterfowl species also occurs throughout the hunting season.
The Coast Seafoods project would expand from its current footprint of 299 acres to at least 411 acres, much of it in prime eelgrass beds on publicly-owned tidelands. As the Commission staff report indicates, this will have significant negative consequences on eelgrass, shorebirds, and Black brant. Brant are exceedingly sensitive to disturbance and will be excluded from areas up to 1000 meters away from active aquaculture operations, meaning the disturbance footprint of the project is much larger than the 411 acres allowed for in the staff report. Also, as the staff report states, there is no way to accurately estimate the full extent of the impacts of the proposed project until more studies are done. I suggest that you allow only 42 acres of test sight acres for expansion for, at least 5 migration cycles of Black brant sense every migration year is different. You would need at the very least 5 years of data to even get close to a statistical accurate trend.

In order to protect important species and the intertidal habitat they rely on, and recreational access, l request the staff report be amended to do the following:

- assure no further expansion of the operational footprint of Coast Seafoods' aquaculture operations in Arcata Bay;
- further consolidation of operations in more heavily impacted areas on the west side of the bay;
- a higher level of peer and public scrutiny for monitoring and adaptive management plans related to eelgrass and Pacific Black Brant; and,
- modify the "Brant Hunting" Special Condition (p. 16) to reflect the recently expanded brant season dates (Nov. 8 – Dec. 14) and require Coast to "avoid on-water operations within its leased areas depicted in Exhibit 1 from one hour before sunrise until sunset" on waterfowl hunt days (Wednesday, Saturday and Sunday) not just during brantseason but the entire regular waterfowl season. The regular waterfowl season runs from the third Saturday in October until the

first Sunday in February (which includes the special youth hunt).

Ultimately, the expansion areas should be removed if the results fail to meet performance criteria for brant and eelgrass!!!!

Protection of natural resources and profitable aquaculture operations in Humboldt Bay can be maintained with a balanced approach. Retaining Coast's existing overall footprint will ensure an uninterrupted, profitable operation for the company and the 60 jobs it claims to provide. Retaining the existing number of acres in a configuration that better protects eelgrass and marine species would also serve to help retain many other jobs related to the Bay's natural resources including hunting, fishing and wildlife watching.

The Commission's decision on this issue will have far-ranging consequences. The Humboldt Bay Harbor, Recreation and Conservation District is proposing an additional 329 acres of aquaculture in intertidal habitats of Arcata Bay. Cumulatively, the two projects would encompass 740 acres in this small bay—a 60% increase in the footprint of aquaculture, with unknown consequences to protected marine resources.

I thank you for all your work to protect coastal species and recreational access in California I ask again that you ensure that the Coast Seafoods project does not go forward until it meets Coastal Act requirements to protect sensitive species, habitats and recreational access and safety.

Sincerely,

Ted M Romo
3419 Edgewood Rd
Eureka,Calif
707-496-0525
Sent from my iPad

From: Shannon Simpson
To: Teufel, Cassidy@Coastal
Subject: Coast Seafoods oyster farm expansion
Date: Friday, June 02, 2017 1:53:48 PM

Dear Mr. Teufel,

I have been following the Coast Seafoods oyster farm expansion process and have had concerns that the initial proposals were much too large and were spread out too expansively across North Humboldt Bay. I believe such an expansion would have significant negative effects on the Humboldt Bay ecosystem including the eelgrass, fish, and birds. I also worry that covering so much of the bay with oyster lines will reduce the accessibility of the bay for other people who want to use it.

Although it still seems possible that the project outlined in your draft staff report may have negative impacts on Humboldt Bay because it is placed in such sensitive habitat (i.e., eelgrass), I am writing to express support for the special conditions you have proposed. The size of the proposed project was excessively large given the uncertainties surrounding impacts from oyster aquaculture. I support the conditions because they appropriately reduce the size of the project by limiting the total acreage of the expansion and also by removing phase II of the expansion from consideration. However, given the sensitive nature of the habitat, further reductions in size may be necessary. I also support the conditions that consolidate oyster operations by localizing expansion to areas where current operations are occurring and also removing oyster infrastructure (such as bed EB 7-2) from sensitive areas in the east bay area and around Sand Island. This reduces the sprawl of aquaculture throughout the bay and provides more continuous areas of habitat not fragmented by aquaculture gear. Finally, the conditions call for a staged approach to implementing the project that will be informed by monitoring. Given the uncertainties of this project, this type of cautious, science based approach is critical to protecting the resources of Humboldt Bay. However, the incremental adaptive management approach is only as good as the information that supports it. As such, I encourage you to ensure that the eelgrass and brandt monitoring plans are finalized and scientifically rigorous prior to issuing your permit. Further, the thresholds used to determine if impacts are occurring should be conservative. As such, in the eelgrass monitoring plan, is important and appropriate to use the upper limit of the Confidence Interval to determine if impacts are occurring and whether additional mitigation is required.

In summary, there is significant uncertainty regarding the impacts of this project, but the risks to Humboldt Bay are high. The special conditions outlined in your draft staff report should be fully implemented in the final permit. Weakening of these conditions, will place the ecosystem and resources of Humboldt Bay at risk for everyone.

Thanks for all the work you do to ensure all the people of California have access to the state's amazing coastal resources.

Sincerely,

Shannon Simpson

From: Jeremy Rasmussen
To: Teufel, Cassidy@Coastal
Subject: Letter to Dayna Bochco, Chair
Date: Friday, June 02, 2017 12:52:23 PM

Dear Ms. Dayna Bochco, Chair:

I support the Coastal Commission's decisions in the staff report to:

1) Take out Coast Seafoods Phase 2
2) Remove East Bay 7-2 in order to enhance the habitat
3) hold the monitoring standards to the highest levels by using the upper limit of the confidence when determining impacts of the project on eelgrass density.

CONCERNS:

1) The staff report is a good start, but it is still not enough to protect the marine-avian-eelgrass-human balance and safety in the bay.

2) The only acceptable monitoring outcome for the project will be if there is zero impact to eelgrass density, brant loafing, brant feeding, brant gritting, and avian disturbance in the test plots.

3) Keep the T St. public access to the bay (Samoa Bridge boat ramp) as a **critical** entrance for all recreational users. **Do not** have **ANY** interference in the area of exhibit 5.8 #1-3; 1-4; 2-2; 2-4; 6-4 or it is going to impede small, motor-less boats by making it impassible for egress and ingress to the East Bay area.

4) The entire hunting season is not being addressed. i.e. brant and duck (Oct.-Jan.)

5) Feeding, loafing, and gritting of ALL birds is not being realistically addressed, studied, and recorded.

6) There is a negative impact to the environment and the balance of the ecosystem because of the disturbance of the planting and the harvesting of oysters. i.e. equipment being installed, equipment being removed, lights, boats, tearing up of the eelgrass, noise commotion in travel, pollution, and the equipment impedes the activity of the birds and the safety of boaters

7) The expansion of 111 acres should be reduced to 42 acres of experimental plots for the first full oyster cycle of approximately 2 years (the planting and harvesting) and 2 brant migration cycles, so the total impact of the devastation of the harvesting of the oysters can also be part of the impact analysis.

8) There needs to be peer review and public review given BEFORE any permit is signed off by the executive director of the California Coastal Commission.

Jeremy Rasmussen
707-834-6808
3527 CALIFORNIA ST
EUREKA CA
95503

From: Tyler Jensen
To: Teufel, Cassidy@Coastal
Subject: Coast seafood oyster expansion
Date: Friday, June 02, 2017 12:41:40 PM

Dear Ms. Dayna Bochco, Chair:

I support the Coastal Commission's decisions in the staff report to:

1) Take out Coast Seafoods Phase 2
2) Remove East Bay 7-2 in order to enhance the habitat
3) hold the monitoring standards to the highest levels by using the upper limit of the confidence when determining impacts of the project on eelgrass density.

CONCERNS:

1) The staff report is a good start, but it is still not enough to protect the marine-avian-eelgrass- human balance and safety in the bay.

2) The only acceptable monitoring outcome for the project will be if there is zero impact to eelgrass density, brant loafing, brant feeding, brant gritting, and avian disturbance in the test plots.

3) Keep the T St. public access to the bay (Samoa Bridge boat ramp) as a **critical** entrance for all recreational users. **Do not** have **ANY** interferencein the area of exhibit 5.8 #1-3; 1-4; 2-2; 2-4; 6-4 or it is going to impede small, motor-less boats by making it impassible for egress and ingress to the East Bay area.

4) The entire hunting season is not being addressed. i.e. brant and duck (Oct.-Jan.)

5) Feeding, loafing, and gritting of ALL birds is not being realistically addressed, studied, and recorded.

6) There is a negative impact to the environment and the balance of the ecosystem because of the disturbance of the planting and the harvesting of oysters. i.e. equipment being installed, equipment being removed, lights, boats, tearing up of the eelgrass, noise commotion in travel, pollution, and the equipment impedes the activity of the birds and the safety of boaters

7) The expansion of 111 acres should be reduced to 42 acres of experimental plots for the first full oyster cycle of approximately 2 years (the planting and harvesting) and 2 brant migration cycles, so the total impact of the devastation of the harvesting of the oysters can also be part of the impact analysis.

8) There needs to be peer review and public review given BEFORE any permit is signed off by the executive director of the California Coastal Commission.

- Tyler Jensen

From: Joan Romo
To: Teufel, Cassidy@Coastal
Subject: Comments pertaining to the Staff Report for Coast Seafoods Permit Expansion Report in Humboldt Bay
Date: Friday, June 02, 2017 12:08:40 PM

June 2, 1017
Joan Romo
3419 Edgewood Rd.
Eureka, CA 95501

Dear Ms. Dayna Bochco, Chair:

I support the Coastal Commission's decisions in the staff report to:

1) take out Coast Seafoods Phase 2

2) remove East Bay 7-2 in order to enhance the habitat

3) hold the monitoring standards to the highest levels by using the upper limit of the **confidence when determining impacts of the project on eelgrass density.**

I still have concerns in the following areas:

1) The staff report is a good start, but it is still not enough to protect the marine-avian-eelgrass-human balance and safety in the bay.

2) The only acceptable monitoring outcome for the project will be if there is zero impact to eelgrass density, brant loafing, brant feeding, brant gritting, and avian disturbance in test plots and the entire bay.

3) Keep the T St. public access to the bay (Samoa Bridge boat ramp) as a **critical** entrance for all recreational users. **Do not** have **ANY** interference in the area of exhibit 5.8 #1-3; 1-4; 2-2; 2-4; 6-4 or it is going to impede small, motor-less boats by making it impassible for egress and ingress to the East Bay area.

4) The entire hunting season is not being addressed or the return of brant from Mexico to return to Alaska for breeding.

5) Feeding, loafing, and gritting of ALL birds is not being realistically addressed, studied, and recorded.

6) There is a negative impact to the environment and the balance of the ecosystem because of the disturbance of the planting and the harvesting of oysters. i.e. equipment being installed, equipment being removed, lights, boats, tearing up of the eelgrass, noise commotion in travel, pollution, and the equipment impedes the activity of the birds and the safety of boaters

7) The expansion of 111 acres should be reduced to 42 acres of experimental plots for the first full oyster cycle of approximately 2 years (the planting and harvesting) and 2 brant migration cycles, so the total impact of the devastation of the harvesting of the

oysters can also be part of the impact analysis.

8) There needs to be peer review and public review given BEFORE any permit is signed off by the executive director of the California Coastal Commission.

Thank you.

Joan Romo
(707) 834-0720

From:	Robert Hill Long
To:	Teufel, Cassidy@Coastal
Subject:	Letter supporting the staff report re Coast Seafoods proposal
Date:	Friday, June 02, 2017 12:02:07 PM

Ms. Dayna Bochco
Coastal Commission
Re: Coast Seafoods proposal

Dear Ms. Bochco,

I add my voice to support the recommendations made by the staff to ensure greater respect and safety for the environment, the shorebirds, and the Wiyot in resolving the critical issues around the Coast Seafoods proposal.

Thank you for reading this and making the best decision for future generations.

Robert Hill Long
Eureka, California
Http://roberthilllong.tumblr.com

From: Maggi Draper
To: Teufel, Cassidy@Coastal
Subject: re Coast Seafoods and the Humboldt Bay
Date: Friday, June 02, 2017 11:36:00 AM

CALIFORNIA COASTAL COMMISSION
ENERGY, OCEAN RESOURCES AND FEDERAL CONSISTENCY DIVISION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219

Dear Mrs. Dayna Bocho and CA Coastal Commissioners:

As a resident of the Humboldt/Arcata Bay area, I am very concerned about the possibility of foreseeable environmental degradation caused by improper permitting of expansion of the oyster beds of the Bay - especially in view of the great uncertainty we Humboldt residents face as to how fast sea level is rising and what effects it will have on our local communities of wildlife AND humans. In terms of standing, I engage frequently in water sports such as canoeing on the bay, and have observed many changes in the shoreline, as well as changes in the number of birds and their patterns as a result of recent erosion and sea level rise in the tidal environment. If armoring the shoreline takes place to preserve life and property in the years ahead, what mitigations will be required for the Bay to address the cumulative effects of shoreline changes and oyster farm expansion area? Would eelgrass beds need to be increased in size to compensate for shore armoring - leading to a shutdown of operations by oyster farms in future? This would render the expansion a mistake. These questions need to be addressed in the EIR; I don't believe the current EIR is adequate.

The actions recommended in the staff report do much to mitigate at least the anticipated impacts, and should be followed - at a minimum - if expansion is to take place at all, which many responsible experts wonder about.

When Coast Oyster was purchased by a subsidiary of Pacific Seafood Group in 2011 (and its name changed to "Coast Seafoods"), I and many others were concerned, since Pacific Seafood Group is the largest seafood company on the West Coast, whose owner, Frank Dulcich, has questionable practices and has been sued. Disturbingly, the company is pressuring the Commission to ignore your staff report. Dismissing the staff report in such a controversial matter could be construed as arbitrary and capricious - or worse. There is great dependence on this company by the Harbor Commission, which owes Coast Seafoods approximately $1,250,000.00. Of course, there is every reason to want that money paid back to Coast Seafoods, and for companies to be honest and successful with local projects. However, any "making it easy" on the company gives the appearance of impropriety in such setting. The Harbor Commission may be passing the buck on this to your board, due to it's debt. Given that Pacific Seafood Group is a force to be reckoned with in California, there is even more reason for the Coastal Commission NOT to overlook the findings of its own staff under such circumstances.

Controversy handled incorrectly leads to strife, litigation and expense, when the goal here is a win-win. We all wish for economic improvements, and maximal responsible harvesting in natural systems. However, mitigation is crucial, and efforts by the company to bypass staff recommendations, in the face of what appears to be a

flawed EIR as a basis for the permit, could end up being an expensive and silly action, fraught with even more minefields than your usual decisions of import. Having seen the results of the hard work of your staff in the midst of this controversy, I urge you to thread the needle and follow staff's advice in your actions vis a vis Coast Seafoods.

Thank you for all the hard work you do on the commission.

Sincerely,

Margaret Draper
Attorney at Law

POB 176
Bayside, CA 95524

707.826.9072

From:	Lee Parker
To:	Teufel, Cassidy@Coastal
Subject:	Coast Seafood Proposed Expansion
Date:	Friday, June 02, 2017 10:01:02 AM

Dear Mrs. Dayna Bocho:

I have read the available documents regarding the proposed expansion by Coast Seafood, and as a long-time resident here on Humboldt Bay I wish to express my objection to ANY expansion of aquaculture in the Bay.

Simply stated: Their solitary motive for expansion is financial profit, not need, and the costs are many impacts on environmental quality of the Bay, even into the foreseeable future. My only rational response is that I am adamantly opposed to Coast Seafood's proposed expansion. Thank you.

Sincerely,
Leland R. Parker
Arcata, CA

From:	Dylan M. Inskeep
To:	Teufel, Cassidy@Coastal
Subject:	Coastal Seafood Expansion
Date:	Friday, June 02, 2017 8:16:22 AM

Hello Cassidy Teufel,

My name is Dylan Inskeep and I am a former Marine Biology major from Humboldt State. Recently I have heard disturbing things coming from Coast Seafoods and its wanted expansion into the Northern Humboldt Bay. I would urge you to take the state of our environment as well as the current politic climate into consideration. Especially now that Trump has pulled the USA out of the Paris Climate Agreement it is necessary for states and cities to better manage our environments and carbon footprints. The Coast Seafood oyster expansion would detrimentally effect the Northern Humboldt Bay's delicate eelgrass habitat, which is a nursery habitat for many species as you well know. That is why I am urging you to do the following:

- Please continue to support the current staff reccomendations and instead of weakening them make them go further than they already do.

- I highly encourage you to reduce the size of the current expansion, the amount of acres Coast is trying to expand into could have varying negative effects attached and there have not been enough research into these impacts on species such as herring, brant geese, and juvenile species that use these eelgrass habitats as homes, feeding grounds and spawning sites.

- Support the removal of both Bed EB 7-2, seeing as it is in prime eelgrass habitat within the northern east part of Humboldt Bay, as well as removal of phase 2 of the expansion.

- Lastly due to impacts to public access to the North Bay I kindly urge you to seek removal of Beds EB 1-3, 1-4, 2-2, 2-4, and 6-4. The proximity of these beds to the channel make it dangerous for the public to enjoy their own bay by putting death traps in a few feet of water from a major public access channel. It would be hard for the public to navigate those areas during various times of the tidal cycle.

Thank you for your consideration on my concerns over this expansion and I hope you take what I said to heart. This expansion would be bad for our bay, not just for our ecosystem but for all the residents of Humboldt County that use our bay for recreation and food.

Have a great day!

Dylan Inskeep

From: Roger Cox
To: Teufel, Cassidy@Coastal
Subject: coast seafood staff report.....please forwadr to Dayna Bochco
Date: Friday, June 02, 2017 7:44:06 AM

Hello Cassidy,

I had an opportunity to look over your staff report regarding the proposed Coast Seafood expansion project in North Humboldt Bay. The report is moving in a positive direction, and I would like to express my thanks.

I would also like to offer my support of the following permit conditions:

1) No phase II in plan.
2) Removal of bed 7-2
3) no change to the confidence interval for eel grass mitigation
4)Peer reviewed Brant Management Plan

Also I would request the elimination of beds 1-3, 1-4, 2-2, 2-4, 6-4. These beds will severely restrict the ingress/egress into East Bay. As an active scull boat hunter since 1977, I can tell you first-hand that when in bad weather kicks up, it is paramount to our safety that we are not impeded upon our return to the T street boat ramp. This is not a good spot to have to navigate through man-made obstacles .

Another factor to consider is that waterfowl hunters need access to the bay for the entirety of the waterfowl season....not just during Brant season.

Thank you for your consideration in the matters.

Sincerely, Roger Cox

rogjpt2014@outlook.com

From:	Steve Grantham
To:	Teufel, Cassidy@Coastal
Subject:	California Coastal Commission Staff Report on Coast Seafood Permit Arcata Bay
Date:	Thursday, June 01, 2017 9:02:53 PM

Dear Ms. Dayna Bochco

I wish to take this opportunity to express my comments about the subject staff report. In general I support the report for the effort that it represents, and for the fact that it respresents a postion that minimizes a project that I do not support, and would prefer if it were not approved in any configuration.

As a matter of principal I do not support four specific Coast Seafood proposals.

1. The project phase II is not acceptable and should be deleted from all consideration. The staff report to my satisfaction does this.

2. The approval of bed 7-2 in the eastern conservation area is not acceptable, and should be removed from further consideration. Its location would have substantial impacts on all sensitive aspects of analysis that have been detailed in preceding environmental analysis.

3. I very much support the Coastal Commisions recommendations to hold monitoring standards to the highest levels. The confidence intervals should reach the upper limits of confidence when determining impacts of the project on eel grass density.

4. Outcomes of brant use monitoring should only be acceptable if zero functional loss is observed in brant use and access to eel grass meadows and grit locations that are in test plots. Any loss of use should be cause for rejection of the location from mariculture.

The remaining seven observations are areas of concern that I feel the report should direct more attention. The are:

5. Peer review of the brant monitoring plan should be done by local experts as well as the general public prior to acceptance by the Executive Director of the CCC.

6. I am concerned that consilidation of mariculture areas and the subsequent increase in Coast boat traffic. Night time operations should be discussed and impacts to wildlife on the Bay from use of high powered lighting on oyster boats should be at least considered.

7. East Bay locations 1-3, 1-4, 2-2, 2-4 and 6-4 pose substantial safety hazards to traditional small boat uses (i.e. scull boat hunters and other small boat users) that depend on the use of the public boat launch at Eureka's T Street ramp to legally access Arcata Bay. These locations should be relocated. I am certain that someone is likely to meet their end in these locations unless they are relocated.

8. Not only should there be consessions for the hunting of brant, but other waterfowl as well. Waterfowl are hunted from late October until late January. This activity should not be affected by mariculture as it is legal and public trust in nature.

9.Test plots should only be inplace as needed to achieve their goals and should be minimal in acres. If brant don't or can't use the locations they should be removed.

10. The expansion of 111 acres of test plots should be reduced in size and number to afford testing of other and future proposals.

11. Native American cultural resource concerns are not the sole cultural consideration that should be articulated in the staff report. I have said this in public, and in writing during the EIR process that

hunting of waterfowl on Humboldt Bay, particularly from locally made scull boats, is an important cultural activity that has been undertaken locally since the beginning of the American Period in the area. The administrative record is laced with evidence in support of the tradition and its importance. Scull boats are synonamous with Humboldt Bay and are of local, state, and national importance. The staff report is sorely slanted in its bias towards consideration of Native American past traditional use, and resources, and does not do justice to the tradition of scull boat development, building, and hunting. Permitting of this project will adversely impact this ongoing and living traditional practice. Additional effort should be expended to define this traditional use and how to mitigate impacts to that use.

Sincerely,

Steven Grantham
Bayside California

From:	Bekah Brandenburg
To:	Teufel, Cassidy@Coastal
Subject:	Coast seafood staff report
Date:	Thursday, June 01, 2017 8:59:43 PM

June 2, 2017

Dayna Bochco, Chair
Cassidy Teufel, Senior Environmental Scientist
California Coastal Commission
45 Fremont St.
San Francisco, CA 94105-2219

Via e-mail: Cassidy.Teufel@coastal.ca.gov

Re: Staff Report, Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company

Dear Ms. Bochco and Mr. Teufel,

The undersigned organizations write to express concern about Coast Seafood's proposed project in Humboldt Bay and to encourage the California Coastal Commission (Commission) to ensure that the bay's natural resources are protected from further development at least until the potential impacts can be studied, understood, and fully avoided and mitigated.

As the Coastal Commission staff report states, Humboldt Bay is "black brantPacific black brantstates:

(Report, p. 2) Further, the report finds that

One of Humboldt Bay's defining features is that it is home to at least 30 **- 50**% of the remaining eelgrass in California. Eelgrass is foundational to the coastal marine ecosystem, as a nursery for forage fish and crustaceans, and as a potential buffer against sea-level rise and ocean acidification. The National Oceanic and Atmospheric Administration (NOAA) has determined that there should be no net loss of eelgrass, a policy adopted by the California Department of Fish and Wildlife for other aquaculture operations in California.

Humboldt Bay is particularly important for the Pacific Black brant, hosting approximately 60% of its population during migration and over the winter. Black brant subsist **almost** entirely on eelgrass and their numbers ~~of~~ **have** declined to the point of extirpation in other parts of California

where eelgrass has diminished or disappeared**, leaving Humboldt Bay as one of the last places left in California where brant can be successfully hunted**. Black brant hunting has been a significant recreational and cultural activity in Humboldt Bay for over 100 years**, while hunting for other waterfowl species also occurs throughout the hunting season**.

The Coast Seafoods project would expand from its current footprint of 299 acres to at least 411 acres, much of it in prime eelgrass bedson publicly-owned tidelands. As the Commission staff report indicates, this will have significant negative consequences on eelgrass, shorebirds, and Black brant. Brant are exceedingly sensitive to disturbance and will be complete excluded from areas up to 1000 meters away from active aquaculture operations, meaning the disturbance footprint of the project is much larger than the 411 acres allowed for in the staff report. Also, as the staff report states, there is no way to accurately estimate the full extent of the impacts of the proposed project until more studies are done.

In order to protect important species and the intertidal habitat they rely on, and recreational access, we request the staff report be amended to do the following:

- assure no further expansion of the operational footprint of Coast Seafoods' aquaculture operations in Arcata Bay;
- further consolidation of operations in more heavily impacted areas on the west side of the bay; and
- a higher level of peer and public scrutiny for monitoring and adaptive management plans related to eelgrass and Pacific Black Brant.
- **modify the "Brant Hunting" Special Condition (p. 16) to reflect the recently expanded brant season dates (Nov. 8 – Dec. 14) and require Coast to "avoid on-water operations within its leased areas depicted in Exhibit 1 from one hour before sunrise until sunset" on waterfowl hunt days (Wednesday, Saturday and Sunday) not just during brant season but the entire regular waterfowl season. The regular waterfowl season runs from the third Saturday in October until the first Sunday in February (which includes the special youth hunt).**

Ultimately, t

Protection of natural resources and profitable aquaculture operations in Humboldt Bay can be maintained with a balanced approach.
Retaining Coast's existing overall footprint will ensure an uninterrupted, profitable operation for the company and the 60 jobs it claims to provide. Retaining the existing number of acres in a configuration that better protects eelgrass and marine species would also serve to help retain many other jobs related to the Bay's natural resources including hunting, fishing and wildlife watching.

The Commission’s decision on this issue will have far-ranging consequences. T

We thank you for all your work to protect coastal species and recreational access in California. We ask again that you ensure that the Coast Seafoods project does not go forward until it meets Coastal Act requirements to protect sensitive species, habitats and recreational access and safety.

Sincerely,

Rebekah Brandenburg

Sent from my iPhone

From:	john
To:	Teufel, Cassidy@Coastal
Subject:	Coast seafood staff report
Date:	Thursday, June 01, 2017 8:57:56 PM

LOGO

June 2, 2017

Dayna Bochco, Chair
Cassidy Teufel, Senior Environmental Scientist
California Coastal Commission
45 Fremont St.
San Francisco, CA 94105-2219

Via e-mail: Cassidy.Teufel@coastal.ca.gov

Re: Staff Report, Coastal Development Permit Application Number 9-15-1931, Coast Seafoods Company

Dear Ms. Bochco and Mr. Teufel,

The undersigned organizations write to express concern about Coast Seafood's proposed project in Humboldt Bay and to encourage the California Coastal Commission (Commission) to ensure that the bay's natural resources are protected from further development at least until the potential impacts can be studied, understood, and fully avoided and mitigated.

As the Coastal Commission staff report states, Humboldt Bay is "black brantPacific black brantstates:

(Report, p. 2) Further, the report finds that

One of Humboldt Bay's defining features is that it is home to at least 30 **- 50**% of the remaining eelgrass in California. Eelgrass is foundational to the coastal marine ecosystem, as a nursery for forage fish and crustaceans, and as a potential buffer against sea-level rise and ocean acidification. The National Oceanic and Atmospheric Administration (NOAA) has determined that there should be no net loss of eelgrass, a policy adopted by the California Department of Fish and Wildlife for other aquaculture operations in California.

Humboldt Bay is particularly important for the Pacific Black brant, hosting approximately 60% of its population during migration and over the winter. Black brant subsist **almost** entirely on eelgrass and their

numbers of **have** declined to the point of extirpation in other parts of California where eelgrass has diminished or disappeared**, leaving Humboldt Bay as one of the last places left in California where brant can be successfully hunted**. Black brant hunting has been a significant recreational and cultural activity in Humboldt Bay for over 100 years**, while hunting for other waterfowl species also occurs throughout the hunting season**.

The Coast Seafoods project would expand from its current footprint of 299 acres to at least 411 acres, much of it in prime eelgrass bedson publicly-owned tidelands. As the Commission staff report indicates, this will have significant negative consequences on eelgrass, shorebirds, and Black brant. Brant are exceedingly sensitive to disturbance and will be complete excluded from areas up to 1000 meters away from active aquaculture operations, meaning the disturbance footprint of the project is much larger than the 411 acres allowed for in the staff report. Also, as the staff report states, there is no way to accurately estimate the full extent of the impacts of the proposed project until more studies are done.

In order to protect important species and the intertidal habitat they rely on, and recreational access, we request the staff report be amended to do the following:

- assure no further expansion of the operational footprint of Coast Seafoods' aquaculture operations in Arcata Bay;
- further consolidation of operations in more heavily impacted areas on the west side of the bay; and
- a higher level of peer and public scrutiny for monitoring and adaptive management plans related to eelgrass and Pacific Black Brant.
- **modify the "Brant Hunting" Special Condition (p. 16) to reflect the recently expanded brant season dates (Nov. 8 – Dec. 14) and require Coast to "avoid on-water operations within its leased areas depicted in Exhibit 1 from one hour before sunrise until sunset" on waterfowl hunt days (Wednesday, Saturday and Sunday) not just during brant season but the entire regular waterfowl season. The regular waterfowl season runs from the third Saturday in October until the first Sunday in February (which includes the special youth hunt).**

Ultimately, t

Protection of natural resources and profitable aquaculture operations in Humboldt Bay can be maintained with a balanced approach.
Retaining Coast's existing overall footprint will ensure an uninterrupted, profitable operation for the company and the 60 jobs it claims to provide. Retaining the existing number of acres in a configuration that better protects eelgrass and marine species would also serve to help retain many other jobs related to the Bay's natural resources including hunting, fishing and wildlife watching.

The Commission's decision on this issue will have far-ranging consequences. T

We thank you for all your work to protect coastal species and recreational access in California. We ask again that you ensure that the Coast Seafoods project does not go forward until it meets Coastal Act requirements to protect sensitive species, habitats and recreational access and safety.

Sincerely,
John Brandenburg

Sent from my iPhone

From:	Stan Brandenburg
To:	Teufel, Cassidy@Coastal
Cc:	Steve Rosenberg; Ted Romo; Weinstein, Anna; Scott Frazer; Roger Cox; Hennelly, Mark@calwaterfowl.org; Grantham; George A Palmer IV; johnny B; Rich Jensen
Subject:	Coast Seafood Staff Report-(Please forward this letter to Mrs. Dayna Bochco)
Date:	Thursday, June 01, 2017 8:42:55 PM

Hi Cassidy,

I finished an overview of your staff report and it looks great! I want to express my support for the following permit conditions:
1. No phase II
2. The removal of Bed 7-2
3. No change to the confidence interval for eelgrass mitigation
4. Peer reviewed Brant Management Plan.
That said, I do have a few items that are very concerning and are as follows:

1. Instead of allowing an 80 acre initial buildout, why not just allow 1/4 acre test plots only for the first 18 months to see if the project should even proceed further. These test plots will reveal any issues and will be much less impactive if there are any issues.
2. The east bay plots 1-3,1-4,2-2,2-4 and 6-4 will effectively block the safest recreational ingress and egress for small craft in North Bay (T Street). a 10' setback from edge of channel isn't much when the channel is only 20' wide and when the tide covers the baskets they cannot be seen. These baskets stick up 3 feet or more and are an artificial reef where none currently exists. This is an extremely dangerous situation in inclement weather when returning to the launch point.
3. Extend the Hunter avoidance strategy to include *all* of waterfowl season and not just Brant Season. This will go a long way in deterring user conflicts of public trust lands.
3. As part of the peer reviewed Brant Management plan, It would be good to add a public input section before the Executive Director signs it.

In closing, I want to re-iterate what a great job you have been doing in this most contentious process and thank for the opportunity for input.

Sincerely,

Stan Brandenburg

.

From:	Stacy Becker
To:	Teufel, Cassidy@Coastal
Subject:	Coast Seafood Proposed Expansion
Date:	Thursday, June 01, 2017 3:13:19 PM

Dear Mrs. Bocho,

I support Coastal Commission staff recommendations to reduce expansion of Coast Seafood's enterprise on Humboldt Bay. Coast Seafood is already monopolizing a bay that is precious to more than their seafood customers and stockholders.

Thank you for your efforts to protect our beautiful and biodiverse Bay.

Stacy Becker

2364 Hewitt Rd., McKinleyville, CA 95519

From:	Steve Rosenberg
To:	Teufel, Cassidy@Coastal
Subject:	Coast Seafoods permit app # 9-15-1931
Date:	Thursday, June 01, 2017 12:54:41 PM

Dear Commissioners:
I submit the following comments regarding the staff report on file herein.
First,the recommended expansion is too large.Fiteen years ago Coast barely gained approval for its existing operations. The scars from prior operations are still clearly visible.However, because of the restrictions imposed,eelgrass has increased as well as brant use. We should not risk losing this gain.The present plan will reduce eelgrass. Scientific evidence clearly supports this.The legal standard is no net eelgrass loss. The staff recommendation allows 25% loss. This is not allowable.
Assuming arguendo that some expansion into eelgrass ares is legal, there are specific areas that should be avoided.
The first are beds a-1 and a-3 next to the mad river channel on the west side of the bay.These proposed beds lie in an area of dense eelgrass,heavy brant use and a main migratory route to and from the ocean and a large gritting,
feeding and loafing site for brant, ducks and shorebirds to the west. It is also an important hunting area, since the areas to the north and south are already plugged with oyster gear. These beds would encroach upon this area.
Second, beds 1-3,1-4,2-2,2-4 and 6-4 in the southwest portion of the bay lie directly in the path of boat access for hunting.Staff recommends 15 feet of buffer along 3 low tide access channels there. This is insufficient. Greg Dale of Coast Seafoods has indicated he will allow 200 feet of buffer there.
However, these beds, especially the Two westernmost,1-3 and 1-4 are in an important brant low tide loafing and gritting area. These proposed operations are basket operations, which makes them extremely dangerous to hunter navigation. The access through this area sees hundreds of hunter use days during the 100 day waterfowl season and ducks, geese and shorebirds use this and other areas of the bay in excess of 200 days per
year(while they are here).
The map of loafing /gritting areas submitted fails to note these above sites as well as one east of Sand Island in the northeast portion of the bay.
In addition, the staff report fails to mention the use of the bay by tens of thousands of ducks. Most concentrate in the eastern portion of the bay because of oysterculture in the west and southwest portions. It is important to keep mariculture out of the east half of the bay and I applaud staffs requirement that Coasts existing bed there must be removed.Indeed, most of this area is earmarked for conservation and recreation by the Humboldt Bay Management Plan and remains the last undisturbed area for waterfowl and, in season, hunters in the bay.
Thank you for considering my comments.
Stephen Rosenberg,Eureka,Ca.

Sent from my iPhone

Sent from my iPhone

From:	camelg@aol.com
To:	coastal.ca.gov/cassidy.teufel@coastal.ca.gov; Teufel, Cassidy@Coastal
Subject:	Fwd: Coast Seafoods Corps ID: SPN-2002-26912N
Date:	Thursday, June 01, 2017 12:05:05 PM

Hello,
I am forwarding my April letter which reflects my objection to the Coast Seafood's effort to expand their sphere of impact onto north bay. It appears the Coastal Commission is next in line for determining the future status of this expansion project. If anything were to be accomplished in a positive manner, it would be the reduction of the size of project's impact to be less than 34 acres total . Personally, I would like to see no expansion whatsoever. However, I understand mediation and common ground policies. Please try to consider the benefits of a North Bay without the negative affects described in my prior April letter. Once built, it becomes impossible to remove.
Thank you very much. Please forward this letter to Dayna Bochco for my public comment.
Dean Glaser
1546 Ronald Ave.
Fortuna, Ca.

-----Original Message-----
From: camelg <camelg@aol.com>
To: l.k.sirkin <l.k.sirkin@usace.army.mil>
Sent: Tue, Apr 18, 2017 1:53 pm
Subject: Fwd: Coast Seafoods Corps ID: SPN-2002-26912N

Subject: Coast Seafoods Corps ID: SPN-2002-26912N

April 18, 2017

Ms. L. Kasey Sirkin, Lead Biologist
US Army COE
601 Startare Dr. #100
Eureka, CA 95501
l.k.sirkin@usace.army.mil

Dear Ms. L. Kasey Sirkin,

This letter is regarding impacts that the existing oyster farming operations by Coast Seafoods has on the waterfowl hunting community and other recreational users who use North Bay. As a brief background, there are a few main methods of waterfowl hunting on Humboldt Bay, with one of the most unique being the scull. Scull boats were developed on Humboldt Bay over 100 years ago and whose design is referred to as the Humboldt Bay Scull Boat design by hunters around the world. This recreational activity must be protected from further industrialization of the bay by oyster farms, and our concerns regarding ongoing operations must be addressed to ensure access and enjoyment to public trust resources and ensure the sport can continue in a safe manner.

When we hunt or otherwise recreate in North Bay, our use and enjoyment of the area is severely diminished due to the wide-spread PVC pipes and other gear visible at all tides. This severely reduces the beauty of the bay and ruins the scenic vistas that previously existed.

Any expansion of Coast Seafoods' footprint in the bay impacts the safety of all recreational boat users. Having a “map” and “the corners marked” to show where the oyster beds are doesn't change the safety risks for the recreational users when the fog comes into the bay, the tides change, the wind changes its direction or intensity, boaters get entangled in the gear, or foreign objects destroy or cripple boats and motors. Do the recreational users have to start having “body counts” before the governmental agencies take these risks seriously? How many deaths will it take before the agencies become concerned?

Therefore, I am requesting you to not approve the expansion permit for Coast Seafoods. Thank you.

Signed,

Dean Glaser
Fortuna,Ca.
camelg@aol.com

From: Don Banducci
To: Teufel, Cassidy@Coastal
Subject: Fwd: Letter to Dayna Bochco, Chair
Date: Friday, June 02, 2017 3:54:41 PM

Just letting you know I am in full support of the sentiments discussed below.

Thank you.

Don Banducci

Dear Ms. Dayna Bochco, Chair:

I support the Coastal Commission's decisions in the staff report to:

1) Take out Coast Seafoods Phase 2
2) Remove East Bay 7-2 in order to enhance the habitat
3) hold the monitoring standards to the highest levels by using the upper limit of the confidence when determining impacts of the project on eelgrass density.

CONCERNS:

1) The staff report is a good start, but it is still not enough to protect the marine-avian-eelgrass- human balance and safety in the bay.

2) The only acceptable monitoring outcome for the project will be if there is zero impact to eelgrass density, brant loafing, brant feeding, brant gritting, and avian disturbance in the test plots.

3) Keep the T St. public access to the bay (Samoa Bridge boat ramp) as a **critical** entrance for all recreational users. **Do not** have **ANY** interference in the area of exhibit 5.8 #1-3; 1-4; 2-2; 2-4; 6-4 or it is going to impede small, motor-less boats by making it impassible for egress and ingress to the East Bay area.

4) The entire hunting season is not being addressed. i.e. brant and duck (Oct.-Jan.)

5) Feeding, loafing, and gritting of ALL birds is not being realistically addressed, studied, and recorded.

6) There is a negative impact to the environment and the balance of the ecosystem because of the disturbance of the planting and the harvesting of oysters. i.e. equipment being installed, equipment being removed, lights, boats, tearing up of the eelgrass, noise commotion in travel, pollution, and the equipment impedes the activity of the birds and the safety of boaters

7) The expansion of 111 acres should be reduced to 42 acres of experimental plots for the first full oyster cycle of approximately 2 years (the planting and harvesting) and 2 brant migration cycles, so the total impact of the devastation of the harvesting of the oysters can also be part of the impact analysis.

8) There needs to be peer review and public review given BEFORE any permit is signed off by the executive director

of the California Coastal Commission.

U

From:	J B
To:	Teufel, Cassidy@Coastal
Subject:	Humboldt Bay Oyster Expansion
Date:	Friday, June 02, 2017 3:59:12 PM

To whom this may concern,

I am writing to request the Coastal Commission's careful evaluation of the planned phase 1 oyster culture expansion in Humboldt Bay. The main issue at hand is the unknown impacts of the expansion on the eelgrass, wildlife, and recreational users. While the EIR does not anticipate any significant impacts with mitigation, the true impacts can only be known once new infrastructure is in place and is monitored by a third party over time.

It may be prudent to expand in more than two phases (and in smaller initial increments) to allow for proper validation of Coast Seafoods' EIR predictions. Additionally, as a recreational boater and fisherwoman, I request that the Coastal Commission ensure that all current boat launch and bay access points remain available to non-commercial users.

Once we expand the commercial use of our bay, it will be hard to retract. As this bay is a critical food source for migratory birds and a well-loved boating, fishing, and birding resource, I am asking that the Coastal Commission moderate the rate of expansion to allow for scientific observation and evaluation over time, and thus ensure that the growth of the oyster culture industry remains in balance with the other needs of the community that lives around and within Humboldt Bay.

Thank you for your consideration,

-Juliette Bohn

From:	Raymond Lyon
To:	Teufel, Cassidy@Coastal
Subject:	Proposed Oyster cultivation expansion
Date:	Friday, June 02, 2017 4:22:45 PM

Dear Ms. Dayna Bochco, Chair:

I support and applaud the Coastal Commission's decisions and due diligence in the staff report to:

1) Take out Coast Seafoods Phase 2
2) Remove East Bay 7-2 in order to enhance the habitat
3) hold the monitoring standards to the highest levels by using the upper limit of the confidence when determining impacts of the project on eelgrass density.

CONCERNS:

1) The staff report is a good start, but it is still not enough to protect the marine-avian-eelgrass- human balance and safety in the bay.

2) The only acceptable monitoring outcome for the project will be if there is zero impact to eelgrass density, brant loafing, brant feeding, brant gritting, and avian disturbance in the test plots.

3) Keep the T St. public access to the bay (Samoa Bridge boat ramp) as a critical entrance for all recreational users. Do not have ANY interference in the area of exhibit 5.8 #1-3; 1-4; 2-2; 2-4; 6-4 or it is going to impede small, motor-less boats by making it impassible for egress and ingress to the East Bay area.

4) The entire hunting season is not being addressed. i.e. brant and duck (Oct.-Jan.)

5) Feeding, loafing, and gritting of ALL birds is not being realistically addressed, studied, and recorded.

6) There is a negative impact to the environment and the balance of the ecosystem because of the disturbance of the planting and the harvesting of oysters. i.e. equipment being installed, equipment being removed, lights, boats, tearing up of the eelgrass, noise commotion in travel, pollution, and the equipment impedes the activity of the birds and the safety of boaters

7) The expansion of 111 acres should be reduced to 42 acres of experimental plots for the first full oyster cycle of approximately 2 years (the planting and harvesting) and 2 brant migration cycles, so the total impact of the devastation of the harvesting of the oysters can also be part of the impact analysis.

8) There needs to be peer review and public review given BEFORE any permit is signed off by the executive director of the California Coastal Commission.

From:	Robyn Strong
To:	Teufel, Cassidy@Coastal
Subject:	Public Comment on Coast Seafoods Permit Request
Date:	Friday, June 02, 2017 4:44:36 PM

Dear Mr. Teufel,

My name is Robyn Strong. I attended university at Humboldt State for a degree in Zoology, and while I was there I developed a love of Humboldt Bay and an appreciation for its ecological importance.

I have recently become aware of a proposal by Coast Seafoods to expand their oyster-rearing operations into the eelgrass beds in northern Humboldt Bay, destroying critical habitat. Many birds migrate yearly to Humboldt Bay, using it as an important resting stop because of the eelgrass beds – some forage for invertebrates and fish, while the Brant Geese eat nothing else but the eelgrass. They rely on the integrity of the ecosystem to supply them with food and shelter. On the human side of things, the fishing economy relies in part on the services that Humboldt Bay's eelgrass beds provide as spawning and nursery habitat to renew fisheries. Allowing Coast Seafood's permit to expand oyster operations in northern Humboldt Bay would be an intolerable loss of critical habitat that supports the biodiversity of the Bay, and consequently a loss of wildlife and economic resilience.

In light of current politics, I and other citizens are relying more than ever on local and state officials like you to make a stand that prioritizes the protection of natural resources. Humans and wildlife alike are dependent on the health of Humboldt Bay. Protect the bay's ecosystem and economy: reject Coast Seafood's permit proposal.

Sincerely,

Robyn Strong

From:	Alina L. Nuebel
To:	Teufel, Cassidy@Coastal
Subject:	Humboldt Bay: Public comment on Coast Seafoods" permit request
Date:	Friday, June 02, 2017 4:45:09 PM

Dear Mr. Teufel,

My name is Alina Nuebel. I am a Northern Californian, a biologist, and an appreciator of Humboldt Bay's natural beauty and productivity.

I am writing to you with concerns about the proposal by Coast Seafoods to expand their oyster-rearing operations into the eelgrass beds in northern Humboldt Bay, destroying critical habitat. These eelgrass beds are a valuable resource in the bay, both for wildlife and for people. Many birds migrate yearly to Humboldt Bay, using it as an important resting stop because of the eelgrass beds – some forage for invertebrates and fish, while the Brant Geese eat nothing else but the eelgrass. They rely on the integrity of the ecosystem to supply them with food and shelter. On the human side of things, the fishing economy relies in part on the services that Humboldt Bay's eelgrass beds provide as spawning and nursery habitat to renew fisheries. Allowing Coast Seafood's permit to expand oyster operations in northern Humboldt Bay would be an intolerable loss of critical habitat that supports the biodiversity of the Bay, and consequently a loss of wildlife and economic resilience.

In light of current politics, I and other citizens are relying more than ever on local and state officials like you to make a stand that prioritizes the protection of natural resources. Humans and wildlife alike are dependent on the health of Humboldt Bay. Protect the bay's ecosystem and economy: reject Coast Seafood's permit proposal.

Sincerely,

Alina Nuebel

From: Joan Romo
To: Teufel, Cassidy@Coastal
Subject: Consider the Source
Date: Friday, June 02, 2017 4:45:50 PM

Cassidy, please send this to Ms. Dayna Bochco, Chair and all other Commissioners. Thank you.

Dear Ms. Dayna Bochco, Chair:

“Consider the Source” was a quote that my mother taught me was an important concept when evaluating someone's opinion.

When I found out that: Audubon of California, California Waterfowl Association, California Department of Fish and Wildlife, Earth Justice, the biologists Dr. David Ward, Dr. Jeff Black, and Dr. Jim Seddinger all had the same concerns about where the oyster beds were in the bay, the acreage size of the projects, the impact to the eel grass and the Pacific black brant and the entire ecosystem in North Humboldt Bay, I WAS IMPRESSED! All of the people who value the voiceless lives who live in and on the bay were expressing the same concerns!

The agencies and people who are for Coast Seafoods and their expansion are people who value money. They are saying the same thing, but the bottom line is how to make more money. The oyster expansion in north Humboldt Bay is not going to benefit the local people of Humboldt County compared to the benefits it is going to give Frank Dulcich, owner of Pacific Seafood/Coast Seafoods, and his company.

When perspectives are presented to you, please “Consider the Source”. Is the source speaking from the heart to protect the safety of the recreational users and the present and future ecosystem inhabitants in the bay, or is the source speaking from his/her pocketbook and the personal gain that is involved?

Thank you.

Joan Romo
3419 Edgewood Rd.
Eureka, CA 95501
June 2, 2017

From: Karen Thompson
To: Teufel, Cassidy@Coastal
Subject: Coast Seafood permit request - my comments
Date: Friday, June 02, 2017 5:00:26 PM

I am very concerned about the proposed oyster farming expansion by Coast Seafoods into the eelgrass beds in northern Humboldt Bay. I live in Sonoma County but have spent time in beautiful Humboldt County. In Sonoma/Marin County we have had a firsthand look at the destruction wrought on critical habitat by oyster farming.

The eelgrass beds of Northern Humboldt Bay are a valuable resource for wildlife and for people. Migratory birds stop to rest there. Some eat only the eelgrass; others forage for the creatures that live among the eelgrass. They rely on the integrity of the ecosystem to supply them with food and shelter.

The fishing economy relies in part on the eelgrass beds provide as nursery habitat to renew fisheries.

Allowing Coast Seafood's permit to expand oyster operations in northern Humboldt Bay would be an terrible loss of critical habitat that supports the biodiversity of the Bay, and consequently a loss of wildlife and economic resilience.

Thanks for your consideration of public comments.

Karen Thompson

Santa Rosa, CA

From: Channing Bolt
To: Teufel, Cassidy@Coastal
Subject: Comments on Coast Seafood Expansion
Date: Friday, June 02, 2017 5:33:30 PM

Dear Mr. Teufel,

My name is Channing Bolt and I am a PhD student in Chemical Oceanography. I graduated from Humboldt State University with a Bachelors in Oceanography. I have done extensive research in Humboldt Bay and would like you to sincerely consider my comments regarding the draft staff report for the Coast Seafoods oyster farm expansion. Since learning about the Coast Seafoods expansion I have been concerned that the project will have severe environmental consequences for Humboldt Bay. Humboldt Bay is a diverse mudflat-eelgrass ecosystem that provides essential rearing habitat for fish and is a critical stopover location on the Pacific Flyway for waterfowl and shorebirds. While I understand that the Coast Seafoods expansion may be economically beneficial for shellfish revenue, aside from the negative environmental implications, it is also important to consider other fishery and commercial revenues that will be directly impacted by this decision. I believe that the Coast Seafoods and Harbor District projects will interrupt Humboldt Bay's habitat and cause ecosystem shifts, beginning with the destruction of eelgrass.

I am writing to support the special conditions you have proposed in your draft staff report, which reduce the overall size of the project and consolidate it over smaller areas within the bay. Specifically, removal of phase II from the permit is an important step to limit the size of the project, which is unprecedented in California, especially considering it will be placed in sensitive eelgrass habitat. In addition, limiting the overall size of the phase I part of the project is also important to protect eelgrass and its dependent species.

The proposed project fragments habitat throughout the whole of North Bay. I support the special conditions that reduce this fragmentation, such as the removal of oyster beds close to Sand Island and EB-7-2 in the East Bay. Also, the condition that limits oyster expansion to areas where aquaculture is currently being implemented and that are already disturbed is critical to reducing the overall impacts to eelgrass, brandt geese and shorebirds from the project footprint.

Appropriately, the conditions also outline a staged approach to implementing the project that will be informed by monitoring. This approach is necessary given the uncertainties of this project. However, as you note in the report, Coast Seafoods have not always acted in the best interest of public resources (i.e., their poor history of reporting herring spawning and the clean-up of discontinued oyster growing areas). Therefore, the criteria for adaptive management should be conservative and well defined.

I urge you to implement all of the conditions proposed in your draft staff report.

Sincerely,

Channing Bolt

Dear Mrs. Dana Bochco,

Rumors have been flying that the attorneys from Coast Seafood are pressuring the commission to reject the staff report concerning mariculture expansion in North Bay. The staff report is an excellent document , but does not go nearly far enough. I don't think that Coast Seafood should be granted any additional permits until they can prove that they can honor the requirements of their current permits. Several instances of noncompliance or downright deceit were cited in this report. I live on Humboldt Bay and have seen evidence of these actions. Thank you for your time, and please understand that your decision will affect all of us that love this Bay.

Linda Hildebrand
Eureka, California

CALIFORNIA COASTAL COMMISSION
CENTRAL COAST DISTRICT OFFICE
725 FRONT STREET, SUITE 300
SANTA CRUZ, CA 95060
PHONE: (831) 427-4863
FAX: (831) 427-4877
WEB: WWW.COASTAL.CA.GOV

W13a

9-15-1931 (COAST SEAFOODS COMPANY)

JUNE 7, 2017

CORRESPONDENCE

Audubon CALIFORNIA

Cassidy Teufel
California Coastal Commission
45 Fremont St., #1900
San Francisco, CA 94105

May 11, 2017

RE: Coast Seafoods shellfish aquaculture Humboldt Bay permit renewal and expansion project

Dear Cassidy,

Audubon California writes to express its continued concern about Coast Seafood's proposed project to renew and expand its aquaculture operations in Humboldt Bay. We recommend that rather than permit the project at this time, the Coastal Commission direct the Humboldt Bay Harbor District to engage in a marine spatial planning process to (1) identify appropriate areas for aquaculture in the bay, and (2) better understand the impacts from aquaculture on eelgrass, Black Brant, shorebirds, and other public trust resources in the Bay.

While our concerns relate to numerous species and public trust resources, these comments focus on eelgrass, Black Brant, and Pacific herring. We are also concerned the proponent's Eelgrass Monitoring and Adaptive Management Plan and Black Brant Phase I Monitoring Plan are inadequate. These plans, respectively, purport to determine: (a) whether a ten-foot, double-hung longline spacing for culch on longline and basket on longline results in a greater than 25% impact to eelgrass density[1]; and (b) whether aquaculture activities result in a greater than 10% impact on Black Brant through the loss of foraging habitat, and increased disturbance. Both documents propose an "adaptive management" plan in response to these determinations.

Eelgrass within the existing approximately 300-acre project footprint has been severely impacted by aquaculture operations, which consist primarily of longlines spaced at 2.5 feet apart. The best available science measuring the impact of longlines in previously undredged eelgrass beds in Arcata Bay found that 2.5-foot spaced longlines – the spacing in the existing footprint- resulted in an 89-92% reduction in turion density relative to controls. Ten-foot spaced single hung longlines – the spacing proposed for the expansion - caused a 45-67% reduction in turion density relative to controls.[2,3] To our knowledge, the effect of double hung longlines, which are intended for use in the proposed longline expansion areas, is unknown. A new meta-analysis of the impacts of aquaculture on eelgrass from the National Marine Fisheries Service, comprised of 14 experimental studies from seven West coast estuaries from Northern California to British Columbia, concluded "eelgrass response metrics to shellfish aquaculture were generally negative, particularly metrics associated with abundance (biomass, density and percent cover)…

[1] The FEIR and permit application propose to establish a 25% detection threshold for effects together with a mitigation proposal to remove one acre of 2.5 spaced longline for every 4 acres of 10 foot longline in an expansion area.

[2] Rumrill, S. and V. Poulton. 2004. Ecological role and potential impacts of molluscan shellfish culture in the estuarine environment of Humboldt Bay, CA. Western Regional Aquaculture Center Annual Report November 2004. 79 p.

[3] Rumrill, S. 2015. Personal communication with the National Marine Fisheries Service regarding eelgrass and shellfish aquaculture interactions from Humboldt Bay WRAC study.Oregon Department of Fish and Wildlife. April 5, 2015.

for oyster aquaculture, density, percent cover and above-ground biomass all displayed negative responses to aquaculture."[4]

For Pacific Black Brant, the best available science indicates that this California Species of Special Concern is functionally excluded from the project footprint and will face a further increase in disturbance in these and other areas of the bay related to aquaculture activities. The California State Lands Commission has expressed concerns about ongoing and increased impacts to the species and associated recreational hunting opportunities.[5] Independent scientists as well as the U.S. Fish and Wildlife Service (USFWS), Humboldt Bay National Wildlife Refuge have noted the likelihood of increased cumulative impacts to brant and eelgrass through habitat loss and disturbance. The USFWS estimates that areas with cultch-on-longline are unavailable to brant for eelgrass bed-feeding for the majority of the tide window at which bed-feeding occurs, and, areas with basket-on-longline are functionally useless for bed-feeding.

USFWS also notes that North Bay is becoming more important for Black Brant. Recent surveys indicate brant distribution on Humboldt Bay has shifted, with spring of 2015 monitoring, for example, showing greater use of North Bay (192,400 bird use days) compared to South Bay (147,930 bird use days).[6] In addition to the impacts to brant from the existing operation, proposed expansion areas EB 1-3, 1-4, 2-2, 2-4, and 6-4 may be within 1-2 km of a major gritting site just to the south (roughly, at 40.813186°, -124.142161°).[7] Proposed areas for conversion from longline to baskets, EB 6-1, 6-2, and 6-3 would increase disturbance to waterbirds and brant through the increased maintenance required with basket aquaculture compared with longline.

1. The Coastal Commission Should Require a Science-Based Marine Spatial Planning Process in Humboldt Bay before Permitting any Aquaculture Expansion.

Audubon recommends that the CCC staff report should propose that Coast Seafoods and the Humboldt Bay Harbor District (HD) conduct a marine spatial planning (MSP) process that includes all stakeholders to identify appropriate areas for growing oysters in Arcata Bay.[8] An appropriately-sited operation should avoid any net loss off eelgrass, per the California Eelgrass Mitigation Policy (CEMP), and avoid key sites for species such as Pacific herring and Black Brant.[9] The goal of that process would be to provide a balance of appropriately sited aquaculture and resource protection in this bay, which is a vital nursery for fish and crabs and a vital migratory and wintering haven for shorebirds, Black Brant, and other waterfowl.

[4] Conway-Cranos, B. et al. 2017. Eelgrass-shellfish aquaculture interactions in west coast estuaries: using meta-analysis to quantify sources of variation in effect size. NOAA Fisheries.

[5] California State Lands Commission. 2017. Letter to the Humboldt Bay Harbor, Recreation and Conservation District. January.

[6] USFWS, Humboldt Bay National Wildlife Refuge. 2017. Letter to the U.S. Army Corps of Engineers. 5 April.

[7] Brandenburg, S. 2016. Letter to the Humboldt Bay Harbor, Recreation and Conservation District. August.

[8] A MSP process would ensure that all options are exhausted before eelgrass areas are impacted. For example, Coast Seafoods has not demonstrated that it thoroughly investigated options for expansion outside eelgrass beds. The Coastal Commission has previously found that oysters grow well at +1.5 ft MLLW. [Coastal Commission, letter to the Humboldt Bay Harbor, Recreation and Conservation District, December 31, 2015]

[9] U.S. Dept. of Commerce, NOAA Fisheries. 2014. California Eelgrass Mitigation Policy and Implementing Guidelines.

To allow this process to be completed, the CCC could issue Coast Seafoods another material permit extension until June 2019. The process should be discussed with the California Fish and Game Commission to ensure consistency with state law and regulations pertaining to aquaculture leases and their administration.[10] The outcome of the MSP process would provide the HD and CCC with guidance for issuing coastal development permits for aquaculture in Humboldt Bay.

2. Scientific Uncertainty about the Impacts to Eelgrass and Brant Must Be Resolved Before the Project Is Permitted.

To the extent that there is any uncertainty regarding the severity of the Project's impacts to eelgrass, the CCC staff report should recommend to the CCC that such uncertainty be addressed before permitting any long-term expansion of Coast's existing operational footprint. The weight of scientific evidence indicates that the Project, even with 10-foot spacing, would significantly reduce eelgrass density. However, the CCC could build on existing science by requiring careful experimentation to test the effects of the operations and configurations Coast has proposed. One option for doing so would be to permit continued operations within the existing footprint (with appropriate conditions to minimize ongoing adverse impacts) and recommend that Coast establish plots within that footprint to conduct a rigorous experiment to test the effects of 10-foot spacing on eelgrass habitat. Such an approach would be consistent with basing decisions on the best available science and requiring the applicant to meet its burden of proof to show that the Project is consistent the Coastal Act. Moreover, this approach would provide information to inform the CCC's consideration of other proposed aquaculture expansions in Humboldt Bay.

It is essential to take a precautionary approach to investigating the impacts of proposed aquaculture operations before permitting any expansion for several reasons. Eelgrass habitat in Humboldt Bay is critically important to numerous species in the estuary itself, as well as many that range far out into the Pacific Ocean and throughout the Pacific Flyway. Impacts to Humboldt Bay would thus have ecological repercussions coastwide. Also, eelgrass habitat has declined dramatically along the California coast, and Humboldt Bay provides one of the last remaining areas for eelgrass-dependent species to thrive. Coast has proposed an "adaptive management" scheme that could include removing gear if impacts exceed certain thresholds, there is no solid science to demonstrate that eelgrass will, in fact, successfully re-establish itself after gear is removed.

3. The Black Brant Phase I Monitoring Plan Is Inadequate and Must Be Improved Before It Can Be Relied Upon to Permit the Project.

The Black Brant Phase 1 Monitoring Plan (Coast Seafoods, H.T. Harvey, prepared for Plauche and Carr, April 2017) is inadequate in a number of respects, including but not limited to:

- The plan arbitrarily sets a significance threshold of "10% eelgrass loss and disturbance" to be determined through the use of GLMM statistical models. This threshold was derived from Stillman et al. (2015). Co-author Jeff Black has stated: "It seems that the '10% threshold' attributed to Stillman et al. (2015) was applied inappropriately. Stillman et al. (2015) were not commenting on whether 10% or any % was acceptable. The model did not predict a level of acceptable loss of eelgrass or change in bird behavior…**we consider any additional loss**

[10] Chapters 1 through 8 of Division 12 of the Fish and Game Code (commencing with section 15000) and the provisions of Chapter 9 of Division 1 of Title 14, California Code of Regulations (commencing with section 235)

of eelgrass habitat or further reduction of foraging time by brant due to human activity as unacceptable."[11]

- The question of significance threshold is even more important considering migration and wintering areas beyond Humboldt Bay, such as San Quintin and Morro Bay, have become less available to brant due to loss of intertidal eelgrass. Degradation of wintering habitat has recently been proposed as the most likely reason for declines in first-year and adult survival of female brant across their breeding grounds.[12]
- The plan state that monitoring would take place in February-April; however, according to surveys conducted by the U.S. Fish and Wildlife Service, in 2016 Brant were as or slightly more abundant in the north bay in November, December and January.
- The plan erroneously establishes a baseline for considering cumulative impacts as the current level of human and vessel disturbance from Coast's operations. The baseline should be established without assuming that existing permits would continue, as there is no regulatory or legal guarantee that they will.
- The plan fails to adequately account for cumulative impacts and appears to be based on an unfounded assumption that if there are no significant impacts in Phase 1, there will be no significant cumulative impacts from Phases 1 and 2 together.
- The plan is premised on setting 250 feet as threshold for disturbance effects, but scientific literature and expert opinion show that brant will often flush from vessels and people that are as far as 1000-feet away.
- The few sentences at the report's end on "adaptive management" fail to provide any assurance that aquaculture operations would be substantially modified if impacts to brant were detected.

4. The Project Would Have Significant Adverse Effects on Herring and the Species that Depend on Herring as Prey.

The project would result in a significant loss of herring spawning habitat in Humboldt Bay, and could have significant adverse effects both on the herring population and the many predators that feed on herring inside the bay and in the open ocean. The footprint of the CDP application would increase the footprint of Coast Seafoods' operations in Pacific herring spawning habitat in Humboldt Bay from 9% to up to 18% of the total known spawning area in Humboldt Bay.[13] Herring spawn primarily in Arcata Bay; therefore, this loss of habitat would be concentrated in the area most important to herring. Herring are only known to spawn on eelgrass in the bay. Herring have not been documented to spawn on aquaculture gear in the bay. If herring did spawn on this gear, eggs would be exposed to desiccation at low tide more than on natural substrates (eelgrass).

Moreover, impacts to herring spawning in Humboldt Bay could ripple up the food chain. Herring is a critical forage species in the region and the California Current for numerous sea birds, predatory fish such as salmon, as well as pinnipeds and cetaceans. Protecting herring in Humboldt Bay is particularly important because Humboldt Bay is the third most important herring spawning site in California and since 1980, herring stocks have shown an overall decline in the California Current Ecosystem. Spawning

[11] Black, J. 2017. Letter to California Coastal Commission staff. 1 May. (Emphasis added)

[12] Leach, A. et al. 2017. Survival and recovery rates of Black Brant from arctic and subarctic breeding areas. *The Journal of Wildlife Management*. In review.

[13] Audubon California ArcGIS analysis of the best available data layers of herring spawning habitat in Humboldt bay, and Project footprint.

biomass has not been assessed in Humboldt Bay since 2006, but San Francisco Bay stocks have declined since 1980 and in the last three years have experienced an unprecedented (since monitoring began) three consecutive years of very low spawning biomass. For these reasons, herring spawning habitat in the bay must be protected from further modification..

Conclusion

For the reasons stated above, we urge you to recommend that the Commission not approve the project. Before the Commission permits any long-term expansion of aquaculture operations, it should direct Coast and the Harbor District undertake a marine spatial planning process to identify appropriate areas for aquaculture activities and ensure that important and sensitive natural and cultural resources are protected. The Commission should also require tightly controlled experiments within Coast's existing footprint to examine impacts to eelgrass habitat, as well as additional measures to avoid impacts to Black Brant and other birds.

We understand that this is an extremely complicated process that has required considerable time and resources from the Coastal Commission and other public agency staff. The significant investment by all stakeholders – and the potentially permanent loss to public trust resources – underscore the importance of fully understand the scale of the project's impacts before it proceeds.

We appreciate your time and consideration. Please contact me at (916) 737-5707 ext. 102 or mylynes@audubon.org with any questions.

Sincerely,

Director of Public Policy
Audubon California

Wiyot Tribe

May 2, 2017

US Army Corps of Engineers
Eureka Field Office
601 Startare Dr # 100,
Eureka, CA 95501

ATTN: Kasey Sirkin:

Thank you for taking the time to meet with Tribal Council and helping to make us aware of issues that had not been brought to light in consultation with other agencies in regards to the proposed Coast Seafoods Expansion Project. The Wiyot Tribe is a federally recognized tribe whose ancestral territory includes the waters and adjacent lands of Humboldt Bay, which we have occupied and utilized since time immemorial. This territory includes Tuluwat, the sacred center of the world for the Wiyot Tribe, and listed in the National Register as "Gunther Island Site 67 (sic)" (National Register Information System #66000208). This site, located on what is now called Indian Island, is also Humboldt County's sole National Historic Landmark.
As such, we would like the following concerns to be addressed in your NEPA findings:

1) The rack and bag area located in mudflats of the northeast portion of Indian Island, and identified during your visit should be removed from consideration for development. Its proximity to Tuluwat suggests that it would have a heightened potential for an impact to the archaeology of the site. Furthermore, Tuluwat is an active ceremonial location. Oyster cultivation at that location would impact privacy, and thus the ability of tribal members to conduct ceremony and engage in traditional practices at that site.

2) Central to the Wiyot Tribe's existence are the native mussels and clams many of which were harvested in the bay. These species include, but may not be limited to, geoduck clams, butter or Washington clams, mussels, and little neck clams. The importance of these species as a food resource can be seen in the volume of shells at most village sites, which are typically referred to as shell mounds or middens. They also serve as an important archaeological marker for other archaeological locations, such as fish camps or seasonally occupied locations. In addition to the dozens of shell mounds and other sites that encircle, or are within the environs of the bay, the shells were also used to decorate ceremonial regalia, clothing, jewelry, and other cultural items.

1000 Wiyot Drive • Loleta, California 95551 • (707)733-5055 • (800)388-7633 • FAX (707)733-5601

They have also been an important protein source for Tribal citizens in the historic era. For example, they served as a readily available source of sustenance during difficult times, such as when Tribal citizens were held against their will at the North Spit Reservation. They remain a popular source of subsistence gathering, as well as recreation and cultural support for current Tribal citizens.

We were therefore disappointed when the Harbor District did not make the monitoring of such bivalves a requirement of the ad hoc committee. These species are part of the history and ongoing culture of the Wiyot people and the human environment as defined in 40 CFR 1508.14 and are a tribal cultural resource as defined in Section 21074 of the California Public Resources Code. The Tribe understands that there are numerous challenges to ongoing health of native bivalves, including, but not limited to, climate change, ocean acidification, urban development, and pollution. The addition of large numbers of a non-native commercial bivalve into the bay is likely to add pressure to the native bivalve populations.

While we realize that the ability to single out any one cause of damage to the native populations may be challenging, we urge you to adopt clear and reasonable guidelines for the following considerations:

a) The size and health of the native bivalves.
b) The location of populations of native bivalves within the bay.
c) The population density of native bivalves in the bay.
d) The risk to human health associated with consumption of native bivalves.

While determining the exact benchmarks and appropriate actions related to these concerns is beyond the capacity of the tribe, we are prepared to assist where possible in developing those goals.

1) We are also concerned that the use of space has not been optimized in this project. We understand that there are areas that are currently permitted for oyster mariculture, and have the existing infrastructure in place that would allow them to be used. However, we understand that they are not currently in use. Furthermore, we have been informed by the Coastal Commission that areas that have not been used since the 1990's retain visible impacts associated with historical oyster farming. We have confirmed this with a simple examination of the bay using Google Earth. We understand that both currently permitted areas that are not being used and areas that retain visible impacts to the benthic layer of the bay from previous maricultural practices may not be useful for current practices. However, we hope that full consideration is given to these spaces before expansion is allowed into unimpacted areas of the bay. We also ask that mariculture infrastructure be removed from unused areas before new areas are open for development.

I would like to conclude by thanking you again for coming to the Table Bluff Reservation and consulting with us so early in your process. We look forward to working with you to continue our long-standing tradition of protecting Wigi, now known as Humboldt Bay. If you need clarification or need further contact, please contact either Thomas Torma, the Tribe's Historic Preservation Officer at tom@wiyot.us or Tim Nelson, the Tribe's Natural Resources Director at tim@wiyot.us. Both can be reached at 707-733-5055.

Sincerely,

Ted Hernandez,
Chair, Wiyot Tribal Council

United States Department of the Interior
FISH AND WILDLIFE SERVICE

Humboldt Bay National Wildlife Refuge Complex
1020 Ranch Road
P.O. Box 576
Loleta, CA 95551
Phone (707) 733-5406 / Fax (707) 733-1946
Web: www.fws.gov/refuge/humboldt_bay/

8 May 2017

H.T. Harvey and Associates Staff
983 University Ave, Building D
Los Gatos, CA 95032

We greatly appreciate the opportunity to review your proposed Black Brant Phase I Monitoring Plan. Having monitored brant populations and behavior on Humboldt Bay for many years, we understand the effort and complexity involved in the proposed plan. After review of your proposal we have some concerns and a few suggestions that could provide much needed data regarding brant use of Arcata Bay.

A couple major issues concern the lack of baseline data collection, as opposed to your proposal to compare aquaculture plots with control plots. While eelgrass habitat can be reliably mapped based on topography, brant foraging is not homogenous across what would be deemed suitable foraging habitat. Spatial distribution of brant use is a major data deficit for Arcata Bay that should be addressed in your study in order to accurately assess potential impacts. In multiple brant studies in South Bay over the years (Henry 1980), it has been observed that within areas of suitable habitat, brant show a preference for certain locations while avoiding others and the reasons may not be readily evident. Many of these locations appear to remain consistent from year to year. Like most waterfowl, brant tend to be less tolerant (to disturbance) and will avoid areas with visual and physical obstructions. Your own work showed brant abandoning areas with exposed infrastructure, which would render these areas functionally removed from available foraging habitat. Adding infrastructure, because of its relative permanence, is of somewhat greater concern than point in time human disturbance. Therefore determining if brant show the same avoidance behavior in new plots with 10' spacing should be a point of emphasis. In order to definitively say that brant foraging is or is not affected by the introduction of aquaculture infrastructure within a given area, it is imperative that baseline data within that area be collected to be compared to post-installation data.

Another concern is the proposed survey period. As reported in your proposal brant are usually present on Humboldt Bay from October through May, with peak numbers from February through April. However, their distribution across Humboldt Bay is not uniform throughout the migratory period. Since 2015, when we began regular monitoring of brant in Arcata Bay in addition to the South Bay monitoring FWS has been conducting for decades, the data indicates that Arcata Bay supports ~50% or more of the population during the fall and early winter. Then as peak numbers of spring migrants arrive, brant are found primarily on South Bay (Appendix A). During the years of "bay bottom" oyster culture there was very little brant use on Arcata Bay, however, changes in oyster farming methods have improved habitat, and brant are again utilizing Arcata Bay. This newly available habitat may be especially important during the brant hunting season on Humboldt Bay (November – early December) when hunting primarily takes place on South Bay. Therefore, any survey effort attempting to answer questions about brant use of Arcata Bay should include peak use periods for Arcata Bay specifically.

We are pleased to see that you incorporated thresholds into your proposal. However, the proposed thresholds are not well founded and in our opinion they are unreasonably high. In the proposal you cite Stillman et al. as justification for your thresholds, inferring that they found that less than 10% removal of all available eelgrass habitat in the bay is unlikely to have an impact on brant. This interpretation of the model produced for this work is inappropriate, as it was not designed to make any determination of an acceptable loss of eelgrass habitat. A letter to

the Harbor District as well as the Coastal Commission from one of the co-authors, Dr. Jeff Black, clearly states that this is an inappropriate application of the model results. Beyond the inappropriate rationale, it makes the threshold unobtainable and thus functionally useless. There is approximately 4,760 acres of eelgrass distributed around Humboldt Bay. In order to hit your proposed threshold of 10%, that would mean the functional removal of 476 acres of eelgrass on the bay. Phase I of the project includes 165.2 acres, making it literally impossible to hit your proposed threshold. By this same logic, the 30% reduction in foraging habitat mentioned in the proposal is even less useful. We propose coming up with a ratio of use between Arcata Bay and South Bay that would reflect the increased use patterns we have been documenting and ensure that brant are still able to utilize Arcata Bay to meet their energetic needs.

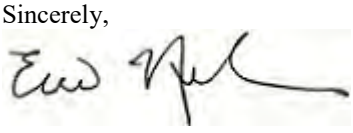
Beyond these foundational concerns, there are some technical details we would like to address. In your proposed disturbance monitoring you discuss "discrete" human disturbance events. We fully understand that this is a very convenient concept when considering quantification for analysis, however, we are not sure what the definition of a "discrete" event would be and there is certainly the potential to under report disturbance depending on what definition was chosen. Also, in regards to analysis, we are familiar with the issue of overdispersion resulting from numerous zero counts when conducting point counts. We are also aware of the growing trend to apply zero inflated models in these instances. However, we feel that the assumptions of zero-inflated models, especially the Zero Inflated Poisson (ZIP) model, are/is not appropriate for this sort of application. The ZIP model assumes that some zero counts have zero possibility of a count greater than zero, adjusting for likelihood to account for overdispersion. This assumption certainly cannot be true for the counts you are conducting and may bias results.

Your idea to utilize remote cameras to monitor brant behavior seems like a feasible option to address many of the issues. Cameras could be placed in experimental plots and control plots prior to installation of infrastructure to collect baseline use data for a minimum of one full season. Then, Phase I could be implemented incrementally and data collection could continue in control plots, plots already developed, and plots still proposed to be developed. Abundance could be analyzed using well established camera trap abundance measure methodologies, hopefully eliminating the need for inclusion of zero inflated models. Obviously, this would only be useful for assessing differential use patterns pre and post infrastructure, and focal observation surveys would still be needed to address disturbance.

In summary, we would like to reiterate that we appreciate the thought and effort that has gone into designing this draft brant monitoring plan. Pacific brant are a California Species of Special Concern, and a trust resource of the US Fish and Wildlife Service, and more specifically an integral part of the Humboldt Bay ecosystem. Brant are eelgrass obligates, thus their health and populations are directly linked to healthy eelgrass beds which have been in steady decline across the Pacific coast (especially in CA) due to development and pollution. Humboldt Bay has the greatest abundance of eelgrass between Baja, Mexico and Washington State, making it a crucial stopover location for migrating brant. Any development on the bay that has the potential to physically or functionally remove any brant foraging habitat should be well thought-out and researched. There needs to be a comprehensive monitoring plan that can be applied with a commitment to adaptive management to ensure that any additional oyster aquaculture in Humboldt Bay can be developed without adversely affecting brant.

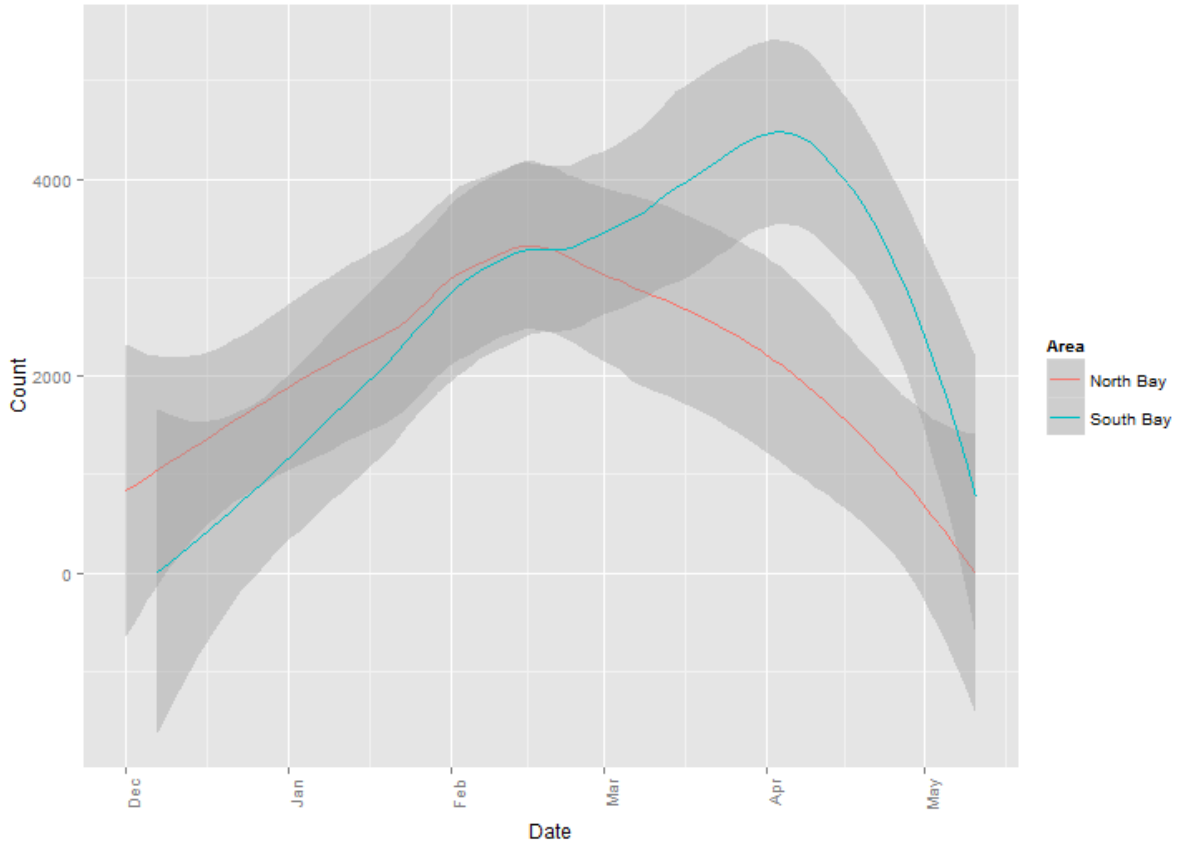
Thank you for allowing us this review and we would be more than willing to review or discuss any potential changes to the monitoring plan.

Sincerely,



Eric Nelson,
Project Leader
Humboldt Bay National Wildlife Refuge
US Fish and Wildlife Service

Appendix A. Brant census data performed by the Humboldt Bay NWR over the 2015-2016 migratory season.



From: Jeff & Gilly Black
To: Teufel, Cassidy@Coastal
Cc: leefee4@aol.com
Subject: eelgrass and brant at Humboldt Bay
Date: Monday, May 01, 2017 2:02:40 PM

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1 May 2017

Cassidy Teufel

California Coastal Commission

Subject: proposed Coast Seafoods Company Shellfish Culture Permit Renewal and Expansion Project Humboldt County, California

Dear Cassidy

We are concerned that the proposed project and monitoring plan produced by DH Harvey on behalf of Coast Seafoods fails to acknowledge the significant environmental impacts associated with the proposed aquaculture expansion into North Bay of Humboldt Bay.

Eelgrass populations are the foundation habitat structure for Humboldt Bay, conferring substantial benefits to local and global communities, including support of invertebrates, fishes, waterfowl, and other marine wildlife. Besides providing habitat at various life stages for economically important species, eelgrass populations deliver other ecosystem services in the form of sequestering carbon in the underlying sediments (NOAA 2014). Seagrasses sequester 15 times as much carbon as tropical forests per hectare of area, and thus, play a critical role in the reduction of global carbon levels.

Eelgrass in Humboldt Bay represents about 30% of the remaining eelgrass habitat in California and the largest remaining bed of intertidal eelgrass along the Pacific coast between Mexico and Washington. All other large bays in California have lost and degraded their intertidal eelgrass beds from human development and activities (Wyllie-Echeverria and Short 1996). Humboldt Bay's location in northern California, distant from other large embayments, and its unique combination of dense cover of intertidal and subtidal eelgrass populations creates a highly productive and species diverse ecosystem.

Humboldt Bay is considered a key spring staging location for black brant returning from north from Mexico, where the majority of the Pacific Flyway (PF) population winters. Black brant stop here because of its high eelgrass abundance and its relative isolation from adjacent stopover locations (Moore et al. 2004). Black brant at Humboldt Bay are already readily disturbed by human activities on the water and beaches (Bjerre 2007). We do not know how black brant would respond to additional oyster culture structures placed on eelgrass beds, but we can confirm that PVC pipes placed at 0.8 m intervals successfully inhibited black brant from approaching and entering experimental eelgrass plots (Ferson 2007).

Delays in migration and reductions in body reserves due to increased disturbance can have negative consequences on the probability that these birds breed, and the success of their clutch and survival of offspring, if they do nest (Sedinger et al. 2011, Schamber et al. 2012). Currently, the Pacific Flyway population of black brant is in decline caused by reductions in juvenile survival and recruitment that is likely linked to reductions in eelgrass during winter and migration (Sedinger et al. 2011).

Its seems the authors of the DH Harvey documents have misapplied statements published in the journal *Ecosphere* (i.e. Stillman et al. 2015). We were coauthors of the Stillman et al. (2015) publication, which provided information about the geese and eelgrass for the mathematical model described in the paper. It seems that the '10% threshold' attributed to Stillman et al. (2015) was applied inappropriately. Stillman et al. (2015) were not commenting on whether 10% or any % was acceptable. The model did not predict a level of acceptable loss of eelgrass or change in bird behavior.

The various DH Harvey documents suggests that the reduction in bay-wide eelgrass biomass would be low (3%) and have insignificant impact to brant foraging. Why is 3% deemed insignificant? Due to the threatened status eelgrass and sensitive nature of black brant, we would consider any additional loss of eelgrass habitat or further reduction of foraging time by brant due to human activity as unacceptable.

There is little evidence to suggest eelgrass abundance (biomass) and distribution (spatial extent) are stable in Humboldt Bay. There have been few quantitative bay-wide surveys of trends for the distribution and abundance of eelgrass in this bay since 2009. A survey in 2015 associated this RDIR showed a 20% decline from 2009 levels. We would argue that losses will likely continue as they have done in 5 of 6 major embayments with eelgrass in southern California and Baja California through degradation from human and environmental impacts. Significant declines have been reported at Morro Bay, CA where spatial extent has dropped by 96% from 139 ha in 2007 to 5 ha in 2015 (Merkel 2015) and at Mission Bay, where spatial extent has decreased by 25% since 1997 (Merkel 2013). The eelgrass distribution has remained relatively stable in San Diego Bay; however, estimates in 2014 are below levels in the mid-2000s (Merkel 2014a). Negative trends in eelgrass spatial extent have also been reported in Baja California at San Ignacio Lagoon (37% decline since 2000; López-Calderón (2012), and San Quintin Bay (35% decline since 1987; Ward et al. 2003, Simancas 2013).

Recent eelgrass losses reported above have been greatest for intertidal populations, the eelgrass population that will be potentially most affected by the expansion. San Quintin Bay has lost 45% of its intertidal eelgrass (1046 ha in 2000 to 433 ha in 2014), including nearly all of its dense cover of intertidal eelgrass (604 ha in 2000 to 5 ha in 2014) over the last decade (Ward et al. 2003, Simancas 2013). Only sparse eelgrass remains. Similarly, Morro Bay has lost virtually all of its intertidal eelgrass beds. Humboldt Bay managers should guard against similar losses in Humboldt Bay.

From our perspective of having monitored and described coastal ecosystems and associated animals for 30+ years, we encourage the California Coastal Commission to promote actions that enhance, not reduce, eelgrass habitat. Given the potential downward trends in eelgrass spatial extent at Humboldt and other embayments of California, we believe that it unwise for the Coast Foods oyster expansion to occur in Humboldt Bay because of the likely negative impacts to the intertidal eelgrass beds and the community it supports. Eelgrass populations along the Pacific coast are currently under stress and it would be imprudent to add additional stresses to this threatened and cherished biotype.

Sincerely,

David Ward, MS, (eelgrass and waterfowl biologist) – 6700 Fernhill Ave. Anchorage, AK, 99516

Jeff Black, PhD, DSc (HSU Professor and waterfowl biologist) – 1440 Union Street, Arcata, CA, 95521

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March 27, 2017

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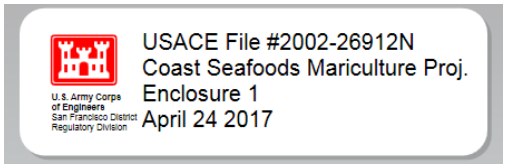

Subject: Coast Seafoods Corps ID: SPN-2002-26912N

Dear Kasey:

Thank you for your careful review of the Coast Seafood plans for oyster production expansion on Humboldt Bay. I was disappointed by the Humboldt Bay Harbor, Recreation and Conservation District's (HBHRCD) approval of the plans.

In the review of Recirculated Draft Environmental Impact Report (RDEIR), David Ward (Eelgrass biologist) and I commented in detail how the oyster production expansion plans failed to adequately address the environmental impacts of past and future operations. Between us, David and I have over 40 years' experience studying coastal ecosystems. I include those same comments here for your consideration.

Eelgrass populations are the foundation habitat structure for Humboldt Bay, conferring substantial benefits to local and global communities, including support of invertebrates, fishes, waterfowl, and other marine wildlife. Besides providing habitat at various life stages for economically important species, eelgrass populations deliver other ecosystem services in the form of sequestering carbon in the underlying sediments (NOAA 2014). Seagrasses sequester 15 times as much carbon as tropical forests per hectare of area, and thus, play a critical role in the reduction of global carbon levels. For these and other reasons mentioned below we advise against the expansion for the following specific reasons:

1. The revised plan does little to reduce (1% reduction, 6 acres) the impact footprint on eelgrass habitat into North Bay proposed in the original aquaculture expansion. The revised plan will still impact 594 acres of eelgrass extent or about 30% of all eelgrass cover in Humboldt Bay. Keep in mind that the eelgrass in this bay also represents about 30% of the remaining eelgrass habitat in California and the largest remaining bed of intertidal eelgrass along the Pacific coast between Mexico and Washington. All other large bays in California have lost and degraded their intertidal eelgrass beds from human development and activities (Wyllie-Echeverria and Short 1996). Humboldt Bay's location in northern California, distant from other large embayments, and its unique combination of dense cover of intertidal and subtidal eelgrass populations creates a highly productive and species diverse ecosystem.

2. It seems that the original DEIR and the RDEIR has misapplied our assumptions published in the journal *Ecosphere* (i.e. Stillman et al. 2014); we were coauthors of this publication, providing information about the geese and eelgrass for the mathematical model described in the paper. The revised plan suggests that there will be insignificant impact to foraging black brant (Appendices E and F), but it is clear from the 2015 Brant Survey (Appendix E) that these geese avoid aquaculture plots during low tides, when brant do most of their feeding and when most nutritious eelgrass is available. The survey showed use of the aquaculture plots during high tide when the longlines and eelgrass are underwater but it is not known whether brant are feeding successfully on the eelgrass in the plots. So how can the expansion have an insignificant impact on brant foraging? Using a project-specific model and some of the same input parameters as in Stillman et al 2014 (Appendix F), a conclusion was made that the reduction in bay-wide eelgrass biomass posed by the existing and proposed expansion would be low (3%) and have insignificant impact to brant foraging. Why is 3% deemed insignificant? This conclusion assumes that brant would forage on shoots taller than the longlines and other structures (when tide height allows) and aquaculture proposed in the October 2015 DEIR would have reduced overall eelgrass biomass by 5% within the project footprint. Both assumptions are untested assumptions. Furthermore, we presume the "low and insignificant" conclusion was based on a so called '10% threshold' for an impact on brant foraging based on Stillman et al (2014). It seems that the 10% threshold attributed to Stillman et al. (2014) has been applied inappropriately in the DEIR/RDEIR. This shortcoming was pointed out in our previous letters. As coauthors of the Stillman et al. (2014) paper, we were not commenting on whether 10% or any % was acceptable. We were merely describing which factors had the most impact on the bird's behavior over a 100-year period as sea levels changed. Here's the quote from our paper

"We assess the amount of change that occurs in stopover duration (days) and daily mass gain (g per day) after each model input parameter was increased and decreased sequentially by 10% relative to the originally assigned parameter value. We chose to vary each parameter value by a fixed amount, rather than by the amount by which the parameter varies in the real system, because the amount of variation has not been measured in all cases."

3. The expansion will affect 594 acres of eelgrass, most of which is continuous intertidal eelgrass (i.e., beds exposed at >-0.5 feet mean lower low water tides), a relatively rare eelgrass population along the Pacific coast from Washington to Mexico. The affected area represents about 25% of the mean spatial extent of all eelgrass in North Bay, but a majority of its intertidal eelgrass population (based on mean spatial estimates from 1997–2009 in Appendix D of draft EIR).

4. There is little evidence that current trends in eelgrass abundance (biomass) and distribution (spatial extent) are stable in Humboldt Bay. There have been few quantitative bay-wide surveys of trends for the distribution and abundance of eelgrass in this bay since 2009. A survey in 2015 associated this RDIR showed a 20% decline from 2009 levels. We would argue that losses will likely continue as they have done in 5 of 6

major embayments with eelgrass in southern California and Baja California through degradation from human and environmental impacts. Significant declines have been reported at Morro Bay, CA where spatial extent has dropped by 96% from 139 ha in 2007 to 5 ha in 2015 (Merkel 2015) and at Mission Bay, where spatial extent has decreased by 25% since 1997 (Merkel 2013). The eelgrass distribution has remained relatively stable in San Diego Bay; however, estimates in 2014 are below levels in the mid-2000s (Merkel 2014a). Negative trends in eelgrass spatial extent have also been reported in Baja California at San Ignacio Lagoon (37% decline since 2000; López-Calderón (2012), and San Quintin Bay (35% decline since 1987; Ward et al. 2003, Simancas 2013).

5. Humboldt Bay is considered a key spring staging location for black brant returning from north from Mexico, where the majority of the Pacific Flyway (PF) population winters. Brant stop here because of its high eelgrass abundance and its relative isolation from adjacent stopover locations (Moore et al. 2004). Stillman et al (2015) showed that only minor losses (10%) in eelgrass abundance and feeding time may affect the bird's duration of stay and mass gain for subsequent northward migration. This is important because delays in migration and reductions in body reserves can have negative consequences on the probability that these birds breed, and the success of their clutch and survival of offspring, if they do nest (Sedinger et al. 2011, Schamber et al. 2012). Currently, the PF population of black brant is in decline caused by reductions in juvenile survival and recruitment that is likely linked to reductions in eelgrass during winter and migration (Sedinger et al. 2011).

6. Recent eelgrass losses reported above have been greatest for intertidal populations, the eelgrass population that will be potentially most affected by the expansion. San Quintin Bay has lost 45% of its intertidal eelgrass (1046 ha in 2000 to 433 ha in 2014), including nearly all of its dense cover of intertidal eelgrass (604 ha in 2000 to 5 ha in 2014) over the last decade (Ward et al. 2003, Simancas 2013). Only sparse eelgrass remains. Similarly, Morro Bay has lost virtually all of its intertidal eelgrass beds. Humboldt Bay managers should guard against similar losses in Humboldt Bay.

Given the downward trends in eelgrass spatial extent at Humboldt and other embayments of California, we believe that it unwise for expansion oyster farming to occur in Humboldt Bay because of the likely negative impacts to the intertidal eelgrass beds and the community it supports. Because eelgrass populations along the Pacific coast are currently under stress, it would be imprudent to add additional stresses to this threatened and cherished biotype.

Kind regards,

Jeff Black
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Pacific Fishery Management Council

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April 18, 2017

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Re: **2002-26912N - Coast Seafoods Company, Humboldt Bay Shellfish Aquaculture, Permit Renewal and Expansion Project**

Dear Ms. Sirkin:

The Pacific Fishery Management Council (Council) is writing to comment on the Coast Seafoods Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project) for the proposed expansion of aquaculture operations. The Council has previously commented on the Draft Environmental Impact Review and recognizes that Coast Seafoods has made changes to the proposed project that address many of those comments and concerns.

The Council believes this proposed action may affect the habitat of managed species. As you know, the Council is one of eight Regional Fishery Management Councils established by the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA), and recommends management actions for Federal fisheries off Washington, Oregon, and California. The MSA includes provisions to identify, conserve, and enhance essential fish habitat (EFH) for species managed under a Council fishery management plan. The MSA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." [1] Section 305(b)(3)(A) of the MSA authorizes the Council to comment on any Federal or state activity that may affect the habitat, including EFH, of a fishery resource under its authority. Furthermore, the Council is obligated under Section 305(b)(3)(B) to provide comments and recommendations for activities that the Council believes are likely to substantially affect the habitat of an anadromous

[1] For the purpose of interpreting this definition of EFH: ''waters'' include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; ''substrate'' includes sediment, hard bottom, structures underlying the waters, and associated biological communities; ''necessary'' means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and ''spawning, breeding, feeding, or growth to maturity'' covers a species' full life cycle (50 CFR 600.10).

fishery resource under its authority.[2] In addition, Regional Fishery Management Councils may, at their discretion, designate Habitat Areas of Particular Concern (HAPCs). HAPCs are specific habitat types or areas within EFH that are of particular ecological importance in the fish life cycle or are especially sensitive, rare, or vulnerable. HAPCs designated by this Council are rocky reefs, estuaries, kelp forests, eelgrass, seagrass, and unique geologic features. The Project's proposed shellfish culture activities will occur in Humboldt Bay, within the estuarine and eelgrass HAPCs, and have the potential to result in substantial adverse effects to HAPC resources.

The Project proposes to obtain continuing authorization for Coast Seafoods' existing 297-acre aquaculture operations and expand its aquaculture practices into an additional 256 acres of intertidal areas within Humboldt Bay. This expansion would take place in two phases, with Phase 1 expanding existing operations by 165.2 acres, and Phase 2 providing an additional 90.8 acres. The project would add eight culture bins, diversify the species cultivated to include Pacific and Kumamoto oysters, and add 165.2 acres of intertidal culture. This 165.2-acre area would include 89.2 acres of 10-ft spaced, double-hung cultch-on-longline, 72.0 acres of basket-on-longline with alternating spacing of 9-ft and 16-ft spaces between longlines, and four acres of rack-and-bag cultch or basket-on-longline in areas that do not have eelgrass, while maintaining a 25-ft buffer from existing eelgrass beds. The Project proposes to monitor and report to resource agencies during years 3 to 6 before Phase II expansion would begin.

The Council has reviewed the alternatives discussed within the Public Notice and recommends Alternative 4: Eelgrass Avoidance. The Council is also supportive of the proponents' proposal to move many current activities within the east bay out of eelgrass areas.

Alternative 4 is most protective of eelgrass habitat by limiting expansion of intertidal shellfish culture to areas within its existing leased and owned footprint, which do not currently support dense or patchy eelgrass. The California Coastal Commission required that the project conduct a feasibility study to evaluate oyster culture in areas above +1.5 mean low low water (MLLW). The feasibility study demonstrated that oyster cultivation is successful outside the primary depth range of eelgrass in Humboldt Bay (H.T Harvey and Associates, March 3, 2015). Growing oysters at or above +1.5 MLLW would substantially reduce the Project's impact on eelgrass resources. The study found that there was no significant difference in oyster growth, biofouling, or quality of oyster between higher and lower elevational study plots (HT Harvey & Associates 2015). **To reiterate, the Council recommends that oyster plots be located outside of the eelgrass primary depth range and existing eelgrass beds to the extent practicable to minimize eelgrass impacts, while at the same time ensuring that the objective of no net loss of eelgrass habitat is met**, as recommended by the National Marine Fisheries Service California Eelgrass Mitigation Policy.

The Council is also concerned about the use of double-hung longlines. As proposed, Phase I consists of 89.5 acres of double-hung lines that will be monitored over three years. Double-hung longlines are untested in Humboldt Bay, and we are unaware of their application in a comparable situation elsewhere. The Council is concerned that they may impact eelgrass habitat in unforeseen

[2] The regulatory guidance that implements the EFH provisions of the MSA (50 CFR Part 600) defines an "adverse effect" as any impact that reduces quality and/or quantity of EFH. Adverse effects may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH.

ways, and believes the proposed methodology warrants further study. Specifically, the Council recommends a controlled field experiment on limited acreage, as determined by experimental design. Results of the study should be analyzed and used to inform future buildout to 89.5 acres.

The Council appreciates the opportunity to provide comment and looks forward to your response.

Sincerely,

Charles A. Tracy

Charles A. Tracy
Executive Director

JDG:kma

Cc: Council Members
Mr. Eric Wilkins (Habitat Committee Chair)
Mr. Correigh Greene (Habitat Committee Vice Chair)

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Dorothy M. Lowman, Chair| Donald O. McIsaac, Executive Director

December 3, 2015

Mr. Adam Wagschal
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awagschal@humboldtbay.org

Re: Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (SCH# 2015082051) Draft Environmental Impact Report

Dear Mr. Wagschal:

The Pacific Fishery Management Council (Council) is writing to comment on Coast Seafoods Company Shellfish Aquaculture Draft Environmental Impact Report (DEIR) for the proposed expansion of aquaculture operations into 600 acres of eelgrass habitat. We thank you for delaying the release of the DEIR to provide us the opportunity to comment.

The Council is one of eight regional fishery management councils established by the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSA), and recommends management actions for Federal fisheries off Washington, Oregon, and California. The MSA includes provisions to identify, conserve, and enhance essential fish habitat (EFH) for species managed under a Council Fishery Management Plan (FMP). The MSA defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." The Council is authorized under MSA to comment on any Federal or state activity that may affect the habitat, including EFH, of a fishery resource under its authority, and is required to comment on actions that may significantly affect the habitat of an anadromous fishery resource under its authority. In addition, Regional Fishery Management Councils may, at their discretion, designate Habitat Areas of Particular Concern (HAPCs). HAPCs are specific habitat types or areas within EFH that are of particular ecological importance in the fish life cycle or are especially sensitive, rare, or vulnerable. The proposed shellfish culture activities will occur in Humboldt Bay, within the estuarine and eelgrass/marine and estuarine submerged aquatic vegetation HAPCs.

Because Coast Seafoods' shellfish aquaculture expansion project proposed for Humboldt Bay would occupy a substantial amount (>17%) of eelgrass habitat in the bay, the Council remains concerned that the project may have significant adverse effects on the EFH of several Council-managed species, including salmon and groundfishes; and on herring, an important prey item of

salmon and groundfishes. The Council has specific concerns because of the spatial extent and layout of the proposed project in Humboldt Bay. Those key concerns are as follows.

Key Concerns:

1. No Net Loss

   The DEIR describes significance criteria for eelgrass that result in a change in areal extent of eelgrass and/or a greater than 25 percent change in eelgrass density. The DEIR bases these criteria on the National Marine Fisheries Service California Eelgrass Mitigation Policy and Implementing Guidelines (NMFS CEMP).

   The Council disagrees with Coast Seafoods' interpretation of the CEMP recommendation as guidelines rather than significance criteria under the California Environmental Quality Act. The DEIR uses criteria outlined in the CEMP that are appropriate for small footprint projects, but may not apply to the proposed project due to its scale. The Council again recommends the threshold of significance be changed to no net loss of eelgrass function as recommended in the CEMP and by the State of California. Furthermore, the Council supports the NMFS CEMP and recommends full in-kind mitigation for loss of both eelgrass density and the spatial extent of eelgrass beds, as proxies for eelgrass habitat function.

2. Eelgrass Avoidance Alternative

   The Council has reviewed the alternatives within the DEIR. The Eelgrass Avoidance Alternative was removed from further analysis as it would have reduced the amount of area in which Coast could expand operations. In concert with the No Net Loss recommendation of the CEMP, the Council disagrees with the removal of the Eelgrass Avoidance Alternative from the suite of alternatives. This alternative could have resulted in a project with reduced impacts to EFH. The Council recommends including this alternative and an analysis of its impacts in the Final Environmental Impact Report (FEIR).

3. Loss of Eelgrass within Beds at Five-foot Spacing

   Data on the effects of cultch-on-longline oyster culture on eelgrass percent cover and turion density were collected by Rumrill and Poulton (2004) and summarized by Dumbauld et al. (2009) and Rumrill (2015). A summary of these results is also presented in the DEIR (Appendix D, page 37, Table 3). In a short-term (two-year) experiment in an area that was previously dredge-harvested, data indicate that areas of longline oyster culture at five-foot spacing showed a 48 percent reduction in spatial cover and a 64 percent reduction in turion density compared to nearby control plots. Tests indicated that the differences were not statistically significant. Rumrill (2015) indicates that these estimates, because of study-design constraints, "will result in an underestimate of the actual levels of loss to eelgrass located beneath the larger-scale commercial oyster longline operations that have been in operation for many years." To better reflect the

expected long-term effects, Rumrill (2015) suggested that the results from East Bay plots should be used. At a five-foot longline spacing, those data showed a 79-81 percent reduction in spatial cover and a 53-94 percent reduction in turion density compared to nearby control plots. Tests of the statistical significance of those results were not provided. Based on these studies, which were summarized in the DEIR, longline oyster culture at a five-foot spacing is expected to result in a substantial reduction in both eelgrass percent cover and turion density compared to areas without longline culture. Given the spatial extent of the proposed project, the Council is concerned that these reductions represent a substantial impact to eelgrass habitat within Humboldt Bay.

4. Buffers

The Council's Pacific Coast Salmon Fishery Management Plan specifically recommends that new or expanded aquaculture farms implement 25-30 foot buffers from existing native eelgrass beds to avoid and minimize impacts to eelgrass (Appendix A, Pacific Coast Salmon Fishery Management Plan 2014, page 61). For this project, the buffer would apply to rack-and-bag culture only. That recommendation has been accepted and we understand it will appear in the FEIR. Based on the current buffer proposals in the DEIR, the buffer recommendations for longline aquaculture will not be met. To protect and enhance EFH for salmon in Humboldt Bay, the Council recommends a minimum 25-foot buffer, consistent with the salmon FMP.

5. Mitigation Activities

The FEIR should specify the methods to be used to restore eelgrass in salt marsh channels and the acres of eelgrass to be anticipated. Monitoring and adaptive management methods should also be defined.

6. Impacts to Fish Resources

Salmon: The Council disagrees with the assessment of "less than significant impacts" for salmon. Salmonids have been shown to extensively use eelgrass in both Oregon and Washington (Murphy 2000, Semmens 2008). The Council is concerned the DEIR only references studies from Humboldt Bay that were not designed to detect salmonid use of eelgrass habitat and neglects to reference the multitude of studies showing extensive eelgrass use by salmonids throughout the Pacific Northwest. The Project may significantly impact salmonid populations by reducing and altering EFH eelgrass habitat that provides foraging and refugia.

Groundfish: Groundfish extensively use eelgrass habitat within estuaries along the Pacific Coast and rely on eelgrass habitat for predator avoidance and prey species. Reduction or thinning of the eelgrass may have detrimental effects on the juvenile groundfish population. The Council disagrees with the "less than significant impact" assessment cited in the DEIR.

Herring: While the DEIR cites successful herring spawn on substrate other than eelgrass, uncertainty remains about the survival of herring eggs on aquaculture gear relative to natural vegetated substrates. Palsson (1984) evaluated egg survival on several types of artificial substrate (including polypropylene and hemp rope, polyethylene netting, tubing and turf mats, and plastic sheeting) deployed within natural eelgrass habitat. Total survival and larval production was significantly lower for the artificial substrates when compared to natural eelgrass spawning substrate. This study highlights that spawning on non-natural substrates may lead to significantly reduced survival of herring eggs through both egg loss (eggs displaced from substrate) and egg death (non-viability of eggs).

Numerous comments have been provided to Coast Seafoods regarding potentially significant impacts to Pacific herring caused by placing aquaculture infrastructure within core herring spawning areas, including loss of native eelgrass habitat, increased desiccation of eggs deposited on aquaculture gear, differential survival of eggs deposited on artificial substrates (aquaculture gear), and changes in fish community structure within core herring spawning areas that may increase predation of eggs and early larval herring. The Council is concerned that, although the DEIR determines impacts to Pacific herring will be less than significant under California Environmental Quality Act, no substantive information is provided to support this determination.

The Council is concerned that a large-scale shift in the type of spawning substrate available to herring in the core eelgrass spawning areas of Humboldt Bay could have impacts on spawning success and negatively impact the population.

The Council appreciates the opportunity to provide comment and looks forward to these issues being addressed in the FEIR.

Sincerely,

D.O. McIsaac, Ph.D.
Executive Director

JDG:kma

Enclosures

Cc: Holly Costa, San Francisco District Regulatory Chief, North Branch US Army Corps of Engineers
Cassidy Teufel, Senior Environmental Scientist (Specialist) California Coastal Commission
Gil Falcone, Environmental Scientist North Coast Regional Water Quality Control Board
Jim Watkins, Fish and Wildlife Biologist US Fish and Wildlife Service

References

California Department of Fish and Wildlife (September 23, 2015) Re: Notice of Preparation of an Environmental Impact Report for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project (SCH# 2015082051)

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April 20, 2017

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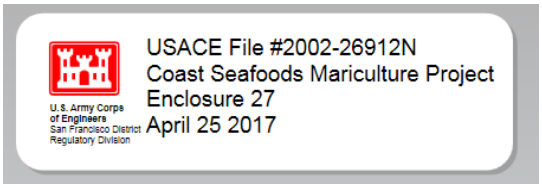

Subject: Coast Seafoods Corps ID: SPN-2002-26912N

Dear Kasey,

I am strongly opposed to the permit issued by Humboldt Bay Harbor, Recreation and Conservation District (HBHRCD) approving an expansion of oyster production by Coast Seafoods Company.

I own my home in Arcata and retired here to enjoy Humboldt Bay, and I thank you for allowing me to voice my concerns regarding the Coast Seafoods Co. FEIR dated February 28, 2017, to renew their permit on its existing 296 acres, to permit expansion of its oyster mariculture operations to another 165.2 acres(Phase 1) plus 90.8 acres (Phase II), less 64.7 of longlines to be removed, for a net expansion of 191.3 acres.

The conclusion that there will be "no significant impact" by expansion of Coast's operations is not only inaccurate but could prove tragic for a number of species that use, and indeed require, resources found in Humboldt Bay. Of these, I will comment primarily upon the Pacific Black Brant (*Branta bernicla nigricans*, hereafter "brant), which requires Common Eelgrass (*Zostera marina,* hereafter "eelgrass") as its obligatory food source, and relies disproportionately upon Humboldt Bay.

I fear the effects will be insidious but real.

The majority of brant migrate from breeding grounds in Alaska to their main wintering sites along the Gulf of California in a single flight of about 54 hours. Some stop at bays that contain eelgrass on their way south, where they are subject to sport hunting. (Pacific Flyway Council).

Of greater concern in the current matter is their return migration north from January through mid-April, during which they stop ("stage") at various locations with eelgrass meadows, in order to refuel and acquire fat reserves in order to reproduce. Up to 60% of the entire population of brant stage in Humboldt Bay (Lee 2001, cited in Moore, 2004). Brant are a California State listed Species of Special Concern both during wintering and staging (Shuford and Gardali, 2008).

Humboldt Bay is the fourth-most-utilized body of water in the Pacific Flyway for staging brant, which make disproportionate use of Humboldt versus other bays due to its geographic isolation from other bodies of eelgrass (Moore et al. 2004). Further aggravating this is the substantial loss of eelgrass in California's bays south of Humboldt Bay (due to human activities). Another important staging location, Willapa Bay in Washington, has mariculture covering 30% of its area (almost 50% of the area considered good for oyster mariculture), and is currently undergoing ecological collapse with an invasive form of eelgrass (*Z. japonica*) that is of no nutritional use to brant geese, as well as increasing acidification. Considering this, the need for Humboldt Bay's eelgrass beds will become even more critical to brant.

Even at peak "fatness", the adult females have only about 20% of the calories needed to reproduce when they arrive in the Arctic breeding grounds (Ward 2005), so any disruption of staging brant will have substantial adverse effects on reproduction. This is borne out by a recent model (Stillman et al. 2015), which predicts a decrease in weight gain of about 33% with as little as a 10% reduction in food intake. This suggests that a small reduction in eelgrass amount or access can have a substantial effect on reproductive success. Brant, like many goose species worldwide, are on a nutritional razor's edge; brant that gain too little weight cannot produce eggs so they cannot breed. Partly because of this, only a small proportion of the migrants actually nest, and of these nest success varies but is usually 10 to 30%. So of 100 breeding pairs, perhaps 10 pairs will nest, hatching around 4 young per clutch; of these forty new birds, perhaps 10 will make it to fly south and continue the cycle. So only about 10 are replaced per 200 adults each year.

Brant feed by tipping down (or standing at very low tides) and clipping leaves of eelgrass. The shorter younger leaves in the center of the plant are highest in protein and the most digestible, so are preferred. Eelgrass bends easily in the water column, so these central leaves are accessible to brant only at tides lower than 0.9 meters (MLLW) and indeed the preferred leaves are only accessible at tides of 0.3 meters or less (Moore and Black 2006) so the duration during which these leaves are available is quite limited. Brant will not effectively feed in areas of cultch or baskets on longline irrespective of their spacing or elevation. There is so much visual and tactile disturbance by the pipes and cultch, even beyond the eelgrass that is trapped beneath them, that effective undisturbed grazing on exposed beds would seem impossible. Indeed, when the oyster lines are exposed, brant will not even fly over them. Hence, the eelgrass in

these areas is functionally inaccessible to brant; to a brant, the loss of feeding habitat is more closely described by a polygon around all the polygons mapping Coast's mariculture.

Only recently has brant feeding on floating pieces of eelgrass ("drift feeding") been documented, by a small proportion of birds and at tidal heights of >0.9 meters, and as a means of reaching daily energy requirements (Elkinton 2013) rather than accumulating fat stores. These leaves are far less nutritious than those in standing plants. Reports of brant feeding while floating over deeply submerged oyster beds have to be drift feeding, an inefficient means of getting a few calories.

The proposed expansion of cultch-on-longline and basket-on-longline is of greatest concern. Incredibly, Coast leases and ownership currently covers virtually all the dense eelgrass beds in Arcata Bay. The 2015 Black Brant Survey Memorandum (Appendix E of the D-REIR) was unfortunately restricted to the areas near the Samoa Bridge. Plot counts even in this restricted area showed that, at low tide when they would be expected to feed upon eelgrass, brant avoided the oyster plots, with a 26-fold difference in bird density between existing plots (0.1 bird/acre) and undeveloped plots (2.6 birds/acre). At high tide, there was little difference in bird density between developed and undeveloped plots, reinforcing the idea that birds avoid the visible structure. No images of brant foraging upon eelgrass were included in the report, although brant swimming in a boat lane and "apparently feeding on algae" were included.

In summary, the loss of access to any eelgrass resources in the North Humboldt Bay poses a substantial risk to brant reproduction, and the combination of disturbance and diminished access caused by oyster mariculture could cause substantial declines in the population. The "math" of this expansion initially was described as "3% of the habitat area of Humboldt Bay " which appears to include virtually the entire North Bay, including "mollusk reefs"(Figure 6.5.1 *Habitats in North Bay Classified under the Coastal and Marine Ecological Classification Standard*. DEIR dated Oct. 2015) . A more understandable citation is 8 % as of 2012 (Schlosser and Eicher 2012); the proposed expansion of 258 acres would inflate this to 14% of all eelgrass beds in the North Bay. The impact on the ability of geese to feed on the midst of the mariculture is far greater, perhaps over 50%, when one considers their aversion to structure exposed in the water. Indeed, any feeding of brant geese reported in areas of oyster mariculture is drift feeding- plucking floating bits of generally degraded eelgrass off the surface to try and meet basal nutritional requirements- when the strucures are hidden by high water. Drift feeding does not contribute to improving body condition for breeding.

I am alarmed at the stance this FEIR takes in the apparent trivializing of the impact of increased mariculture in Humboldt Bay. The proposed loss of more eelgrass (to the Coast Seafoods Project being prepared) would suggest that we are ready to accept sacrificing a good proportion of all the eelgrass beds, and the species that rely on them, that largely define the character of the Bay in order to gain fewer than 50 jobs in a company whose profits benefit those in Oregon and Washington, not our local economy.

We already produce the bulk of California's oysters. I have no problem at all with oyster production and producers, but there has to be a way do this without further affecting eelgrass beds and Brant geese.

I am sure you will hear from others about threats to Pacific Herring, Green Sturgeon, and shorebirds as well as physical obstructions and threats to boating, including sculling, and the ongoing, intertwined, and unsavory relationship of Coast Seafoods/Pacific Seafood Group with HBHRCD, the lead agency for this permit.

An article on the suit filed by several NGOs against Coast Seafoods was in the Eureka Times Standard on March 31, 2017, and reflects the concerns of many.

Thank you,

Richard J. Todoroff, DVM

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Holly Costa

San Francisco District Regulatory Chief

North Branch US Army Corps of Engineers

Holly.N.Costa@usace.army.mil

March 26, 2017

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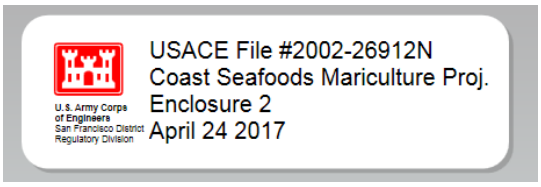

Subject: Coast Seafoods Corps ID: SPN-2002-26912N

Dear Ms. Sirkin:

I am strongly opposed to the permit issued by Humboldt Bay Harbor, Recreation and Conservation District (HBHRCD) approving an expansion of oyster production by Coast Seafoods Company. Please work to limit coast Seafoods to no more than 300 acres of renewal in the consultation between US Army Corps of Engineers and the Humboldt Bay Harbor, Recreation, and Conservation District (HBHRCD).

You will find correspondence that I have directed to the HBHRCD in both the Draft EIR and Recirculated EIR (R-EIR). The summary of my concerns include that the HBHRCD as lead agency has issued a permit without requiring full and fair mitigation for project impacts as required by CA Eelgrass Management Policy (CEMP), CA Environmental Quality Act (CEQA), or National Environmental Policy Act (NEPA). The justification for using 0.25 acres of mitigation for each acre of eelgrass adversely effected is based on shading impacts and does not consider all of the other impacts to fish and wildlife by the proposed oyster production project. The methodology for measuring the trampling impact of Coast Seafood employees walking on eelgrass is not provided in the final EIR document. This information was requested in my Sept. 14, 2016 R-DEIR letter of comment, so that the suggestion that the impact is "insignificant" could be rebutted.

The proposed expansion of Coast Seafood oyster culture activities would have a significant adverse impact of limiting foraging opportunities for Pacific black brant, American widgeon and other wildlife using eelgrass. The R-DEIR and Final EIR both acknowledge that brant will not feed inside the developed area where long lines and plastic pipes are installed, after the tidal cycle drops below the top of the oyster culture lines. This portion of the tide cycle is when brant and other waterfowl are able to feed most efficiently and the most nutritious portions of the plant are available. There are also disturbance and other adverse impacts to brant and migratory birds that the Final EIR fails at adequately address.

You will find a letter of comment from Humboldt Bay National Wildlife Refuge Manager, Eric Nelson dated Sept. 15, 2016 in the Final EIR that goes into great detail regarding the adverse impacts the proposed project will have on brant foraging opportunities. Additionally, I call your attention to the fact that the Final EIR has

misapplied research published in Stillman, et al. 2014. Coauthors, Dr. Jeff Black and David Ward, submitted a letter of comment on Sept. 8, 2016 informing the HBHRCD of the misuse of their research assumptions in the R-DEIR. Dr. Rumrill has provided very similar comments to reporters and others who have contacted him. He is quoted as having said that his data was "taken out of context" in the way it was applied in the R-DEIR. The fact that the project proponents and HBHRCD were informed of these problems and have made no serious effort to correct these deficiencies is outrageous.

The sensitive nature of eelgrass and the fact that warming ocean temperatures is likely to place new stress on this vital habitat should suggest that all responsible natural resource agencies should use extra caution when considering project developments that adversely affect this plant and wetland community. There are well documented declines of eelgrass in Morro bay (-96%), and at San Quintin in Baja, Mexico. The eelgrass loses in other coastal wetlands make the protection of Humboldt Bay even more critical for the health of brant population. Even small additional reductions in foraging opportunities would likely diminish reproductive potential for black brant in northern breeding grounds.

The R-DEIR and Final EIR have consistently refused to employ eelgrass avoidance measures in the design and layout of the proposed project. While the selected alternative is called the East Bay Management Area "Avoidance Alternative", it does NOT avoid the East Bay Management Area. In fact there are proposed changes in the type of gear planned for use that have larger adverse impacts to both brant foraging opportunities and to recreational boating due to the size of baskets and gear to be installed. All oyster production should be removed from the East Bay Management Area.

The Final EIR requests that both Phase I and Phase II be permitted immediately, then if any of the estimates made of project future conditions in the EIR are proven wrong by monitoring, that they (Project Proponents) will correct the deficient conditions by following an "Adaptive Management" approach. This request to approve the project in advance of actually knowing what the environmental impacts will be is undesirable as well as taking unnecessary risks. Phase two should be considered as a separate project, after impacts of oyster production are fully identified. The adaptive management plan is not appropriate and the EIR does not describe a reasonable mechanism to insure that errors made in predicting impacts will either be "detected" or corrected.

Adverse impacts to recreational boating could range from damage to vessels with physical harm to the boaters to drowning. In addition, the oyster culture gear blocks my use of the bay and disrupts my enjoyment of the natural resources in the bay. The fact that these are "navigable waters" seems to have been ignored in past permits. Why are private, for profit corporations being allowed to interfere with the use of public tidelands and navigable waters?

The project proposes Conservation Measure REC-1 to limit operations that conflict with hunter use between Nov. 15 to Dec. 15 th. This is inadequate because it does not address to entire length of waterfowl hunting season.

In conclusion allowing Coast Seafoods a larger project footprint than the 300 acres currently permitted in Arcata Bay would significantly impact eelgrass habitats, herring fisheries, Pacific black brant, all waterfowl hunting, sculling, kayaking, and recreational boating, and fishing.

Because of the serious problems created by expanding oyster production gear in Arcata Bay, I am opposed to renewing the permit and approving the expansion for oyster production as part of Coast Seafoods Final EIR in Humboldt Bay.

In several places the Final EIR claims that project impacts are "less than significant" relative to the standards established by CEQA. This is not accurate, just saying that the impacts are not significant does not make it true. The documentation that is provided in the Final EIR is based on computer models based on assumptions that research scientists involved in the reports Do Not support. These computer model assumptions have not been tested or proven.

Sincerely,

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Holly Costa
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Stan Brandenburg
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17 March 2017
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Mr. Cassidy Teufel
Senior Environmental Scientist
Energy Ocean Resources and
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California Coastal Commission
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Subject: Coastal Development Permit # 9-15-1931

Dear Mr. Teufel,

I am writing to you about the recent adoption of Coast Seafood's FEIR by the Humboldt Bay Harbor and Recreation Commission. It is my opinion that this document fails to address the serious, significant cumulative impacts this project will have in conjunction with existing oyster mariculture proposals to Black Brant foraging habits and recreational hunting and other boating activities. As such, it is my opinion that the analysis in this document under California's Environmental Quality act is totally inadequate in these regards. Not only do I have serious concerns about the health of Humboldt Bay's Eelgrass meadows and Black Brant populations, but the exclusionary and hazardous nature of off-bottom mariculture to the recreational boating community.

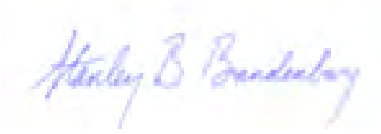
I have attached a series of maps of an idealized version of the aquaculture buildout in North Humboldt Bay if it ever reaches completion given the controversy around rising ocean PH levels and the role Eelgrass plays as a carbon buffer. In my footprint analysis I have considered the following items of utmost importance:

1. **Spacing of Cultch plots**. The spacing and configurations of cultch plots is critical to allow safe navigation through and around off-bottom mariculture as well as provide necessary migration corridors as well as undisturbed roosting and feeding habitat not only for Black Brant, but for the tens of thousands of other migratory water-birds and shorebirds. According to the literature (Schroeder 1984) Black Brant have a normal flight distance of 400' when confronted with human activities, so cultch plots spaced at 1000' are a bare minimum. With a factor of safety of 3, that makes it 3000'. These are not unreasonable numbers, and I have spaced the plots accordingly.

2. **<u>Navigation Safety Corridors within Cultch plots</u>**. Currently, ***all*** the existing off-bottom mariculture plots in North Humboldt Bay are configured in such a manner that *do not* allow for safe vessel passage either through, or around them. At mid-tide levels they present an artificial, man-made reef that is impassable and extremely dangerous to public navigation. They are poorly marked in an inconsistent manner and there is no provision in their layout to allow safe vessel passage. In my analysis, I have allowed for all plots to have either 100' navigation safety corridors, or a combination of 100' and 200' corridors depending on the size of the plot. It is my professional opinion as a transportation engineer and 40 years of waterfowling and boating experience on North Humboldt Bay that these navigation safety corridors must be included and clearly marked in ***all*** existing and future off-bottom mariculture plots to provide for public boating safety. All plots and corridors should have the corners clearly marked at all tide levels and levels of darkness and clearly indicate direction of safe vessel passage. As current plots are harvested, they must be re-configured to allow safe vessel passage as well as spaced to provide undisturbed feeding and roosting areas for waterbirds.

Please feel free to use any and all of my maps and diagrams you deem necessary and if you would like any further discussion on these issues, please don't hesitate to call me. I can be reached at 707-599-7273. Thank you for your consideration in these matters.

Sincerely,



Stan Brandenburg, P.E.

Cc:

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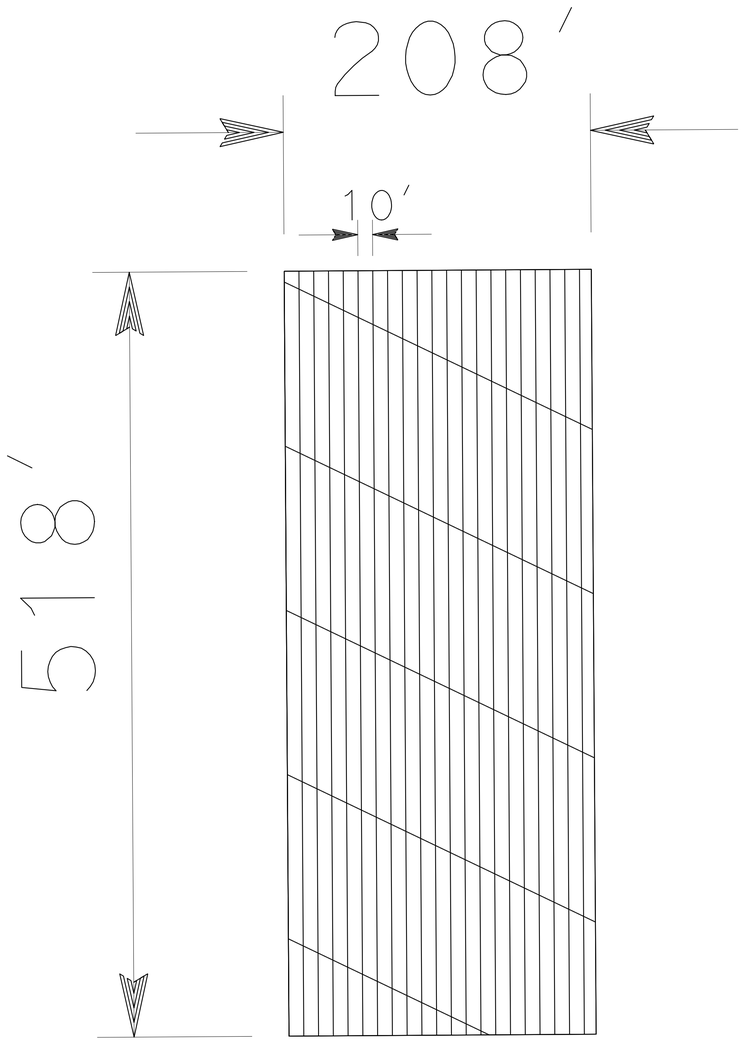
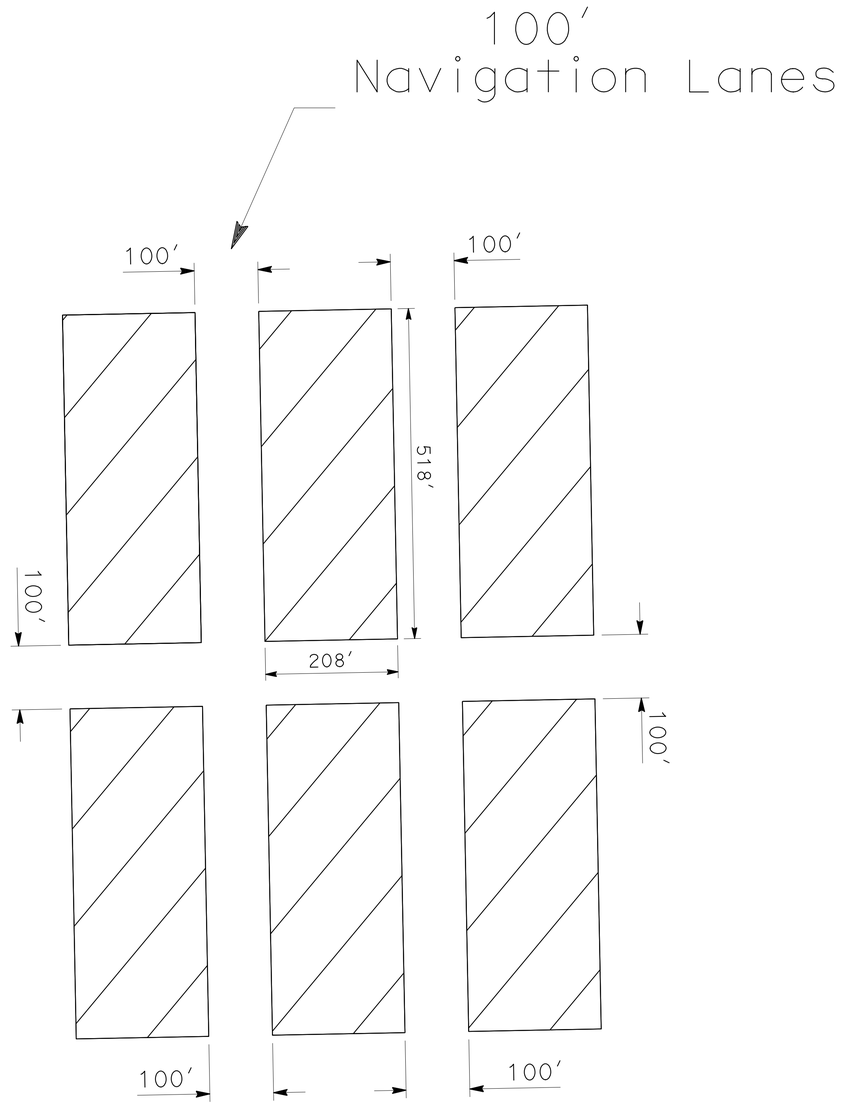
References

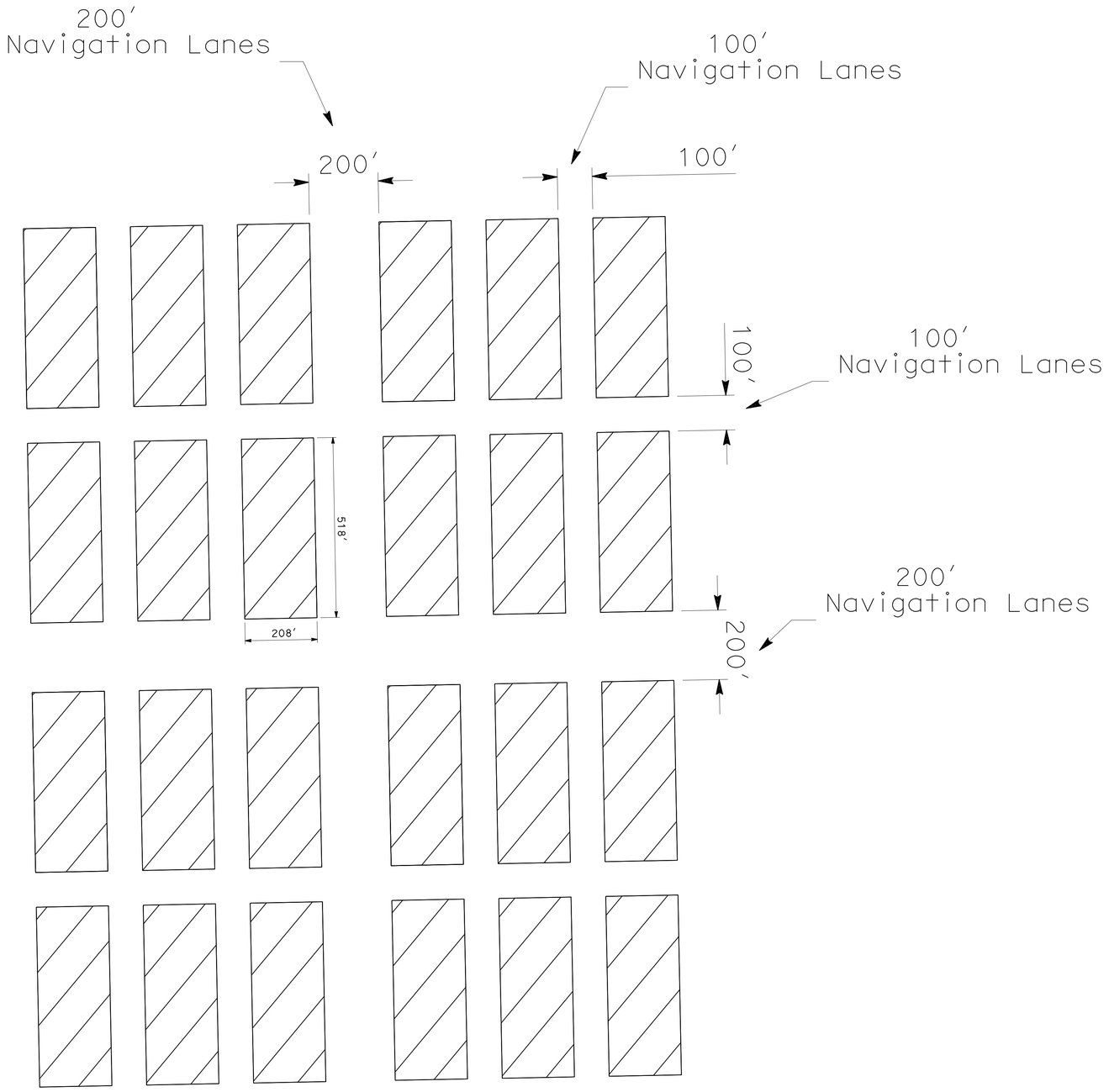
Schroeder, R. L. 1984. Habitat suitability index models: Black brant. U.S. Fish Wildl. Serv. FWS/OBS-82/10.63. 11 pp.



Typical 10' spaced Cultch Bed
Area=2.4735 Acres
(plan view)

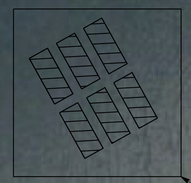


West,SouthWest, and East Bay
Typical Cultch Beds
Area=15 acres
(planview)



Northwest Cultch Beds
Area= 60 acres
(planview)

East Bay Layout (Yeung)



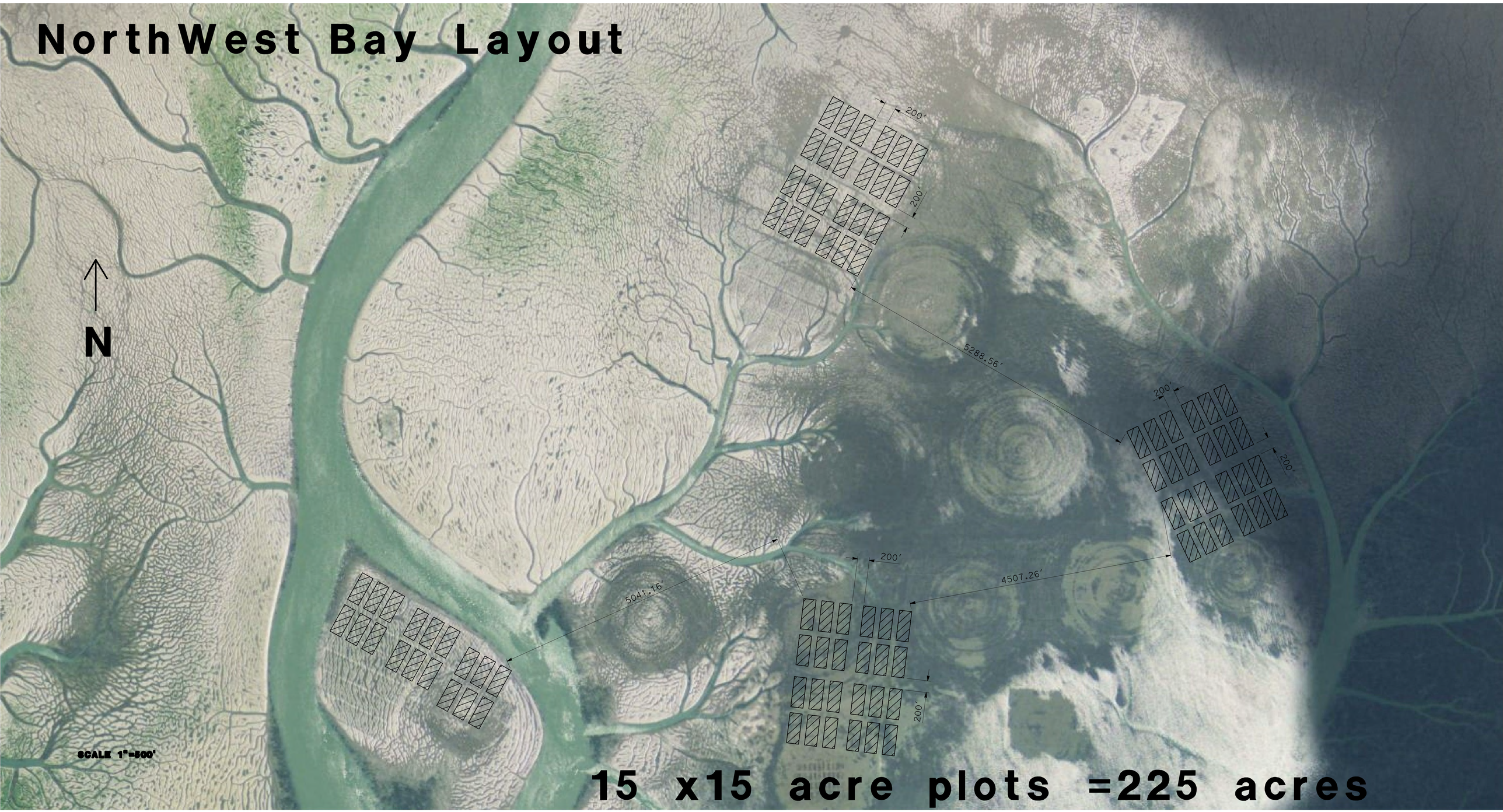
64 acre footprint of Yeung Proposal

1x15 acre plots =15 acres

N

SCALE 1"=500'

NorthWest Bay Layout



15 x15 acre plots =225 acres

SouthWest Bay Layout

11x15 acre plots =165 acres

West Bay Layout

8x15 acre plots =120 acres

North Humboldt Bay
Absolute Maximum
Aquaculture Footprint
Idealized configuration

525 Total Acres

Pacific Ocean

N

NorthWest Bay Layout

15 x15 acre plots =225 acres

SAND ISLAND

Black Brant Migration Corridor

West Bay Layout

8x15 acre plots =120 acres

Black Brant Migration Corridor

SouthWest Bay Layout

11x15 acre plots =165 acres

East Bay Layout (Yeung)

1x15 acre plots =15 acres

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JAN 12 2017
CALIFORNIA
COASTAL COMMISSION

January 10, 2017

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RE: Existing Operations- Coast Seafoods intertidal operations- North Humboldt Bay, CA

Mr. Teufel,

This letter is regarding impacts to the waterfowl hunting community from the existing oyster farming operations by Coast Seafoods in northern Humboldt Bay, CA. As a brief background, there are a few main methods of waterfowl hunting on Humboldt Bay, with one of the most unique being the scull. Scull boats were developed on Humboldt Bay over 100 years ago, and whose design is referred to as the Humboldt Bay Scull Boat design by hunters around the world.

Sculling remains an active and popular sport in north Humboldt Bay. Waterfowl hunting takes place in winter months when conditions can change quickly, and safety is always a first priority. This method uses a scull boat that incorporates some specific defining features necessary to sneak up on birds for hunting. First, the boat must be un-motorized, and be designed to allow a person to row while lying down. Second, the boat is designed to minimize the profile of the watercraft and be as low to the water as possible.

These design features enable hunters to get right up to the ducks and brant they are pursuing, though require constant re-evaluation once in the water regarding tacks and the possibility of deteriorating conditions. For a successful hunt, a hunter must be able to row long distances while lying down, often in low light conditions or in marginal weather, to get from the put in to the area for hunting. Areas hunted on a given day depend on where the birds are located, tides, what the weather and wind is doing, where other hunters are located, and other factors dependent on the conditions of the day. This method of sport also provides a unique and important coastal dependent recreational activity that cannot be provided in inland waters (§ 30220 CA Coastal Act). This recreational activity must be protected from further industrialization of the bay by oyster farms, and our concerns regarding ongoing operations must be addressed to ensure access to public trust resources and ensure the sport can continue in a safe manner.

We believe the concerns from the waterfowl hunting community were not considered during the last round of permitting for Coast Seafoods operations 10 years ago. We have the following concerns and recommendations:

- When Coast Seafood went from on-bottom to off-bottom methods they inadvertently took away one of the most popular and utilized hunting areas in north Humboldt Bay. The oyster farm areas operated

by Coast Seafoods in the north-west area of the bay, next to the Mad River Slough channel, were once a great place to hunt. With the addition of extensive off-bottom gear, this area is no longer available to hunters or to recreational boaters and requires a much longer tack to get around the existing gear. This severe decrease in safety and the taking of area from hunters and other recreational users for corporate aquaculture uses was never considered in the previous permitting process. As we don't feel we can realistically regain this area back, we ask that you enhance our ability to utilize other frequented areas in North Bay for hunting. Of importance is the area circled in orange in the attached picture. Removing operations from this area would enhance our safety when utilizing the T-Street and Target boat launches to get to North Bay in general, and would greatly enhance our access to productive hunting grounds from any access point.

- Coast Seafood operators often disrupt our hunts. We are limited to only certain days per year to hunt Brant and other waterfowl. During those times, Coast Seafood boats have often (seemingly purposefully) flushed birds we were trying to hunt and sometimes even come dangerously close to our scull boats. They have shown blatant disregard for our sport and our safety. We ask that Coast Seafood boats be disallowed in north Humboldt Bay during brant season during daylight hours.
- The current operations should be consolidated as much as possible to allow recreational hunting and boating. We recommend consolidating operations in the west side of the bay to give recreational boaters, kayakers, windsurfers, stand-up paddle boarders, and hunters access to the east side of the bay for use and enjoyment of the bay. No operations should occur east of the Arcata Channel. This would provide much needed access for the people of the state to the public trust resources you protect.
- In addition, the view-shed of the bay has been significantly diminished due to the gear visible at low and high tides. When we hunt or otherwise recreate in north bay our use and enjoyment of the area is severely diminished due to the wide-spread PVC pipes and other gear visible at all tides. This severely reduces the beauty of the bay and ruins the scenic vistas that previously existed. To address this, we ask that you greatly consolidate operations as described above.

Thank you for the opportunity to comment on this. As we were not consulted in the previous round of permitting, we ask that you integrate our concerns into any permit for ongoing operations. We have additional and extensive comments regarding the expansion plans for north Humboldt Bay aquaculture, but have restrained our comments here to ongoing operations for Coast Seafoods. Please give us a call if you have any questions or would like to discuss further.

Regards,

Rick Pastori
Member of the Waterfowl Hunting and Recreational Community

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January 18, 2017

Jack Crider, Executive Director,
Harbor District Offices
601 Startare Drive, Eureka, CA 95501

RE: Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project

Dear Mr. Crider:

I would like to provide some important corrections regarding inferences made about the impacts on shorebirds, in "**Topical Response No. 8**" of the Final Environmental Impact Report (FEIR) for the Coast Seafood Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (pp. 2-23 to 2-24). **As the lead author in Kelly et al. (1996)—cited frequently in the FEIR—I would like to point out several inaccuracies and misinterpretations of our research.** These corrections are important because Topical Response No. 8 is used to substantiate the responses to numerous comments and concerns throughout the FEIR.

Topical Response No. 8 accurately represented some of the key results from our study:

> Kelly et al. (1996) found decreased abundance on aquaculture plots relative to control plots by two species of shorebirds (western sandpipers and dunlin), increased abundance by another (willet) and no difference in relative abundance between aquaculture and control sites for black-bellied plovers, marbled godwits, sanderlings and least sandpipers.

However, Topical Response No. 8 failed to acknowledge the primary conclusion of the paper, which indicated a significant decrease in total shorebird use in areas used for oyster culture. This result was reflected by significant avoidance of oyster growing areas by Dunlins and Western Sandpipers—in terms of both absolute numbers and the proportional responses of surrounding winter populations—which far outweighed the occasional selection of those areas by a few Willets.

With the exception of the few Willets observed in the study plots, our research provides no support for the conclusion made in Topical Response No. 8, that "some [species of shorebirds] may benefit from invertebrates associated with… epibiotic growth on the [oyster] bags and oysters." In fact, as stated in our report, the abundances of Willets in the study area were very low, and the higher average use of the aquaculture area by this species resulted from the regular occurrence of only one individual Willet. Similarly, the abundance of other species in the study area were low and

showed no significant preferences for oyster growing areas. Therefore, our study provides little or no support to substantiate the statement that shorebirds may benefit from foraging in oyster growing areas.

Topical Response No. 8 incorrectly assumes that foraging substrates for shorebirds are likely to remain suitable near off-bottom oyster-growing structures:

> Notably, western sandpipers and dunlin forage by probing into substrates and may be less suited for feeding on or around bottom oyster cultivation methods (as found in Tomales Bay) as compared to off-bottom methods proposed by the project that would still provide foraging access to the substrate below the lines.

Contrary to the statement above, our observations strongly suggested that shorebirds avoid foraging near or under any structural features on the tide flats that interfere with their visibility of the surrounding area. As stated in Kelly et al. (1996), such interference is likely to delay their detection of approaching predators and disrupt associated antipredator flocking behavior. If so, oyster growing structures in Humboldt Bay are also likely to interfere with the escape behavior of cohesive, mobile shorebird flocks, forcing them to avoid oyster growing areas. With the occasional exception of Least Sandpipers, shorebirds did not generally forage on substrates immediately near or beneath artificial structures.

Although Topical Response No. 8 stated that "Connolly and Colwell (2005) did not report a pattern of lower abundance by Dunlin or Western Sandpipers on longline plots versus control plots," their results may have been confounded by the lower eelgrass cover, on average, in longline (oyster) areas than was present in the control areas. This difference could represent slightly greater substrate suitability in the longline plots, for these species—which prefer open, unvegetated tidal flats for foraging.

According to the U.S. Shorebird Conservation Plan (Hickey et al. 2003), the primary goal for regional-scale conservation is to maintain the quantity and quality of habitat needed to support shorebirds that breed, winter in, and migrate through each region. Therefore, any impacts that significantly reduce shorebird use of habitat areas should be acknowledged as an important concern for regional conservation in Humboldt Bay.

Thank you for this opportunity to comment

Sincerely,

John P. Kelly, PhD
Director, Conservation Science
john.kelly@egret.org

From: Ted Romo
To: Teufel, Cassidy@Coastal
Subject: Existing Boating Problems Caused by Oysters on North Bay
Date: Tuesday, January 10, 2017 12:24:34 PM

Mr. Teufel,

My name is Ted Romo, and I have been hunting on both North Bay and South Bay for over 25 yearns. After hunting both bays, North Bay is extremely challenging to safely hunt or navigate in because of having to avoid the existing oyster equipment and being subjected to the continuous fear of its existence and where it might interfere with safe boating. What we are dealing with is a real-world scenario.
The effect of up to one square mile of aquaculture ropes, plastic, steel cages, and shading equipment will have a negative visual impact on the enjoyment of the bay and an environmental impact on the ecosystem of Humboldt Bay, including eel grass, black brant, salmon, crab, and herring. The recreational use of boating will be significantly impacted by increasing the overall oyster farm footprint because the existing equipment currently is hazardous and impedes the safety of all boaters that use North Bay.

The following statement pretty much sums up the problems of boating in North Bay. One example is our hunting experience of two years ago. Our boat motor became entangled within the current oyster gear around Sand Island due to the tidal current and wind pushing us into the gear before our engine could be restarted. We were lucky to be able to extricate ourselves from the current oyster structures without damaging our boat motor or endangering us; however, if the conditions were at a different level, we could have found ourselves in a precarious situation of life-endangering circumstances.

This is an example of the gear we encounter. The buoys only mark the equipment under ideal navigational situations.

Humboldt Bay is a public bay that is to be used and enjoyed by ALL of the people who would like to enjoy its beauty in its various aspects, whether they are local residents or tourists. Increased commercialization with its visual and physical pollution and safety concerns is only addressing a monetary advantage for the oyster farmers and robs us, the private citizens, of our use of public land.

The natural beauty of Humboldt Bay needs to be preserved by not interfering with eelgrass beds, maintaining undisturbed wide corridors and areas on which wildlife may feed and rest, and allowing recreational users to safely navigate and enjoy the overwhelming magnificence of the entire bay.

Thank you.

Ted Romo, Humboldt County Fish and Game Commissioner
3419 Edgewood Rd.
Eureka, CA 95501
(707) 496-0525
blackbrantsky@yahoo.com

Sent from my iPad

From:	Stan Brandenburg
To:	Teufel, Cassidy@Coastal
Subject:	Existing Operations- Coast Seafoods intertidal operations- North Humboldt Bay, CA
Date:	Friday, January 06, 2017 4:16:26 AM
Attachments:	image.png

Mr. Teufel,

This letter is regarding impacts to the waterfowl hunting community from the existing oyster farming operations by Coast Seafoods in northern Humboldt Bay, CA. As a brief background, there are a few main methods of waterfowl hunting on Humboldt Bay, with one of the most unique being the scull. Scull boats were developed on Humboldt Bay over 100 years ago and whose design is referred to as the Humboldt Bay Scull Boat design by hunters around the world.

Sculling remains an active and popular sport in north Humboldt Bay. Waterfowl hunting takes place in winter months when conditions can change quickly, and safety is always a first priority. This method uses a scull boat that incorporates some specific defining features necessary to sneak up on birds for hunting. First, the boat must be un-motorized, and be designed to allow a person to row while lying down. Second, the boat is designed to minimize the profile of the watercraft and be as low to the water as possible.

These design features enable hunters to get right up to the ducks and brant they are pursuing, though require constant re-evaluation once in the water regarding tacks and the possibility of deteriorating conditions. For a successful hunt, a hunter must be able to row long distances while lying down, often in low light conditions or in marginal weather, to get from the put in to the area for hunting. Areas hunted on a given day depend on where the birds are located, tides, what the weather and wind is doing, where other hunters are located, and other factors dependent on the conditions of the day. This method of sport also provides a unique and important coastal dependent recreational activity that cannot be provided in inland waters (§ 30220 CA Coastal Act). This recreational activity must be protected from further industrialization of the bay by oyster farms, and our concerns regarding ongoing operations must be addressed to ensure access to public trust resources and ensure the sport can continue in a safe manner.

We believe the concerns from the waterfowl hunting community were not considered during the last round of permitting for Coast Seafoods operations 10 years ago. We have the following concerns and recommendations:

- When Coast Seafood went from on-bottom to off-bottom methods they inadvertently took away one of the most popular and utilized hunting areas in north Humboldt Bay. The oyster farm areas operated by Coast Seafoods in the north-west area of the bay, next to the Mad River Slough channel, were once a great place to hunt. With the addition of extensive off-bottom gear, this area is no longer available to hunters or to recreational boaters and requires a much longer tack to get around the existing gear. This severe decrease in safety and the taking of area from hunters and other recreational users for corporate aquaculture uses was never considered in

the previous permitting process. As we don't feel we can realistically regain this area back, we ask that you enhance our ability to utilize other frequented areas in North Bay for hunting. Of importance is the area circled in orange in the attached picture. Removing operations from this area would enhance our safety when utilizing the T-Street and Target boat launches to get to North Bay in general, and would greatly enhance our access to productive hunting grounds from any access point.

- Coast Seafood operators often disrupt our hunts. We are limited to only certain days per year to hunt Brant and other waterfowl. During those times, Coast Seafood boats have often (seemingly purposefully) flushed birds we were trying to hunt and sometimes even come dangerously close to our scull boats. They have shown blatant disregard for our sport and our safety. We ask that Coast Seafood boats be disallowed in north Humboldt Bay during brant season during daylight hours.

- The current operations should be consolidated as much as possible to allow recreational hunting and boating. We recommend consolidating operations in the west side of the bay to give recreational boaters, kayakers, windsurfers, stand-up paddle boarders, and hunters access to the east side of the bay for use and enjoyment of the bay. No operations should occur east of the Arcata Channel. This would provide much needed access for the people of the state to the public trust resources you protect.

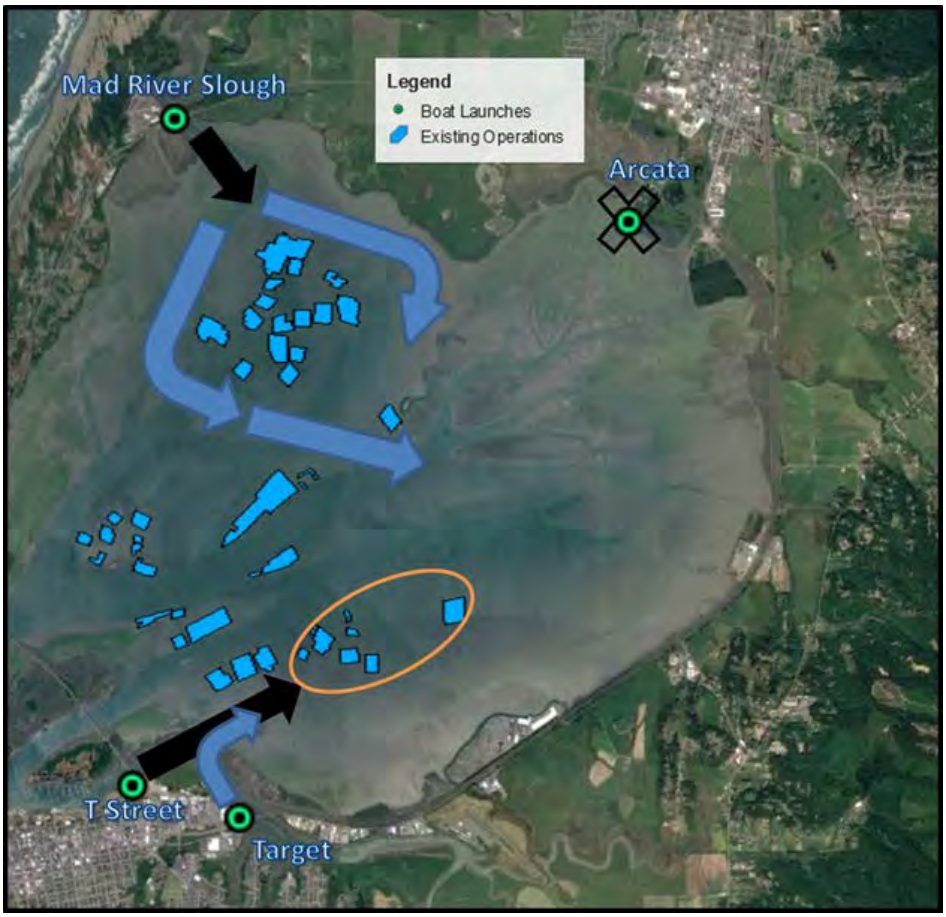
- In addition, the view-shed of the bay has been significantly diminished due to the gear visible at low and high tides. When we hunt or otherwise recreate in north bay our use and enjoyment of the area is severely diminished due to the wide-spread PVC pipes and other gear visible at all tides. This severely reduces the beauty of the bay and ruins the scenic vistas that previously existed. To address this we ask that you greatly consolidate operations as described above.

Thank you for the opportunity to comment on this. As we were not consulted in the previous round of permitting, we ask that you integrate our concerns into any permit for ongoing operations. We have additional and extensive comments regarding the expansion plans for north Humboldt Bay aquaculture, but have restrained our comments here to ongoing operations for Coast Seafoods. Please give me a call if you have any questions or would like to discuss further.

Regards,

Stan Brandenburg

707-599-7272


Mad River Slough
Legend
Boat Launches
Existing Operations
Arcata
T Street
Target

State of California – Natural Resources Agency
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Marine Region
1933 Cliff Drive, Suite 9
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EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

September 16, 2016

Jack Crider, Executive Director
Humboldt Bay Harbor, Recreation and Conservation District
601 Startare Drive
Eureka, CA 95501
jcrider@humboldtbay.org

Subject: Recirculated Draft Environmental Impact Report for the Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (SCH# 2015082051)

Dear Mr. Crider:

The California Department of Fish and Wildlife (Department) has reviewed the July 2016 Revised Draft Environmental Impact Report (RDEIR; State Clearinghouse # 2015082051) for the proposed Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project). The RDEIR was developed by the Humboldt Bay Harbor, Recreation and Conservation District (HBHD) which is the Lead Agency under the California Environmental Quality Act (CEQA). The Project proposes to continue Coast Seafoods Company's (CSF) existing operations on 300 acres, relocate 5 acres of existing culture, and expand farming operations into an additional 622 acres of intertidal habitats. The expansion is proposed to occur in two Phases, with 210 acres planted in Phase I and 412 acres planted in Phase II. The proposed Project includes 194 acres of cultch on longlines (COLL) spaced at 2.5ft; the conversion over two years of an additional 100 acres of COLL from spacing of 2.5ft to 10ft; 418 acres of COLL spaced at 10ft; 150 acres of double hung COLL spaced at 10ft; 50 acres of basket on longline (BOLL) cultivation; 4 acres of racks-and-bag cultivation; ~ 6 acres of rafts and nursery areas; expanded floating upwelling system rafts; and the inclusion of oysters on the list of species allowed to be grown in existing clam rafts. The expansion area consists primarily of wetland habitats, including dense eelgrass (409.7 acres), patchy eelgrass (<85% cover; 184.4 acres), and areas of unvegetated mudflat habitat or other habitats such as subtidal channels (27.9 acres). This Project would bring the operational footprint of CSF to a total of 922 acres.

As a trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection and management of fish, wildlife, and habitats necessary for biologically sustainable populations of those species (Fish and Game Code §1802). The Department is also charged to implement the statutory policy of the state to encourage the conservation, maintenance, and utilization of living marine resources to promote the development of fisheries and commercial aquaculture in a manner that maintains sufficient populations of all species and that recognizes the importance of aesthetic, educational, scientific, and non-extractive recreational uses (Fish and Game Code §1700). In the role of trustee agency, the Department

administers the California Endangered Species Act, the Native Plant Protection Act, and other provisions of the California Fish and Game Code that afford protection to the State's fish and wildlife resources. The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act (MLPA) in coastal marine waters of California and is recognized as a "Trustee Agency" under the CEQA (Pub. Resources Code, § 21000 et seq.; hereafter CEQA; Cal. Code Regs., § 15000 et seq.; hereafter CEQA Guidelines). As a Trustee Agency, the Department is responsible for providing biological expertise to review and comment upon environmental documents and impacts arising from the Project activities (CEQA Guidelines, § 15386; Fish and G. Code, § 1802).

Project Impacts

The Department wishes to acknowledge the efforts of CFS and HBHD to revise the Project proposal to include additional measures to avoid or reduce impacts to the resources and habitats that are realized in the Project footprint. However the Department remains concerned the Project will result in significant impacts to Public Trust resources, including eelgrass and mudflat wetland habitats, and species such as Pacific herring, shorebirds, black brant, and widgeon. The RDEIR proposes revised locations for aquaculture expansion, with the stated purpose of decreasing impacts to herring spawning areas and eelgrass. Though the RDEIR achieves some improvements regarding herring and eelgrass impacts, significant impacts to these resources remain a possibility. Cultivation continues to be proposed within areas of consistently utilized herring spawning habitat, with 95.5% (594 acres) of the proposed expansion area remaining in sensitive eelgrass habitat. Furthermore, the revised locations for aquaculture proposed in the RDEIR are significantly more dispersed throughout North Humboldt Bay and may cause increased impacts to shorebirds and waterfowl. The RDEIR discusses many of the topics outlined in the Department's previous comment letters; however, it concludes that most Project activities result in impacts that are "less than significant" under CEQA. The Department finds these conclusions are not well supported by the citations and analyses. Furthermore, the proposed minimization and mitigation measures remain insufficient given the size, scale and potential impacts of the Project.

Based on our review of the RDEIR the Department remains concerned that the Project may cause significant environmental impacts to the Public Trust resources of North Humboldt Bay. In a letter dated December 31, 2015 The Department identified concerns and made comments and recommendations on the first DEIR for the Project. The majority of those concerns, comments and recommendations remain applicable to the current Project as described in the RDEIR. In addition to the comments provided here, we recommend the FRIER fully address the comments and recommendations included in the December 31, 2015 letter. We are enclosing the December 31, 2015 letter along with our previous comment letters on this Project, and request these be included in the record and in the response to comments in the FREIR (see the Incorporation by Citation section below). In addition, pursuant to our jurisdiction, the Department offers the following comments and recommendations regarding the Project.

2007 CEQA Findings

The findings and mitigation requirements from the 2007 CEQA process are not addressed in the RDEIR. The January 2007 Mitigated Negative Declaration adopted by the HBHD states that CSF's cultured acres be reduced from 500 to 300 acres as a "primary mitigation measure for the potential adverse impacts to biological resources" (page 3-12) for impacts from the 300 acre footprint (HBHD 2007). This reduction in acreage was used to reduce impacts to a level of less than significant. CSF is proposing to culture in a portion of those 200 acres identified for mitigation in 2007 thus negating the mitigation identified for the existing 300 acre footprint. Mitigation for continuing impacts from the majority of the existing 300 acre footprint has not been accounted for in the RDEIR, and no mitigation has been included to address the wetland habitat lost or impacted due to existing operations. This does not meet the State's no net loss for wetlands policy, as the proposed Project does not provide mitigation for all impacted acreage. The Department recommends the FREIR include a comprehensive discussion on adequate compensatory mitigation for impacts from existing operations that would comply with the Fish and Game Commission's no net loss for wetlands policy.

Sand Island

Sand Island is one of the few locations in Humboldt Bay that remains exposed at all but the most extreme high tides. As such, it provides unique habitat within the bay, supporting nesting colonies of Caspian terns and double crested cormorants, a marine mammal haul-out site, and a grit site currently identified for black brant (Colwell et al. 2003; Capitolo et al. 2004; Adkins & Roby 2010; RDEIR 2016). In addition, the adjacent waters are an important area for green sturgeon use in the Bay (Pinnix 2008; Lindley et al. 2011; RDEIR 2016). The RDEIR includes an existing setback distance for aquaculture gear of 100m around Sand Island to reduce impacts to marine mammals and nesting birds (Mitigation Measure BIO-3). However, the Department believes the 100m buffer may not be sufficient to prevent significant impacts due to disturbance of black brant at the grit site, nesting bird colonies, and marine mammals. In order to protect the resources that utilize the areas in and around Sand Island, including marine mammals, shorebirds, nesting birds, green sturgeon, and black brant from disturbance and loss of habitat, the Department recommends the setback distance for aquaculture gear be increased to reduce impacts. The FREIR should include a discussion of an alternative buffer distance to reduce the impacts to less than significant. The Department would be willing to assist in the development of an appropriate buffer.

Brant Grit Sites

The RDEIR recognizes two grit sites for black brant in North Humboldt Bay, one at Sand Island and one at Indian Island. Grit sites are rare and are a critical part of the feeding process (Lee et al. 2004; Spragens et al. 2013). Given the rarity and limited access to grit sites, anthropogenic disturbance and development of these sites have been cited as further limiting factors for black brant populations, with grit sites recognized as important areas for protection (Lee et al. 2007; Spragens et al. 2013). Black brant are also some

of the most sensitive waterfowl to disturbance (Laursen et al. 2005; Pacific Flyway Council 2002). The RDEIR states that impacts to black brant grit sites are less than significant, and does not provide measures to avoid or minimize disturbance from Project activities (IMPACT BIO-27). The Department recommends that the FDEIR include a discussion of possible additional mitigation measures that could be implemented to reduce these impacts to less than significant. Additional measures may include a larger buffer as discussed above.

Eelgrass

The Department has reviewed the eelgrass analysis and associated technical reports (RDEIR & Appendix D). Based on our review of the Project in the RDEIR, the Department remains concerned that the Project does not meet the Fish and Game Commission's no net loss policy threshold for eelgrass habitat impacts. Within the 210 acre Phase I expansion area, the RDEIR finds the Project will reduce eelgrass density by 58% over 48.1 acres under COLL and reduce density by 60% over 13.2 acres under BOLL (for a total of 61.3 acres) using a "width of effect" model. In addition, the RDEIR finds there will be no impacts from Phase II of the Project (412 acres of single hung COLL spaced 10ft apart) and relies on monitoring in lieu of direct impact reduction. The Department is concerned this analysis is not consistent with the best available information regarding 10ft spaced COLL in Humboldt Bay from Rumrill and Poulton (2004) and the additional analysis provided in Rumrill (2015). In addition, impacts from aquaculture to wetland habitats are well documented and have been shown to alter habitat and habitat values (see the discussion and citations included in our September 23, 2015, letter). The Department recommends that the FREIR include additional discussions to clarify and further justify the position regarding the conclusion that the majority of the impacts to eelgrass will not be significant. The Department also recommends the FREIR include a discussion of possible additional avoidance, minimization and mitigation measures that could be implemented for impacts to eelgrass habitats.

Herring

The Project described in the RDEIR will likely lessen the impact to Pacific herring compared to previous versions of the Project. However, the RDEIR still proposes significant expansion of aquaculture into important herring spawning areas with potentially large impacts to the survival of herring eggs as well as a reduction in eelgrass available for spawning (see the Eelgrass and Mitigation sections below as well as our September 23, 2015, and December 31, 2015, letters). The RDEIR indicates there will be no significant impacts on the survivability of herring eggs or eelgrass habitat. This is not well supported by the analyses and the Department believes that the Project may result in significant impacts to herring. The Department recommends the FREIR include a discussion regarding the development of possible additional avoidance, minimization and mitigation measures to lessen the impacts to Pacific herring to a level of less than significant.

The Department agrees with the conclusion in the RDEIR that removal or disturbance of aquaculture gear with herring eggs attached will cause significant impacts to the herring population. To reduce impacts to herring, the RDEIR includes the mitigation measure BIO-2 that proposes monitoring of herring spawns and postponing activities in areas where spawn has occurred on aquaculture gear. The Department concurs with this mitigation measure. The Department believes that in order for this measure to be effective an appropriate herring spawn monitoring plan needs to be developed and implemented. The Department recommends that the FREIR include a comprehensive discussion of the development of a herring spawn monitoring program. The Department would be willing to assist in the Development of an appropriate monitoring program.

Black Brant

As highlighted in the Department's previous comment letters on this Project, the Department continues to recommend the FREIR include a quantitative analysis of both the loss of food (eelgrass) and the increase in disturbance, and the cumulative impacts to black brant when both a loss of food and an increase in disturbance occur simultaneously. The RDEIR does not adequately address or quantify the impacts from the increase in disturbance (e.g. increase in boat trips, workers and boat hours) to black brant and other waterfowl from Project activities. These additional disturbances may result in significant impacts to black brant and the habitats that they utilize.

In order to adequately address the potential impacts to black Brant the Department recommends that the FREIR incorporate a comprehensive evaluation to include the following:

- Describe the geographic extent, temporal frequency, and nature of current anthropogenic activity in the Project area.
- Disclose the geographic extent, temporal frequency, and nature of activity that would occur under the Project.
- Determine the species' potential sensitivity to disturbance (location, distance, frequency, nature, etc.) based upon the best available evidence, including how the species will likely respond to the various activities proposed in the Project and in combination with on-going and reasonably predicted future activities from non-project sources.
- Determine whether or not the Project is likely to have a significant adverse impact on the species resulting from disturbance.

The Department also recommends the FREIR include a comprehensive discussion of additional avoidance and mitigation measures to reduce impacts from disturbance to a level of less than significant.

Recreational Hunting

The RDEIR concludes that recreational hunting will be impacted by Project activities. To reduce impacts to less than significant, the RDEIR proposes Conservation Measure REC-1 which includes the avoidance of an identified area in the EBMA from midnight

until sunset, from November 15th to December 15th during brant hunting days. The Department supports the effort to minimize impacts to the brant hunting community and has the following comments regarding the Conservation Measure (REC-1) identified in the DEIR:

- Expand the Hunting Avoidance Area to accurately reflect the areas hunted by boaters and scullers for brant in North Humboldt Bay.
- Implement hunting avoidance areas, days, and times for other boat-based waterfowl hunting activities that occur in North Humboldt Bay.

The RDEIR includes Conservation Measure REC-2 that describes by December 1 of each year, CSF will submit to the HBHD a map describing the locations of each longline bed within its operational footprint. The Department supports this measure.

In order to adequately address the potential impacts to recreational hunting the Department recommends that the FREIR incorporate a comprehensive evaluation to include the following:

- Provide the geographic extent of the area currently available to hunters in the Project area and North Humboldt Bay.
- Describe hindrances to hunting from existing and proposed expanded operational activities.
- Disclose the nature and extent of hindrances to hunting that the Project would pose, and the loss of hunting opportunity that would result from the Project and the project in combination with non-project anthropogenic impediments.
- Based on the best available evidence, determine what the threshold of significance is regarding loss of hunting opportunity.
- Determine whether or not the Project is likely to have a significant adverse impact on hunting.

In addition, the RDEIR has not addressed the Department's recommendations, per previous comment letters dated September 23, 2015, and December 31, 2015, and recommends the FREIR adequately discuss and analyze these issues:

- Decreases in the number of waterfowl available for harvest resulting from displacement, loss of food resources, and disturbance; and
- Increases in hazards to boaters (including skullers) and hunting dogs from aquaculture gear.

The Department also recommends that the FREIR include a discussion of possible additional mitigation measures that may be implemented to further to reduce impacts to recreational users to a level of less than significant. The Department would be willing to assist in the development of these additional avoidance, minimization and/or mitigation measures.

Shorebirds

Given the expansive size and infrastructure proposed in currently undisturbed intertidal wetland habitats, multiple significant impacts to shorebirds may occur. These impacts include alteration of food sources, loss of foraging habitat, and disturbance (Connolly and Colwell 2005; Forrest et al. 2009; Kelly et al. 1996; and Quintino et al. 2012). Specifically, some bird species avoid aquaculture areas located on mudflats, thereby substantially reducing the habitat available for feeding and resting (Connolly and Colwell 2005; Kelly et al. 1996). Also, the alteration of bird foraging habitats by aquaculture structures and activities favors some species over others (Connolly and Colwell 2005; Kelly et al. 1996; and Quintino et al. 2012). In addition, the Southern Pacific Shorebird Plan provides goals and recommendations for shorebird conservation that include restricting human activities that disturb large flocks of shorebirds on tidal flats, specifically including oyster culture; and prohibiting the further alteration of tidal flats for oyster culture in Humboldt Bay (Hickey et al. 2003).

The Conservation Measure BIO-12 (*Coast will not intentionally approach or harass migratory birds that are actively feeding or resting within the Project area*) proposed in the RDEIR will not reduce impacts to shorebirds below the threshold of significance because it is unlikely "intentional" disturbance of shorebirds will occur. Rather, impacts will occur from the placement of aquaculture gear and the disturbance from ongoing daily culture operations. The Department recommends the FREIR include a comprehensive discussion regarding additional avoidance, minimization and mitigation measures to be developed to address impacts to shorebirds.

Mitigation

The Department believes the mitigation proposed in the RDEIR will not to reduce the impacts to Public Trust resources to a level of less than significant. The proposed mitigation measures and related conservation measures are not proportional to the impacts of the Project (CEQA Gulidelines §15126.4). Four mitigation measures are identified in the RDEIR: (1) conversion of 100 acres of existing longline operations from single-hung 2.5ft spacing to double-hung 10ft spacing (BIO-1); (2) delay of aquaculture activities in areas where herring spawn is observed (BIO-2); (3) maintenance of a 100m buffer above mean higher high water around Sand Island (BIO-3); and (4)eelgrass recovered via BIO-1 being available for black brant consumption (BIO-4). The Department believes that the conversion of 100 acres of existing longline operations to 10ft spacing (BIO-1) constitutes a minimization measure for reducing impacts from existing operations. Further, this measure does not meet the Fish and Game Commission's no net loss policy with regards to wetlands (as discussed in the Department's comment letter dated December 31, 2015).

Additionally, the RDEIR indicates that Phase II of the Project (412 acres of single hung COLL spaced 10ft apart), will have a neutral effect on eelgrass and does not include any compensatory mitigation for this portion of the Project. However, the study by Rumrill and Poulton (2004) found an average of 16% loss of density and 11% loss of spatial cover in experimental plots spaced at 10ft (and as cited in Rumrill 2015).

Further, Rumrill and Poulton (2004) reported losses in some 10ft spaced plots up to 64% in density and 58% in spatial cover. As such, the Department believes the conclusion that Phase II would have neutral effects on eelgrass habitat is not well supported. Additionally, the expansion of 412 acres of aquaculture gear and related activities will cause the habitat values of the eelgrass bed and underlying mudflat to be degraded (see discussion in the Department's comment letters dated September 23, 2015, and December 31, 2015). As discussed in the Department's December 31, 2015, letter, the impacts to wetland resources from the proposed Project constitute a loss of "habitat and habitat values" throughout the Project area and the Department recommends the FREIR include a comprehensive discussion on compensatory mitigation for all 622 acres of expansion.

The Department finds Mitigation Measure BIO-4 to be unclear and have no measureable outcomes or standards for success (CEQA Gulidelines §15126.4). The Department recommends including mitigation measures in the FREIR that meet CEQA guidelines; particularly those that avoid, minimize and mitigate impacts to Public Trust resources, and meet the Fish and Game Commission's policy for no net loss of wetlands. If assistance is needed, the Department recommends creating a multi-agency Technical Advisory Panel to help with the process of identifying appropriate avoidance, minimization and mitigation measures.

Cumulative Impacts

The RDEIR provides limited discussion regarding potential cumulative impacts from the HBHD pre-permitting project which proposes additional substantial acreage be placed into oyster cultivation in North Humboldt Bay. Notwithstanding the proposed significant cumulative increases in farmed acreage in North Humboldt Bay for the two projects, the RDEIR indicates the cumulative impacts from the two projects to be less than significant. As discussed above, the Department believes many of the impacts from the proposed Project alone are likely to cause significant impacts to the Public Trust resources of North Humboldt Bay. As such, the Department believes that cumulative impacts from both Projects may also be significant. The Department recommends the FRIER include a comprehensive discussion regarding the basis and justification for the less than significant conclusion regarding cumulative impacts.

Alternatives

The Department has reviewed the range of alternatives included in the RDEIR and believes that a number of alternatives that would avoid or substantially lessen the significant impacts of the Project were not included in the DREIR (with the exception of Alternative 4: no project alternative) (CEQA Guidelines §15126.6(c)). For example, the RDEIR does not include an alternative that consolidates potential new operations into areas with current operations (by filling in the spaces between existing adjacent plots). Another example would be to avoid areas of eelgrass by utilizing portions of the lease that are in deeper water. The Department recommends the HBHD consider additional alternatives that will create a Preferred Alternative to be included in the FREIR that will provide resource protection and adequate mitigation for impacts while allowing the

project to move forward. The Department also recommends creating a multi-agency Technical Advisory Committee to assist in the development of additional alternatives.

Monitoring Plan

The Department has reviewed the 2016 Eelgrass Monitoring Framework (Appendix H) and has questions and concerns regarding the ability of the sampling design to adequately detect change given the size and scale of the Project. However, the Department understands that a Technical Review Team (TRT) will be providing substantial feedback on this plan. Unfortunately, due to the timing of the report relative to writing this letter, the Department is unable to consider those comments here. The Department looks forward to providing comments on the Eelgrass Monitoring Plan at a future date, once feedback from the TRT is incorporated.

The Department appreciates the opportunity to review and comment on the RDEIR. Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. For further information regarding hunting and waterfowl issues please contact Melanie Weaver, Senior Environmental Scientist, California Department of Fish and Wildlife, 1812 9th Street, Sacramento, CA 95811, phone (916) 445-3717, email Melanie.Weaver@wildlife.ca.gov; for other topics please contact Rebecca Garwood, Environmental Scientist, California Department of Fish and Wildlife, 619 2nd Street, Eureka, California, 95501, phone (707) 445-6456, and email Rebecca.Garwood@wildlife.ca.gov.

Sincerely,

Craig Shuman, D Env.
Regional Manager
Marine Region

Enclosure

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Incorporated by Citation

We request the following comments and citations are included in the record and in the response to comments in the FREIR:

1. CDFW Comment Letter. Draft Environmental Impact Report for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project (SCH# 2015082051). December 31, 2015.

2. CDFW Comment Letter. Notice of Preparation of an Environmental Impact Report for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project (SCH# 2015082051). September 23, 2015.

3. CDFW Comment Letter. Initial Study for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project. February 27, 2015.

4. CDFW Comment Letter. Coast Seafood Company Renewal and Expansion of Aquaculture Operations in Humboldt Bay, CA. July 11, 2014.

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December 31, 2015

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Subject: Draft Environmental Impact Report for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project (SCH# 2015082051)

Dear Mr. Wagschal:

The California Department of Fish and Wildlife (Department) has reviewed the October 2015 Draft Environmental Impact Report (DEIR; State Clearinghouse # 2015082051) for the proposed Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project). The DEIR was developed by the Humboldt Bay Harbor, Recreation and Conservation District (HBHD) which is the Lead Agency under the California Environmental Quality Act (CEQA). The Project proposes to continue Coast Seafoods Company's (CSF) existing operations on 294.5 acres, discontinue operations on 5.5 acres, and expand farming operations into an additional 622 acres of intertidal habitats. The additional area consists primarily of wetland habitats, including dense eelgrass (492 acres), patchy eelgrass (<85% cover; 108 acres), areas of unvegetated mudflat habitat (15.5 acres) and other habitats such as subtidal channels (6.5 acres). This Project would bring the operational footprint of CSF to a total of 916.5 acres.

As a trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection and management of fish, wildlife, and habitats necessary for biologically sustainable populations of those species (Fish and Game Code §1802). In this capacity, the Department administers the California Endangered Species Act, the Native Plant Protection Act, and other provisions of the California Fish and Game Code that afford protection to the State's fish and wildlife resources. The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act (MLPA) in coastal marine waters of California and is recognized as a "Trustee Agency" under the CEQA (Pub. Resources Code, § 21000 et seq.; hereafter CEQA; Cal. Code Regs., § 15000 et seq.; hereafter CEQA Guidelines). As a Trustee Agency, the Department is responsible for providing biological expertise to review and comment upon environmental documents and impacts arising from the Project activities (CEQA Guidelines, § 15386; Fish and G. Code, § 1802).

Project Impacts

The Department remains concerned the Project will result in significant impacts to Public Trust resources, including eelgrass and mudflat habitats, and species such as Pacific herring, shorebirds, salmonids, and waterfowl such as black brant and widgeon. While the DEIR includes discussion of many of the topics outlined in the Department's previous comments, it concludes that most Project activities result in impacts that are "less than significant" under CEQA. After careful review, the Department finds that these conclusions are not well supported by the analyses provided in the DEIR and is concerned the mitigation proposed in the DEIR is insufficient given the size, scale and potential impacts of the Project. The Department's previous comments and recommendations to date remain applicable to the current Project as described in the DEIR. In addition, pursuant to our jurisdiction, the Department offers the following comments and recommendations regarding the Project.

2007 CEQA Findings

The findings and mitigation requirements from the 2007 CEQA process is not addressed in the DEIR. The January 2007 Mitigated Negative Declaration adopted by the HBHD states that CSF's cultured acres be reduced from 500 to 300 acres as a "primary mitigation measure for the potential adverse impacts to biological resources" (page 3-12) for impacts from the 300 acre footprint (HBHD 2007). This reduction in acreage was used to reduce impacts to a level of less than significant. Of the 200 acres identified for mitigation in 2007, CSF is proposing to culture 150 of those acres as part of the proposed expansion Project thus negating the mitigation identified for the existing 300 acre footprint. Mitigation for continuing impacts from the majority of the existing 300 acre footprint has not been accounted for in the DEIR, and no mitigation has been included to address the wetland habitat lost or impacted due to existing operations. This does not meet the State's no-net loss for wetlands policy, as the proposed Project does not provide mitigation for all impacted acreage. The Department recommends that the FEIR include a comprehensive discussion of compensatory mitigation for impacts from existing operations.

Project Impacts to Eelgrass and Mudflat Habitats

The impacts from aquaculture to eelgrass and mudflat habitats are well documented in the literature and include impacts from shading, trampling, sedimentation and erosion, anchoring, and boat scarring, as well as biodeposition from psuedofaeces and feces, among others (see citations herein and Department comments and citations dated February 27, 2015 and September 23, 2015). Specifically, a variety of studies have also shown eelgrass plants are impacted by off bottom culture practices (Everett et al. 1995; Rumrill and Poulton 2004; Rumrill 2015; Tallis et al. 2009; Wisehart et al. 2007). Everett et al. (1995) showed a 75% reduction in eelgrass cover under rack culture after 9 months, and significant losses in eelgrass density and percent cover over the course of the study for both rack and stake culture. Tallis et al. 2009 also showed large reductions in eelgrass density, growth rates, biomass and production in areas with

longline culture as compared to reference areas. Rumrill showed a reduction in eelgrass density of 53 to 94% as compared to reference plots for longline areas spaced at 5 feet in Humboldt Bay (Rumrill and Poulton 2004; Rumrill 2015). Despite the numerous scientific studies demonstrating the potential for impacts, the DEIR concludes that impacts to eelgrass will be "less than significant" under CEQA. The Department is concerned that the evaluation does not sufficiently address the potential impacts to eelgrass and mudflat habitats, or provides a scientific justification for a finding of less than significant impact under CEQA.

The impact analysis should consider non-lethal impacts to eelgrass. Eelgrass utilizes the water column and benthic habitats throughout its life cycle and a reduction in turions (buds) can indicate poor health of the plant (Ochieng et al. 2010). Trampling can cause breakage of rhizomes (Alexandre et al. 2005; Eckrich & Holmquist 2000; Milazzo et al. 2002; Skilleter et al. 2006; Travaille et al. 2015). This in conjunction with shading impacts can reduce the below ground biomass available to the plant and is likely to reduce the fitness of individual plants, leaving them more vulnerable to stressors such as prolonged turbidity events, disease, warm water events, and desiccation (Bergmann et al. 2010; Bjork et al. 2008; Bjork et al. 2009; Campbell et al. 2006; Carr et al. 2011; Ehlers et al. 2008; Johnson et al. 2003; Orth et al. 2006; Waycott et al. 2009). As discussed in the Department's September 23, 2015 letter, intact healthy native ecosystems are more resilient and facilitate natural processes and assemblages.

The DEIR states that impacts to eelgrass will only occur directly underneath the longlines, with a 47% decrease in turions within a 0.5 ft. wide area directly underneath cultch lines, and a 70% decrease in turions within a 0.9 ft. wide area directly underneath basket lines. However, it is well established that losses in eelgrass density from aquaculture gear occur throughout the cultured plots, not just within the area directly below oyster lines (Everett et al. 1995; Rumrill and Poulton 2004; Tallis et al. 2009; Wisehart et al. 2007). By restricting the analysis to a narrow area directly underneath the lines, the DEIR is likely underestimating the extent of eelgrass impacts throughout the Project area. Given impacts to eelgrass extend beyond the narrow area directly beneath the longline gear, the Department recommends this be reflected in the eelgrass impacts analysis in the FEIR.

The Department is concerned that the average decrease in eelgrass density from longlines used in the DEIR analysis (i.e. 47% under cultch lines) is much lower than reported in the scientific literature (Everett et al. 1995; Rumrill and Poulton 2004; Rumrill 2015; Tallis et al. 2009; Wisehart et al. 2007). The basis for selecting this value (i.e. 47% under cultch lines), is not well described in the DEIR, and does not appear to be representative of available data (see citations above). Use of this value may further underrepresent the extent of impacts to eelgrass from the proposed Project.

Finally, while the eelgrass impact analysis discusses several sources of potential impacts raised in the Department's previous comment letters, such as trampling, shading, sedimentation, anchoring and boat use, the conclusions are not well supported Other potential impacts previously raised by the Department, such as erosion caused by

aquaculture gear, placement of bushel tubs on eelgrass and mudflats, and mechanical abrasion from culturing activities have not been addressed in the DEIR. The DEIR also does not provide an estimate of the cumulative impacts of the Project on wetland habitat or habitat values including the plants, benthos, water column and the species utilizing those areas over the life of the proposed Project (as described in: Dubois et al. 2007; Dumbauld et al. 2009; Fahrig 2003; Ferriss et al. 2015; Filgueira et al. 2015; Forrest et al. 2009; Forrest & Creese 2006; Gallardi 2014; Nugues et al. 1996; Simenstad and Fresh 1995; Skilleter et al. 2006; Wisehart et al. 2007).

The California Fish and Game Commission's wetland policy "stresses the need to compensate for the loss of wetland habitat on an acre-for-acre basis" and states that, "for every acre of wetland lost, no less than an acre of wetland must be created from non-wetland habitat" (Fish and Game Commission as amended 2005). The Project activities will potentially affect aspects of all 622 acres proposed for expansion (see citations herein and Department comments and citations dated February 27, 2015 and September 23, 2015). These impacts will constitute a loss of "habitat and habitat values" throughout the Project area and the Department recommends the FEIR include a comprehensive discussion on compensatory mitigation for all 622 acres of expansion plus any acreage from the existing 300 acres (see Section: "2007 CEQA Findings" above).

Proposed Mitigation

As outlined above, the Department finds the impact assessment for eelgrass potentially underestimates impacts to eelgrass and mudflat habitats. As such, it is not possible to comprehensively evaluate the proposed mitigation because the impacts are not fully described or quantified in the DEIR. That said, the Department offers the following comments on the seed buoys as mitigation.

Seed Buoys
The DEIR identifies the use of seed buoys to mitigate for impacts to eelgrass habitat. The use of seed buoys or transplanting of plants into bay waters would only be appropriate to hasten the colonization of eelgrass into areas otherwise modified for eelgrass recruitment. For example, if an area was altered to be more favorable for eelgrass growth through debris removal or inundation of areas currently cut off from bay waters, the use of seed buoys may be appropriate to help eelgrass colonize areas more quickly. The use of seed buoys as described in the DEIR is unlikely to provide much, if any, measureable or attributable increase in eelgrass in the treated areas. The Department recommends that other in-kind options for mitigation of eelgrass habitat be included in the FEIR after a more thorough eelgrass impact analysis has been completed.

Herring

Numerous comments have been provided to the Lead Agency and CSF regarding potentially significant impacts to Pacific herring caused by placing aquaculture

infrastructure within core herring spawning areas, including: loss of native eelgrass habitat, increased desiccation of eggs deposited on aquaculture gear, differential survival of eggs deposited on artificial substrates (aquaculture gear), and changes in fish community structure within core herring spawning areas that may increase predation of eggs and early larval herring.

The Department is concerned that, although the DEIR determines impacts to Pacific herring will be less than significant under CEQA, no substantive information is provided to support this determination. Herring have been documented spawning in eelgrass beds in the vicinity of the East Bay Management Unit, through Department surveys and annual fishing logs from commercial herring fishermen. While there is eelgrass available outside of this area, herring do not use it the majority of the time (CDFW data). The reasons for herring spawning site fidelity are not known; however, it is assumed that long term use of a site reflects selection of highly suitable environmental criteria. Given the lack of substantive information provided regarding possible long term impacts to herring in the core spawning area of Humboldt Bay, and the importance of this species as food for a variety of species from marine mammals to salmonids to birds (Bayer 1980; Hunt et al. 1999; Lassuy 1989; Lok et al. 2012; Moffitt 1933; Moffitt 1939; Willson and Womble 2006), the Department recommends that the Project avoid this area.

Artificial Substrate

The Department is concerned that spawning on non-natural substrates may lead to significantly reduced survival of herring eggs. Palsson (1984) found that "larval production was at least 7 times less in the most effective artificial substratum compared to the larval production rates from natural substrata". However, the DEIR characterizes these results as "egg survival rates were somewhat lower on artificial substrates than on adjacent natural substrata". The DEIR also notes that Hourston et al. (1984) found no differences in egg viability between one type of artificial substrate and numerous natural substrates, but failed to specify that this work was conducted under laboratory conditions which have implications for how the results can be interpreted. Few field studies have been conducted on survival of herring eggs on artificial substrates. However, the studies that have been performed (as summarized in Palsson 1984) show mixed results ranging from significantly decreased survival compared to natural substrates to similar survival as natural substrates. In conclusion, the best available information suggests that herring eggs spawned on artificial substrate may have significantly decreased survival compared to natural substrates, and there is little basis for determining this risk does not apply to the proposed Project.

Desiccation

The DEIR references an 'exposure elevation analysis of aquaculture gear' citing Wagschal, pers. comm., 2015. However, no supporting information was provided. As such, it is not possible for the Department to determine the validity of the results. Based on this analysis, air exposure of eggs deposited on aquaculture gear was estimated to increase by approximately 11%. However, without defining the tidal regimes under which the analysis was conducted, and without providing information on exposure times

of herring eggs deposited on eelgrass at the same locations as the aquaculture gear, the results of the exposure analysis are not useful. Further, the DEIR states that "increased mortality due to desiccation is likely to be offset by reduced predation pressure from invertebrates and fish during high tide". The Department acknowledges that mortality from invertebrates and fish can be an important source of mortality for herring eggs. However, with no information on desiccation mortality or invertebrate and fish predation of herring eggs in Humboldt Bay, the assertion cannot be verified. Further, this statement does not take into consideration increased avian predation, which can be significant (e.g. Rooper and Haldorson, 2000), particularly by opportunistic species such as gulls. As such, the Department is concerned the DEIR does not include sufficient information to reasonably conclude increased desiccation of herring eggs on oyster gear will not result in increased mortality.

Black Brant

Black brant, *Branta bernicla nigricans*, are a species of waterfowl that are important for hunting and are also considered a species of special concern in California (see citations herein and Department comments and citations dated February 27, 2015 and September 23, 2015). The reliance of brant on eelgrass for food makes them highly vulnerable to fluctuations in the quality of this habitat (Ganter 2000; Moore et al. 2004; Shuford and Gardali 2008). In addition, brant are some of the most sensitive waterfowl to disturbance and have among the largest escape distances (ED), defined as: "*the shortest distance at which birds flush when a person or another disturbing stimulus approaches*", with brant ED at a maximum of 1000m (Laursen et al 2005; Pacific Flyway Council 2002). In addition, Stillman et al. (2015) found that small decreases in eelgrass abundance and small increases in disturbance can have population-level consequences, and it was also found that any reduction in eelgrass within Humboldt Bay could adversely affect the successful migration of birds through the site.

The DEIR does not adequately address impacts to black brant from Project activities (Sections 6.5 of the DEIR & the Avian Resources Technical Report). The Department requested in our September 23, 2015 letter, that cumulative impacts from both a loss of food (eelgrass) and an increase in disturbance resulting from the Project be quantified and evaluated. The DEIR does not adequately address or quantify the impacts from the increase in disturbance to brant and other waterfowl from Project activities. While the analysis from Stillman et al. (2015) indicates increases in disturbance as little as 10% can increase the stopover duration for brant, the DEIR does not find the estimated 24% increase in boat trips, the 34% increase in the number of crew, and the 26% increase in the number of boat hours per week, from the proposed Project will result in a significant impact.

The Department recommends the FEIR include a quantitative analysis of both the loss of eelgrass and the increase in disturbance, and the quantitative impacts to brant when both a loss of food and an increase in disturbance occur cumulatively and simultaneously. This quantitative analysis should also include cumulative impacts (loss of eelgrass and increase in disturbance) from the HBHD's proposed pre-permitting

project. To ensure estimates cover the range of disturbance likely to occur from the pre-permitting project, disturbance estimates should be based on visitation estimates from the rack and bag culture (HBHD DEIR 2015; p. 24).

In addition, the mitigation measures proposed in the DEIR for impacts to black brant (Impact BIO-25) included in BIO-3 (*Coast will maintain a maximum longline height of 1-ft above the surface or lower for cultch-on-longline and 40-inches above the surface or lower for basket on-longline culture*) are not likely to reduce impacts below the threshold of significance since black brant stop feeding once the gear is exposed. The Department recommends that additional mitigation measures be included in the FEIR to reduce impacts to brant to a level of less than significant from loss of food, increases in disturbance, and gear displacement.

Waterfowl Hunting

The Department agrees with the conclusion in the DEIR that recreational hunting may be impacted by Project activities. To reduce impacts to less than significant, the DEIR proposes Conservation Measure REC-1 which includes the avoidance of an identified area in the East Bay Management Area from midnight until sunset, from November 15th to December 15th on Wednesdays, Saturdays and Sundays. The Department supports the effort to minimize impacts to the brant hunting community and has the following comments regarding the Conservation Measure (REC-1) identified in the DEIR:

- Expand the measure to incorporate all days brant hunting is open in north Humboldt Bay, including Wednesdays, Saturdays, Sundays, state holidays, and the opening and closing days. Also, the brant hunting season is sometimes longer than 30 days; for example, the 2015 season was extended to 37 days. Thus, the entire season should be included in the conservation measure.
- Modify the area of exclusion to accurately reflect the areas hunted by boaters for brant in north Humboldt Bay.
- Include exclusion areas, days, and times for other boat-based waterfowl hunting activities that occur in north Humboldt Bay.

The DEIR includes Conservation Measure REC-2 that describes by December 1 of each year, CSF will submit to the HBHD a map describing the locations of each longline bed within its operational footprint. This measure is not likely to reduce impacts below the threshold of significance. Additional mitigation measures should be included in the FEIR to reduce impacts to recreational users to a level of less than significant.

As described in our September 23, 2015 letter, the Department also recommends the FEIR should discuss and analyze the potential:

- Decreases in the number of waterfowl available for harvest resulting from displacement;
- The loss of hunting opportunities for scull boaters due to physical obstruction of traditional hunting areas from aquaculture gear; and
- The increases in hazards to boaters (including skullers) and hunting dogs from aquaculture gear.

Shorebirds

The DEIR includes discussion of birds covered under the Federal and State's Endangered Species Acts and the State of California's list of species of special concern. However, the DEIR does not address impacts to the species listed as shorebirds of concern or listed on the US Fish and Wildlife Service's Birds of Conservation Concern (US Fish and Wildlife Service 2008; U.S. Shorebird Conservation Plan Partnership 2015). A multitude of the species included on these lists occur in north Humboldt Bay and are likely to be impacted from Project activities (see citations herein and Department comments and citations dated July 11, 2014, February 27, 2015 and September 23, 2015). Human disturbance and habitat destruction, specifically from oyster and shellfish farming, have been noted to have impacts to shorebird populations (Connolly and Colwell 2005; Hickey et al. 2003; Kelly et al. 1996; Pierce and Kerr 2004). Further, shellfish farming has been identified as a conservation issue for shorebirds in Humboldt Bay, and the further alteration of mudflats for oyster culture has been identified as a priority shorebird conservation goal for Humboldt Bay (Hickey et al. 2003). The FEIR should address the local and population level impacts to these species from Project activities and include mitigation measures to reduce impacts to a level of less than significant.

Alternatives

The Department recommends the HBHD consider additional alternatives that will create a Preferred Alternative to be included in the FEIR that will provide resource protection and adequate mitigation for impacts. The Department recommends creating a multi-agency Technical Advisory Panel to assist with this process.

Conclusion

The Department appreciates the opportunity to review and comment on the DEIR. As always, Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. For further information regarding hunting and waterfowl issues please contact Melanie Weaver, Senior Environmental Scientist, California Department of Fish and Wildlife, 1812 9th Street, Sacramento, CA 95811, phone (916) 445-3717, email Melanie.Weaver@wildlife.ca.gov; for other topics please contact Rebecca Garwood, Environmental Scientist, California Department of Fish and Wildlife, 619 2nd Street, Eureka, California, 95501, phone (707) 445-6456, and email Rebecca.Garwood@wildlife.ca.gov.

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2. CDFW Comment Letter. Initial Study for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project. February 27, 2015.
3. CDFW Comment Letter. Notice of Preparation of an Environmental Impact Report for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project (SCH# 2015082051). September 23, 2015.

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EDMUND G. BROWN JR., Governor
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September 23, 2015

Mr. Jack Crider
Chief Executive Officer
Humboldt Bay Harbor, Recreation and Conservation District
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Subject: Notice of Preparation of an Environmental Impact Report for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project (SCH# 2015082051)

Dear Mr. Crider:

The California Department of Fish and Wildlife (Department) has reviewed the August 24, 2015 Notice of Preparation (NOP; State Clearinghouse # 2015082051) of a Draft Environmental Impact Report (DEIR) for the proposed Coast Seafoods Lease Renewal and Expansion Project (Project). The NOP also includes a revised Initial Study (IS), and a draft Eelgrass Impacts Analysis (EIA). The NOP was submitted by the Humboldt Bay Harbor, Recreation and Conservation District (HBHD) which is the lead agency. The Project proposes to continue Coast Seafoods Company's (CSF) existing operations on 294.5 acres, discontinue operations on 5.5 acres, and expand operations into an additional 622 acres of intertidal wetland habitats. The additional area consists primarily of wetland habitats, including dense eelgrass and areas of unvegetated mudflat habitat. This Project would bring the operational footprint of CSF to a total of 916.5 acres.

As a trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection and management of fish, wildlife, and habitats necessary for biologically sustainable populations of those species (Fish and G. Code §1802). In this capacity, the Department administers the California Endangered Species Act, the Native Plant Protection Act, and other provisions of the California Fish and Game Code that afford protection to the State's fish and wildlife resources. The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act (MLPA) in coastal marine waters of California and is recognized as a "Trustee Agency" under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.; hereafter CEQA; Cal. Code Regs., § 15000 et seq.; hereafter CEQA Guidelines). As a Trustee Agency, the Department is responsible for providing biological expertise to review and comment upon environmental documents and impacts arising from the Project activities (CEQA Guidelines, § 15386; Fish and G. Code, § 1802).

The Department reviewed the current NOP, IS and EIA and remains concerned the Project will have potentially significant impacts to Public Trust resources, including eelgrass and mudflat habitats, and species such as Pacific herring, salmon and steelhead, shorebirds, and waterfowl such as black brant and widgeon. Pursuant to our jurisdiction, the Department offers the following comments and recommendations regarding the Project.

California Endangered Species Act (CESA):
The CESA provides for the protection of rare, threatened, candidate and endangered plants and animals, and prohibits the taking of such species without authorization (Fish and Game Code Section 2050). The Department maintains a list of rare, threatened, and endangered plants and animals that can be found on the Department's web site: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/TEAnimals.pdf. The Department recommends including a full analysis of CESA listed species that may be in the Project area and potential impacts in the DEIR. Adverse impacts from the Project leading to take of CESA listed species would require take authorization from the Department according to Fish and Game Code §2081.

Biological Significance
Humboldt Bay is California's second largest bay, and the largest estuary on the Pacific coast between San Francisco Bay and Coos Bay, Oregon. The marine and estuarine habitats of Humboldt Bay provide refuge and nursery habitat for more than 300 fish and invertebrate species, many with important commercial and recreational fisheries value. Numerous sensitive species, including some listed as threatened or endangered pursuant to CESA or the federal Endangered Species Act (ESA), and California species of special concern (SSC) occur in the Project area. The Department designates certain species as SSC due to declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction. Species that occur in the Project area and are protected under the CESA or ESA, or are designated as SSC, include:

- Black brant, *Branta bernicla nigricans*, State SSC;
- Chinook salmon, *Oncorhynchus tshawytscha*, federally-threatened (California Coastal ESU);
- Coastal cutthroat trout, *Oncorhynchus clarki clarki*, State SSC;
- Coho salmon, *Oncorhynchus kisutch*, State and federally-threatened (Southern Oregon/Northern California Coho (SONCC) Evolutionarily Significant Unit (ESU));
- Eulachon, *Thaleichthys pacificus,* federally-threatened (southern Distinct Population Segment (DPS));
- Green sturgeon, *Acipenser medirostris,* federally-threatened (southern DPS); State SSC (northern and southern DPS);
- Longfin smelt, *Spirinchus thaleichthys*, State-threatened;
- Pacific lamprey, *Entosphenus tridentatus*, State SSC;
- Steelhead, *Oncorhynchus mykiss*, federally-threatened (Northern California ESU); and
- White sturgeon, *Acipenser transmontanus*, State SSC.

Humboldt Bay is an internationally important site for overwintering and seasonally migrating shorebirds (Colwell 1994; Hickey et al. 2003; Page et al. 2003). Depending on the season, up to 100,000 shorebirds reside in Humboldt Bay, with the bay listed as an Important Bird Area (IBA) by the Audubon Society and an International Site in the Western Hemisphere Shorebird Reserve Network (Schlosser and Eicher 2012). At least 24 species of shorebirds including American avocets, sandpipers, dowitchers, plovers, godwits and dunlin utilize Humboldt Bay mudflat habitats for feeding, resting and/or roosting (Danufsky and Colwell 2003; Dodd and Colwell 1998; Evans and Harris 1994; Long and Ralph 2001). Of these shorebirds, two thirds are listed as shorebirds of concern, or on the US Fish and Wildlife Service's Birds of Conservation Concern list (US Fish and Wildlife Service 2008; US Shorebird Conservation Plan Partnership 2015).

Department letter dated February 27, 2015

In January 2015, the HBHD distributed a draft IS for the Project. The Project, as proposed in the current NOP and IS, contains few changes from the Project described in the January 2015 document. The Department commented on the proposed Project in December and February 2015, in early consultation meetings, and again in a letter dated February 27, 2015 (attached). The Department's comments and recommendations identified in the February 27, 2015, comment letter remain applicable to the current Project as described in the NOP. In addition to the comments provided here, we recommend CSF fully address the comments and recommendations included in the February 27, 2015 letter from the Department in the DEIR.

Comprehensive Project Description

Several important aspects of the Project have not been fully described. This limits the Department's ability to evaluate the potential to impact trustee resources and associated wetlands. The Department recommends the project description in the DEIR include a comprehensive discussion of the following:

- a description of the planting, inspection, maintenance/repair, and harvesting schedule for intertidal basket-on-longline culture;
- a description of how gear is placed into beds, the equipment required, the frequency it is replaced, and the methods of removal;
- the size, frequency and location (mid channel, margin, in eelgrass or outside of eelgrass) of all boat anchoring, including the practice of placing boats on mudflats/eelgrass beds for the duration of the low tide;
- a detailed description of what bushel tubs are, their dimensions, and where they are used and stored; and
- a description of the use of long PVC pipes to demark aquaculture sites.

Effects to Eelgrass Habitats (Bio-B)

As described in the IS and our attached comment letter dated February 27, 2015, eelgrass provides a variety of ecological services including nursery habitat for a variety of fish and invertebrate species. Many of the species are both recreationally and commercially important. Other ecological services include: a source of food for waterfowl and invertebrates, buffering ocean acidification, nutrient cycling and absorbing nutrients, storing organic matter and carbon sequestration, stabilizing

suspended sediments and buffering shorelines from erosion, increasing light attenuation, filtering contaminants, and producing dissolved oxygen (Bjork 2008; Orth et al. 2006; Waycott et al. 2009).

The Department agrees with the conclusions of the IS that the Project may result in potentially significant impacts to eelgrass habitat that should be further evaluated in the DEIR. Under the Department's "no net loss" wetlands policy, eelgrass is protected for its habitat and habitat values. The Department remains concerned the Project could eliminate or significantly degrade existing eelgrass habitat through harvesting, maintenance and replanting activities. These activities include: trampling, anchoring of boats, placement of aquaculture gear including harvesting baskets, shading by aquaculture gear and related equipment, sedimentation, biodeposition of psuedofaeces and feces, and boat and propeller scaring. These types of impacts from aquaculture operations have been well documented in the literature (Bouchet & Sauriau 2008; Castel et al. 1989; Chandrasekara & Frid 1996; Dealteris et al. 2004; Dubois et al. 2007; Forrest & Creese 2006; Francour et al. 1999; Leguerrier et al. 2004; Milazzo et al. 2004; Nugues et al. 1996; and as reviewed in: Forrest et al. 2009; Rossi et al. 2007; Zieman 1976; and as discussed in: Milazzo et al. 2002). Additional impacts may include: reduction of floating eelgrass rafts used by larval fish and reduction of available beach wrack near the entrance to Humboldt Bay and associated species from local beaches (Castro et al. 2002; Colombini et al. 2003 and citations therein; Dempster & Kingsford 2004; Heck et al 2008; Orr et al. 2005; Thiel & Gutow 2005).

The IS does not address potentially significant impacts to eelgrass from habitat alteration and fragmentation caused by aquaculture gear. Research has found that intact natural habitats function differently, and are more resilient than altered, degraded, or fragmented habitats (Robinson et al. 1992; Harrison & Bruna 1999; Wilcove et al. 1986; Wilcox 1985). In addition, estuarine and nearshore artificial habitats have been shown to be "poor surrogates" for natural habitats, as they support different assemblages of fish and invertebrates, facilitate establishment of non-native species, and do not function or provide the equivalent ecological services provided by natural habitat (Bulleri & Chapman 2004 & 2010; Glasby et al. 2007; Moschella et al. 2005). Similarly, the addition of aquaculture gear in eelgrass habitat will alter the vertical and horizontal structure of the habitat. This modification of structure will likely attract a different composition of fish and invertebrate species, while displacing others due to changes in habitat suitability or food availability (Erbland & Ozbay 2008; Pinnix et al. 2005; Tallman & Forrester 2007). The types of impacts referenced above could directly change the habitat and species composition at the altered site, but is likely to also have impacts that extend into the adjacent "intact" habitat (Forrest & Creese 2006; Tanner 2005; Warry et al. 2009). Forrest & Creese (2006) documented that evidence of disturbance from aquaculture activities was detected at a distance of >20 meters from the perimeter of the aquaculture operations.

The Department recommends the DEIR describe and quantify potentially significant impacts to eelgrass and eelgrass habitat as referenced above. Specifically, potential impacts from placement of gear, planting, maintenance and harvesting activities,

trampling, boat routes and anchoring sites, shading, sedimentation, alteration and fragmentation, and loss of habitat and detrital food web sources from floating eelgrass rafts and beach wrack should be evaluated.

Further, the Department recommends the DEIR include a comprehensive discussion of alternatives that minimize impacts to eelgrass including the placement of all aquaculture gear outside of eelgrass areas while incorporating a buffer between eelgrass habitats and new aquaculture apparatus. Consistent with the Department's recommendations to the Fish and Game Commission for state-managed aquaculture leases, we recommend that the DEIR incorporate the 10 ft. buffer as a major avoidance and minimization measure for impacts to eelgrass.

Effects to Wetlands (Bio-C)
The IS states there will not be significant impacts to wetlands other than eelgrass. However, the proposed Project includes four acres of intertidal rack and bag culture proposed on unvegetated mudflats. The Department is concerned the proposed Project may result in significant impacts to mudflats. For example, Project impacts to existing mudflat habitat may change the composition of infauna, alter the elevation of the habitat through sedimentation and erosion, change the availability of food through a reduction or modification of prey for shorebirds and fish species, and reduce foraging areas for species such as shorebirds, bat rays, green and white sturgeon, and longfin smelt (Blackmon et al. 2006; Chigbu and Sibley 1998; Dumbauld et al. 2008; Feyrer et al. 2003; Gray et al. 1997; Hobbs et al. 2006; Kelly et al. 2007; MacGinitie 1935; Matern et al. 2000; Moyle 2002; Talent 1982).

In addition, to fully assess impacts to mudflat habitat the Department recommends the DEIR include the following:

- an evaluation of the possible impacts to mudflat habitat from changes in elevation caused by altered erosion and deposition processes;
- an assessment of possible changes to infauna composition and the subsequent impacts to shorebird and fish food resources; and
- an analysis of the reduction in foraging areas for shorebirds and fish species, such as bat rays, sturgeon and longfin smelt.

Effects to Wintering and Migrating Shorebird Populations (Bio-D1), Effects to Marine Mammals (Bio-D3), and Effects to Black Brant (Bio-D4)
The Department agrees with the IS conclusion that the Project may have potentially significant impacts to wintering and migrating shorebird populations, black brant, and marine mammals. The IS indicates these impacts will be evaluated in the DEIR. However, the Department notes the IS does not identify potential impacts from disturbance as requiring further assessment in the DEIR.

Waterfowl respond to both loud noises and rapid movements such as boats powered by outboard motors, and to visible features such as human presence. Project activities that may cause potentially significant impacts to shorebirds, waterfowl, and marine mammals from disturbance include boat traffic, and human activities associated with

shellfish culture. Schmidt (1999) documented that "small boats associated with oyster culturing activities" disturbed black brant in North Humboldt Bay. He observed these disturbances were usually caused by the first boat of the day, but that disturbed black brant did not return until late evening. Schmidt (1999) also noted that although minor individual disturbances might not illicit a disturbance response, frequent minor disturbances may cause disturbance responses in black brant.

Human disturbance to shorebirds, waterfowl, and marine mammals can include indirect disruption of normal activity patterns such as feeding, resting, roosting, or nesting (as discussed in Colwell 2010). Impacts from disturbance to shorebirds, waterfowl, and marine mammals have been well documented. Disturbances displace animals from feeding and resting areas (Lafferty 2001a & 2001b; Yasué 2005), increase energetic costs (Clausen et al. 2013; Drent et al. 2003; Korschgen et al. 1985; Schummer & Eddleman 2003; Stillman et al. 2015; Zimmer et al. 2010), and may lower productivity or reproductive success (Pfister et al. 1992; Robert & Ralph 1975). For example, migratory and wintering waterfowl generally attempt to minimize the time spent flying and maximize time spent feeding. This is especially true for black brant as eelgrass is relatively nutrient poor and is restricted by tidal access (Moore & Black 2006). As noted in Korschgen & Dahlgren (1992), flying requires considerably more energy than any other activity except egg laying. Furthermore, human disturbance can result in waterfowl changing feeding habits, losing weight, or deserting the feeding area (Korschgen & Dahlgren 1992). Persistent and repeated disturbances can preclude an animal's access to preferred feeding habitats and deplete fat reserves (Drent et al. 2003). In addition, numerous small disturbances have been shown to have a greater detrimental effect than a few large disturbances on annual mortality and population size (West et al. 2002). It has also been shown that indirect impacts also occur to non-disturbed individuals as competitor density increases in undisturbed feeding areas (West et al. 2002).

The Department recommends the DEIR assess the potentially significant impacts of disturbance to shorebirds, waterfowl, and marine mammals by quantifying the increase in the number and magnitude of disturbance events, over a range of temporal scales (e.g., day, week, month, year), from boat traffic and human activities from the Project. The analysis should incorporate published buffer distances for each species potentially impacted (e.g., Laursen et al. 2005; Borgmann 2010), the number, pathway, and duration of boat trips, and the number and location of personnel in North Bay. A model such as the one described in Stillman et al. (2015), could be used to estimate possible changes in stopover duration and weight accumulation per day due to disturbance.

In addition, the DEIR should assess potential impacts from cumulative increases in disturbance from other current and proposed bay activities, such as the HBHD Pre-Permitting Project. The proposed HBHD Project would include permitting 527 acres of intertidal habitat and 21 acres of subtidal habitat for new aquaculture operations. Intertidal operations would include cultch on longline, rack and bag, and basket on longlines. Further, potential cumulative impacts from the relationship between

disturbance events and loss of food resources, which may occur simultaneously, should be evaluated for shorebirds and waterfowl.

Effects to Pacific Herring (Bio-D2)

The Department supports the conclusion stated in the IS that the Project may cause potentially significant impacts to Pacific herring, which should be evaluated in the DEIR. Little work has focused on establishing direct linkages between nearshore habitat and herring, such as the effects of habitat on egg survivorship (Shelton et al. 2014). As noted in the Department's previous comment letter dated February 27, 2015, there is considerable uncertainty about the survivorship of herring eggs deposited on aquaculture gear relative to natural vegetated substrates. Palsson (1984) evaluated egg survivorship on several types of artificial substrate (including: polypropylene and hemp rope, polyethylene netting, tubing and turf mats, and plastic sheeting) deployed within natural eelgrass habitat. Overall, total survival and larval production was significantly lower for the artificial substrates compared to natural eelgrass spawning substrate. While the artificial substrate evaluated by Palsson (1984) was not aquaculture gear, there are some similarities. Primarily, this study serves to highlight that spawning on non-natural substrates may lead to significantly reduced survival of herring eggs through both egg loss (eggs displaced from substrate) and egg death (non-viability of eggs). The Department is concerned a large scale shift in the type of spawning substrate available to herring in the core eelgrass spawning areas of Humboldt Bay could have impacts on spawning success and negatively impact the population.

Desiccation has also been shown to be a significant cause of mortality for intertidally spawned herring eggs (Steinfield 1971; Jones 1972; Palsson 1984; Rooper et al. 1999). The static nature of longline aquaculture gear relative to tidal stage could increase exposure time of herring eggs and therefore increase desiccation compared to eggs deposited on eelgrass substrate. In addition, to the uncertainty of spawning success on aquaculture gear, the alteration of habitat structure caused by longlines may change fish community composition (Pinnix et al. 2005). This may potentially increase predation on larval and juvenile herring in important nursery habitat areas (Johnson et al. 2003). The Department recommends the DEIR include an analysis of Project impacts to Pacific herring from desiccation and increases in predation resulting from changes in fish community composition.

Effects to Black Brant (Bio-D4)

The Department concurs with the conclusion of the IS that there may be a significant impact to black brant that requires further evaluation in the DEIR. The IS describes a population shift from South Bay to North Bay during the most recent 2015 annual surveys. However, it should be noted that this trend has been observed since 2012, with as much as 76% of the black brant population observed using North Bay during some surveys (Pia Gabriel per comm. USFWS Humboldt Bay Refuge).

In addition to scientific evidence provided in the Department's comment letter dated February 27, 2015, regarding potential impacts to black brant, a recent paper by

Stillman et al. (2015), found that small changes in eelgrass abundance and disturbance can have large increases in the stopover duration and large decreases in the amount of weight black brant gain per day.

The Department recommends the DEIR include a discussion that quantifies and evaluates the following:

- the loss of eelgrass food resources and its impact on black brant;
- the potential impacts of the Project on foraging opportunities for black brant;
- the percent increase in disturbance from the Project and its potential impact on black brant;
- the cumulative impact of both a loss of food and increase in disturbance occurring at the same time; and
- the impacts from reduced food resources and increased disturbance with the potential cumulative impacts from the HBHD pre-permitting project.

Effects to Recreation (Rec-A)

Humboldt Bay is an important location for waterfowl hunting, recreational fishing, wildlife observations, and boating opportunities. The Bay provides hunting opportunities in North and South Bay for over 20 species of ducks and geese. The Department concurs with the determination in the IS that the Project may have potential impacts to recreational activities and recommends the DEIR includes analysis of Project impacts to waterfowl hunting, including:

- decreases in waterfowl available for harvest;
- the loss of hunting opportunities due to disturbance from boats and aquaculture personnel;
- the loss of hunting opportunities due to physical obstruction of traditional hunting areas and scull boat tacks; and
- increases in hazards to boaters (including skullers) and hunting dogs from aquaculture gear.

The Department also recommends the DEIR include and analysis of Project impacts to recreational fishing, wildlife observing and boating.

Effects to Salmon and Trout

The IS does not address impacts from the Project on salmon and trout species. The Department is concerned there may be potentially significant impacts to salmon and trout from the Project. Humboldt Bay and its tributaries support coho salmon, Chinook salmon, steelhead trout and sea-run coastal cutthroat trout (Gleason et al. 2004; Ricker et al. 2014; Wallace 2015). The population of federal and state listed coho salmon within the Humboldt Bay area is considered a “core” population for the SONCC ESU and has the highest “Biological Importance” score for southern coastal populations of this ESU (NMFS 2014). These populations have also been on the decline (NMFS 2014). Consequently, these populations receive significant federal and state investments to support their conservation and recovery.

Use of estuarine habitats by salmon and trout has been well documented throughout the Pacific Northwest, as well as in Humboldt Bay (Chamberlain & Barnhart 1993; CICORE unpublished data; DeGeorges 1972; Garwood et al. 2013; Gleason et. al 2004; Healey 1982; Johnson et al. 2003; Jones et al. 2014; Pinnix et al. 2013; Samuelson 1973; Thorpe 1994; Waldvogel 1977). Juvenile salmon and steelhead use eelgrass as a refuge from predators and to feed on epibenthic and epiphytic zooplankton, including copepods and amphipods that in turn feed on the bacteria from decaying eelgrass (Healey 1979; Healey 1982; Levings 1985; Thorpe 1994; Webb 1991). Eelgrass also provides habitat for sand lance, surf smelt, and Pacific herring, all of which are important food items for juvenile and adult salmon (Garwood et al. 2013; Sopher 1974).

The Project may significantly impact the salmon and trout populations of Humboldt Bay by potentially reducing and altering eelgrass habitat that provides foraging and refuge areas (Healey 1979; Healey 1982; Levings 1985). Changes in habitat structure caused by the addition of aquaculture gear may alter fish community assemblages which could increase direct predation on outmigrating smolts (Erbland & Ozbay 2008; Leitao et al. 2008; Pinnix et al. 2005; Tallman & Forrester 2007).

The Department recommends that potential significant impacts to salmonids and salmonid habitat should be evaluated in DEIR. The discussion is recommended to include the following:

- an assessment of cumulative impacts on salmon and trout species from existing operations, the Project, and the HBHD Pre-permitting project;
- an estimate of the number of salmon and trout impacted by the reduction of eelgrass and increase of predation as a result of the Project to Humboldt Bay and its tributaries; and
- an estimate of population level impacts to the four salmon and trout species.

Thresholds of Significance

The EIA states the threshold of significance proposed for the DEIR for impacts to eelgrass will be a >30% change in areal extent or a >25% change in eelgrass density at the landscape scale (100m to 10,000m). This threshold of significance does not meet the Department's definition of "no net loss" for wetland habitats. The Department recommends the DEIR include a threshold that meets the "no net loss" policy for all impacts to wetland habitats and habitat values with all impacts quantified to ensure compensatory mitigation on an acre-by-acre basis.

Compensatory Mitigation

The NOP indicates the mitigation proposed in the EIA is preliminary and will be revised. Currently, the EIA indicates the Project proposes to mitigate for unavoidable impacts by implementing one or a combination of the following: the deployment of eelgrass seed bags, creating out-of-kind salt marsh, or the restoration of upland habitat. However, the mitigation currently proposed does not meet the California Fish and Game Commission's "no net loss" policy for wetland habitats (FGC Policies as amended 2005). The policy indicates that mitigation should be in-kind on an acre for acre basis.

Specifically it states that out-of-kind mitigation is less desirable, “since it does little to provide assured benefit to those species which would be negatively impacted as a result of the development” (FGC Policies as amended 2005).

The IS and EIA do not include an estimate of eelgrass and mudflat wetland habitat acreage lost, degraded or damaged due to Project activities. Therefore, it is not possible to evaluate the adequacy of the mitigation proposed. To determine if the proposed mitigation is appropriate, the Department recommends the DEIR include a comprehensive discussion of an acre-by-acre analysis of eelgrass and mudflat wetland habitat impacted by the Project. We also recommend the DEIR include a discussion of the feasibility and timing of each mitigation alternative being proposed.

Monitoring
In addition to the avoidance, minimization and mitigation measures referenced throughout this letter, the Department recommends the development and implementation of ongoing annual monitoring sufficient to detect Project related changes and impacts to fish and wildlife resources that utilize Humboldt Bay. The Department recommends the DEIR include a discussion of a monitoring program adequate to determine Project impacts. The Department further recommends that CSF establish a multi-agency group to assist in the development of a comprehensive monitoring program. The Department would be able to participate in such a group. It should be noted that monitoring (while extremely important) does not constitute mitigation under CEQA.

Conclusion
The Department appreciates the opportunity to review and comment on the NOP, IS and the initial EIA. As always, Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. For further information regarding hunting and waterfowl issues please contact Melanie Weaver, Senior Environmental Scientist, California Department of Fish and Wildlife, 1812 9th Street, Sacramento, CA 95811, phone (916) 445-3717, email Melanie.Weaver@wildlife.ca.gov; for other topics please contact Rebecca Garwood, Environmental Scientist, California Department of Fish and Wildlife, 619 2nd Street, Eureka, California, 95501, phone (707) 445-6456, and email Rebecca.Garwood@wildlife.ca.gov.

Sincerely,

Craig Shuman, D Env.
Regional Manager
Marine Region

Attachment
CDFW Comment Letter. Initial Study for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project. February 27, 2015.

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February 27, 2015

Mr. Jack Crider
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Subject: Initial Study for the Coast Seafoods Company Humboldt Bay Shellfish Culture Permit Renewal and Expansion Project

Dear Mr. Crider:

The California Department of Fish and Wildlife (Department) has reviewed the Initial Study (IS) that describes the potential impacts of the Coast Seafoods Lease Renewal and Expansion Project (Project). The Department has also reviewed the attachments to the IS: "Coast Seafoods Shellfish Aquaculture and Eelgrass Ecological Review for Humboldt Bay" (CSF 2014), and the "Humboldt Bay Carrying Capacity Analysis" (H.T. Harvey & Associates 2014). The Project proposes to continue Coast Seafoods Company's (CSF) existing operations on 296 acres, discontinue operations on 6.6 acres, and expand operations into an additional 622 acres of intertidal mudflat wetland habitats, mostly consisting of dense eelgrass. This Project would bring the operational footprint of CSF to a total of 911 acres.

As a trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection and management of fish, wildlife, and habitats necessary for biologically sustainable populations of those species (Fish and G. Code §1802). In this capacity, the Department administers the California Endangered Species Act (CESA), the Native Plant Protection Act, and other provisions of the California Fish and Game Code that afford protection to the State's fish and wildlife resources. The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act (MLPA) in coastal marine waters of California and is recognized as a "Trustee Agency" under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.; hereafter CEQA; Cal. Code Regs., § 15000 et seq; hereafter CEQA Guidelines). As a Trustee Agency, the Department is responsible for providing biological expertise to review and comment upon environmental documents and impacts arising from Project activities (CEQA Guidelines, § 15386; Fish and G. Code, § 1802). Pursuant to our jurisdiction, the Department has the following comments and recommendations regarding the Project.

The Department reviewed the IS and attachments provided by CSF and are concerned the Project will have potentially significant impacts to Public Trust resources, including eelgrass and mudflat habitats, and species such as Pacific herring, shorebirds and waterfowl including black brant. The IS identified potentially significant impacts and proposed mitigation measures to reduce impacts to less than significant. However, the Department does not find the proposed mitigation measures adequate for bringing the potential impacts to a level of less than significant. In addition, the assessment of cumulative impacts was not adequately addressed and impacts are likely to be cumulatively considerable. As was stated in the Department's letter to the lead agency dated July 11, 2014, the Department recommends that an Environmental Impact Report (EIR) be completed for this Project to thoroughly evaluate possible impacts and associated avoidance, minimization, and if necessary, mitigation measures.

Biological Significance

Humboldt Bay is California's second largest bay, and the largest estuary on the Pacific coast between San Francisco Bay and Oregon's Coos Bay. The marine and estuarine habitats of Humboldt Bay provide refuge and nursery habitat for more than 300 fish and invertebrate species, many with important commercial and recreational fisheries value. Numerous sensitive species, including some listed as threatened or endangered pursuant to CESA or the federal Endangered Species Act (ESA), and California species of special concern (SSC) occur in the Project area. The Department designates certain species as SSC due to declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction. Species that occur in the Project area and are protected under the CESA and ESA, or are SSC, include:

- Coho salmon, *Oncorhynchus kisutch*, State and federally-threatened (Southern Oregon/ Northern California Evolutionarily Significant Unit (ESU));
- Chinook salmon, *Oncorhynchus tshawytscha*, federally-threatened (California Coastal ESU);
- Coastal cutthroat trout, *Oncorhynchus clarki clarki*, State SSC;
- Steelhead, *Oncorhynchus mykiss*, federally-threatened (Northern California ESU);
- Eulachon, *Thaleichthys pacificus,* federally-threatened (southern distinct population segment (DPS));
- Green sturgeon, *Acipenser medirostris,* State SSC; federally-threatened (southern DPS);
- Longfin smelt, *Spirinchus thaleichthys*, State-threatened; and
- Black brant, *Branta bernicla nigricans*, State SSC.

Previous Mitigation

The Project proposes to expand into locations previously utilized for mitigation for CSF operations (HBHD 2007). The Department recommends avoiding areas that were part of previous mitigation measures, or to fully mitigate for impacts to biological resources for CSF's existing 300 acre operational footprint prior to any additional expansion of acreage.

Eelgrass

Seagrass habitats are highly productive nearshore ecosystems that provide a variety of valuable functions, including supporting commercial and recreational fisheries, nutrient cycling and deposition of sediments (Barbier et al. 2011; Waycott et al. 2009). Eelgrass is a seagrass whose populations around the world have been in decline, with the disappearance of 29% of the known areal extent since 1879, and the rate of loss accelerating since 1990 (Waycott et al. 2009). The seagrasses, and the functions they provide, are threatened by a variety of impacts including aquaculture, coastal development, growing human populations, as well as by the impacts of climate change and ecological degradation (Bjork 2008; Orth et al. 2006; Waycott et al. 2009). Additionally, there is a growing body of evidence suggesting that seagrass beds, including eelgrass, and their associated sediments serve as globally important carbon sinks for atmospheric CO_2 (Duarte et al. 2005, Duarte et al. 2010, Fourqurean et al. 2012).

Impacts to Eelgrass. Eelgrass is considered Essential Fish Habitat under the federal Magnuson-Stevens Fishery Conservation and Management Act, as well as a Habitat Area of Particular Concern by the Pacific Fishery Management Council. The mudflat habitats that support eelgrass are also considered Special Aquatic Sites under the 404(b)(1) guidelines of the Federal Clean Water Act. Eelgrass and intertidal mudflat habitats are further protected under Federal and State "no-net-loss" policy for wetland habitats. In line with this policy, the Department recommends the proposed Project be revised to avoid impacts to eelgrass and mudflat habitats, and fully mitigate for any unavoidable impacts.

Significant impacts to eelgrass habitats from long line gear have been noted in Humboldt Bay. In 2009, an effort was completed to map the eelgrass resources of the Bay (Schlosser and Eicher 2012). This survey also noted the status of eelgrass in areas with aquaculture. In 2009, of the intertidal areas CSF utilized for aquaculture activities, 9% had dense eelgrass and 87% had patchy eelgrass. Utilizing data generated by Schlosser and Eicher (2012), and the habitat categorizations provided to the Department by CSF (Wagschal, per. comm., October 15, 2014 and January 26, 2015), it is estimated that of the areas utilized for aquaculture activities, 123 acres (47%) were categorized as having patchy eelgrass (<85% density) but were otherwise surrounded by areas of dense eelgrass. This lack of dense eelgrass in CSF's long-line aquaculture areas was also noted in the study by Rumrill and Poulton (2004). This study noted low percent cover of eelgrass (<15% cover) in areas commercially grown in lines spaced at 2.5 feet (ft.) (the current spacing utilized by CSF; CSF 2014), where nearby control areas had high percent cover (70 to 80%). Additionally, many of the aquaculture areas within the existing dense eelgrass area that CSF left fallow after 2005 have regrown into areas of dense eelgrass (Schlosser and Eicher 2012). Similar impacts from aquaculture gear and related activities would also be expected in expansion areas located in eelgrass.

Eelgrass Avoidance. The 1.5ft, 2.5ft., and 5 ft. spacing of long lines used in aquaculture operations have been shown to cause moderate to significant impacts to eelgrass

(Everett et al. 1995; Rumrill and Poulton 2004; Skinner et al. 2013; Skinner et al. 2014; Tallis et al. 2009). For example, of the long line spacing evaluated (1.5ft, 2.5ft., 5ft. and 10 ft.), by Rumrill and Poulton (2004) the 1.5 and 2.5 feet spacing showed a significant reduction in cover and density over time, as well as a reduction in plant length, width, and wet and dry weights. The 5 ft. spacing had 35 to45% coverage of eelgrass when compared to the reference stations, and the 10ft spacing was the most similar to the reference stations at 55 to 65% coverage. To avoid impacts to eelgrass habitats, the Department recommends the Project footprint incorporate a buffer between all eelgrass habitats and all new aquaculture apparatus. Consistent with the Department's recommendations to the Fish and Game Commission for aquaculture leases, we recommend that all eelgrass be avoided with a 10 ft. minimum buffer.

Black Brant

Black brant occur in Humboldt Bay as spring and fall migrant and winter visitors. Humboldt Bay is the fourth most utilized staging area in the Pacific Flyway for black brant, and has historically been the most important area in California for this species (Moore et al. 2004; Moore and Black 2006). Due in part to the health and size of eelgrass habitats found in the bay, Humboldt Bay provides the most important wintering and migration site in California for this species (Moffitt 1938; Pacific Flyway Council 2002). In spring 2001, it was estimated that Humboldt Bay held approximately 60% of the black brant population (Lee 2001). In addition to black brant, eelgrass has also been noted as the most important single food item to waterfowl that winter in Humboldt Bay (Yocum and Keller 1961). The reliance of Brant on eelgrass makes them highly vulnerable to fluctuations in the quality of this habitat (Moore et al. 2004; Pacific Flyway Council 2002; Ward et al. 2005; Wilson and Atkinson 1995). While habitat loss has been identified as a major threat to brant populations (Shuford and Gardali 2008), a variety of human activities, including aquaculture, have the potential for physically degrading eelgrass habitats (Pacific Flyway Council 2002; Wilson and Atkinson 1995). Aquaculture activities, including oyster operations, have specifically been noted to negatively affect eelgrass habitat and brant populations (Schmidt 1999; Shuford and Gardali 2008). Additionally, persistent human disturbance, such as occurs during aquaculture operations, could reduce the amount of time black brant utilize Humboldt Bay, and prevent populations from returning to historical levels (Moore and Black 2006).

The IS does not list the black brant as a Species of Special Concern in section Bio-A of the document. Additionally, while the document discusses potential impacts to black brant in section Bio-D4, it finds the impacts to be less than significant. The Department finds the proposed Project will impact approximately 24% of all habitats in north Bay between -0.5m and +0.5m (MLLW) (NOAA Coastal LiDAR data, 2012), as well as significantly impact eelgrass density and cover in Humboldt Bay. This large reduction in the sole food item black brant consumes would likely constitute a significant impact to the species. To reduce the impacts to black brant to less than significant, the Department recommends avoiding impacts to eelgrass habitats, minimizing habitat loss of mudflat habitats for roosting and resting, and minimizing impacts due to human disturbance.

Shorebirds

Humboldt Bay is an internationally important site for overwintering and seasonally migrating shorebirds (Colwell 1994; Hickey et al. 2003; Page et al. 2003). Depending on the season, up to 100,000 shorebirds reside in Humboldt Bay, with the Bay listed as an Important Bird Area (IBA) by the Audubon Society and an International Site in the Western Hemisphere Shorebird Reserve Network (Colwell 1994; Schlosser and Eicher 2012). At least 24 species of shorebirds including American avocets, sandpipers, dowitchers, plovers, godwits and dunlin utilize Humboldt Bay mudflat habitats for feeding, resting and/or roosting (Colwell, 1994; Danufsky and Colwell 2003; Dodd and Colwell 1998; Evans and Harris 1994; Long and Ralph 2001). Of these shorebirds, two thirds are listed as shorebirds of concern, or on the US Fish and Wildlife Service's Birds of Conservation Concern list (US Fish and Wildlife Service 2008; U.S. Shorebird Conservation Plan Partnership 2015). Various species of shorebirds utilize the many habitats available in the bay. Human disturbance and habitat destruction, specifically from oyster and shellfish farming, have been noted to have impacts to shorebird populations (Connolly and Colwell 2005; Hickey et al. 2003; Kelly et al. 1996; Pierce and Kerr 2004). Further, oyster and shellfish farming has been identified as a conservation issue for shorebirds in Humboldt Bay, and the restriction of further alteration of mudflats for oyster culture has been identified as a priority shorebird conservation goal for Humboldt Bay (Hickey et al. 2003). The impacts to shorebirds through increased disturbance and habitat loss may be significant, and the Department recommends avoidance, minimization and mitigation measures be developed to reduce the impacts to less than significant.

Pacific Herring (Herring)

Humboldt Bay is the third largest herring spawning site in California. Pacific herring, a forage species, are a critical component of coastal ecosystems in the NE Pacific Ocean (Cury et al. 2011, Pikitch et al. 2012). Along with other 'forage fish' species, herring serve as a vital link between lower and upper trophic levels. Herring are an important food source for economically valuable and federally listed salmonids (Hunt et al. 1999) and other piscivorous fish. A variety of birds, including black brant, surf scoters, scaup, buffleheads, and cormorants feed heavily on herring eggs during the winter, providing an important source of nutrition (Bayer 1980; Moffitt 1933; Moffitt 1939; Lok et al. 2012; Willson and Womble 2006). Herring eggs can make up a significant portion of the diet of the black brant during the spawning season, with herring eggs comprising 25% of prey volume consumed (Moffitt 1939). Marine mammal predators of herring include whales, seals and sea lions (Lassuy 1989).

Herring spawning grounds are typically located in sheltered locations such as bays, estuaries, and inlets. Spawning primarily occurs on vegetated substrates, although use of inorganic substrates, such as rock and pilings also occurs. The use of spawning sites can be variable; however, some herring spawning sites receive greater frequency and/or magnitude of use than other areas. Spawning sites that have a record of continued use are of significant importance to the population and should be prioritized for protection during development planning processes (Rabin and Barnhart 1986, Hay and McCarter 2014). Herring that enter Humboldt Bay spawn in several locations

throughout North Bay, and to a lesser extent in South Bay. Eelgrass beds in an area of North Bay, known as the East Bay Management Area (EBMA), have consistently been documented as the most important spawning beds in terms of both frequency and magnitude of use. Spawning surveys have been conducted during 12 years in Humboldt Bay, with herring spawning documented in the eelgrass beds of the EBMA 100% of the time (Rabin and Barnhart 1986; CDFW pers. comm. 2012). Spawning biomass estimates have been calculated during nine years in Humboldt Bay. A single eelgrass bed in the EBMA has accounted for a significant proportion of the Humboldt Bay total spawning biomass (47-91%) during six of the nine years surveyed (Rabin and Barnhart 1986; CDFW pers. comm. 2012).

The proposed CSF Project outlines significant expansion of operations in the EBMA area. The Department is concerned that potential impacts to eelgrass (outlined elsewhere in this document) in this area will significantly impact herring spawning habitat and have the potential to significantly impact the herring population. In addition, there is considerable uncertainty about the survival of herring eggs deposited on aquaculture gear relative to vegetated substrates, particularly with regard to the effects of desiccation, which has been shown to be a significant cause of mortality for inter-tidally spawned herring eggs (Steinfield 1971; Rooper et al. 1999). While intertidal spawning on hard structures does occur elsewhere within the range of Pacific herring, it has historically not occurred at any significant level in Humboldt Bay. The Department is concerned a large scale shift in the type of spawning substrate available to herring in the core spawning areas of the EBMA could have impacts on spawning success and negatively impact the population.

Longfin Smelt

Longfin smelt are listed as a threatened species in California and have been found throughout north Humboldt Bay, and as recently as December 2014 in the area off Indian Island (James Ray, CDFW, per. comm., December 2014; Sopher 1974; Pinnix et al. 2005; DeGeorges 1972; Chamberlain 1988; Wallace, CDFW, per. comm., December 2014). Longfin smelt feed on small invertebrates that can be found in large numbers in eelgrass habitats including copepods, gammarid amphipods and cumaceans (and as discussed in: Blackmon et al. 2006; see also: Chigbu and Sibley 1998; Feyrer et al. 2003; Hobbs et al. 2006; Moyle 2002). Large increases in non-native filter feeders have been shown to divert, “energy and nutrient flow from the primary consumers that longfin smelt eat” (as cited in Rosenfield and Baxter 2007; see also: Alpine and Cloern 1992; Feyrer 2003; Hobbs et al. 2006; Kimmerer 2002). This type of food shortage and fish species impact may occur given the size of the proposed Project expansion and has the potential to cause a significant impact.

Carrying Capacity

The IS includes an analysis of carrying capacity based on the model used by Gibbs (2007) (Section Bio-A6; H.T. Harvey & Associates 2014). Gibbs (2007) utilizes three ‘performance’ indicators including the clearance efficiency (CE) to determine the level of interaction between abundance of cultured species and the water column environment. The CE is the ratio between the number of days the water takes to clear an estuary and

the number of days it would take for cultured filter feeders to process all the water in the estuary (Gallardi 2014). Gibbs (2007) states that a CE of <0.05 would not induce significant impacts, while a value of 1.0 or greater indicate that filtering rates are greater than can be replenished by flushing. While the IS does not set a threshold level for significance, the reported estimated values for CE are 0.105 for existing aquaculture Projects. This estimate suggests that >10% of the available daily average phytoplankton is already being consumed by current aquaculture activities. The CE estimate is 0.741 for all projects, which approaches 75% of the available daily average phytoplankton. While a threshold for this indicator was not established in the IS, the information provided in the analysis as currently calculated suggests the proposed increase in shellfish culture could greatly reduce available food resources to native filter-feeding invertebrates in the Bay.

In addition, there are concerns with how the model was run in the H.T. Harvey & Associates 2014 document. The analysis utilized the total annual production of phytoplankton estimated for North Bay and calculated an average daily rate. Utilizing this number can potentially overestimate the amount of phytoplankton available in North Bay during times when phytoplankton levels are at their lowest. These times of phytoplankton minima are when non-cultured filter feeders are most vulnerable to loss of food by cultured animals. The Department recommends the model be re-run utilizing a value of phytoplankton abundance calculated by taking the “7 day average” of phytoplankton minima over a 10 year period in Humboldt Bay. This will provide a more useful estimate of the potential impacts of the Project on carrying capacity of the Bay. The Department also recommends the analysis include estimates of how carrying capacity is predicted to change as a result of climate change, including an estimate of error for the performance indicators provided, and include thresholds for significance for all the performance indicators reported.

Night Operations

Operations are proposed to occur on intertidal mudflats during the night. The Project proposes to utilize large lights to illuminate the tidal flats, as well as headlamps. As shorebirds are known to utilize intertidal areas at night, the use of lights during the night time operations could impact shorebirds utilizing Humboldt Bay (Dodd and Colwell 1996; Conklin et al. 2007). If night time operations are necessary, the Department recommends that CSF investigate mitigation measures that will reduce potential impacts to shorebirds to less than significant.

Reasonably Foreseeable Probable Future Projects

CEQA Guidelines state that all reasonably foreseeable probable future projects should be included in the evaluation of cumulative impacts (CEQA Guidelines § 15355). While the IS includes the current expansion project proposed by the Humboldt Bay Harbor, Recreation and Conservation District (HBHD), future CEQA documents should also include the additional proposed aquaculture expansion project announced by the HBHD CEO Jack Crider on January 29th, 2015 in Eureka, California. It was also recently reported that CSF was making plans to utilize an existing abandoned industrial site from

the HBHD (Times Standard February 2, 2015). Any future CEQA document should also include any plans for shore-based expansion related to the current proposed Project.

Cumulative Impacts

There are currently approximately 400 acres of intertidal aquaculture (from all sources) in Humboldt Bay and an additional 521 acres being proposed from the HBHD Expansion Project (in addition to the 622 proposed as part of the Project). Cumulatively these Projects would increase the number of acres used for aquaculture purposes in Humboldt Bay by 384% to approximately 1,530 acres. While the Project individually is expected to result in significant unavoidable impacts to the environment, the cumulative impacts from both proposed projects need to be thoroughly evaluated.

Conclusion

In an email dated January 23, 2015 George Williamson, the District Planner for the HBHD, stated the HBHD was, "requesting input regarding the Project's potential environmental effects and whether a Mitigated Negative Declaration or Environmental Impact Report should be prepared". As previously stated in our letter dated July 11, 2014 (attached), along with the concerns and comments provided in this letter, the Department concludes the proposed Project has the potential to cause significant impacts to the environment and resources of Humboldt Bay. Therefore, the Department recommends that an Environmental Impact Report be prepared to clearly identify potential impacts and alternatives to avoid, reduce, and/or mitigate for unavoidable impacts.

The Department appreciates the opportunity to review and comment on the Initial Study. As always, Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. For further information, please contact Rebecca Garwood, Environmental Scientist, California Department of Fish and Wildlife, 619 2nd Street, Eureka, California, 95501, phone (707) 445-6456, and email Rebecca.Garwood@wildlife.ca.gov.

Sincerely,

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Attachments: CDFW Comment Letter. Coast Seafood Company Renewal and Expansion of Aquaculture Operations in Humboldt Bay, CA. July 11, 2014**.**

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DEPARTMENT OF FISH AND WILDLIFE
Marine Region
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EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

July 11, 2014

Dan Berman
Director of Conservation
Humboldt Bay Harbor, Recreation and Conservation District
601 Startare Drive
Eureka, CA 95501

SUBJECT: COAST SEAFOOD COMPANY RENEWAL AND EXPANSION OF AQUACULTURE OPERATIONS IN HUMBOLDT BAY, CA

Dear Mr. Berman:

The California Department of Fish and Wildlife (Department) has reviewed the Humboldt Bay Harbor, Recreation and Conservation District's (HBHD) Notice of Application for the Coast Seafood Company's Lease Renewal and Expansion Project (Project). The Project proposes to continue Coast Seafood Company's (CSF) existing operations on 296 acres, discontinue operations on 6.6 acres, and expand operations into an additional 621 acres of intertidal wetland habitats. There is currently an approximately 400 acre total footprint of intertidal aquaculture from all sources in Humboldt Bay, therefore this Project would substantially increase the number of acres used for intertidal aquaculture purposes in Humboldt Bay.

As a trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants and the habitat necessary for biologically sustainable populations of those species pursuant to California Fish and Game Code §1802 (Fish and Game Code). In addition, the Department is recognized as a "Trustee Agency" under the California Environmental Quality Act (CEQA Guidelines §15386). The Department has recommended verbally to the HBHD on two separate occasions (June 2014 and July 3, 2014) that the potential unavoidable significant environmental impacts due to the proposed Project should be analyzed in an Environmental Impact Report (EIR). The purpose of this letter is to provide the HBHD with the Department's recommendation regarding the potential need for an EIR for this Project.

Biological Significance

Humboldt Bay is the second-largest estuary in California and consists of Arcata (North) Bay at its north end, Central Bay and South Bay. Humboldt Bay contains a number of diverse habitats, including tidal flats, salt marsh and eelgrass beds. At least 110 species of fish have been reported from Humboldt Bay, including many commercially important species, and several species of salmonids that spawn in the associated

tributaries (Gotshall et al. 1980; Barnhart et al. 1992). Humboldt Bay, and its wetlands and dunes, are habitat for at least 20 State and federally listed species, and numerous California Species of Special Concern (SSC) and provide important feeding and rearing habitat for fish.

Unavoidable Significant Environmental Impacts

Various avoidance and minimization measures can be utilized to reduce some of the potential significant impacts to the environment as a result of new aquaculture operations. However, a multitude of significant unavoidable environmental impacts have been well documented in the literature, and are likely to occur for this Project, due to the nature of aquaculture operations. Some of these unavoidable impacts include: physical habitat alteration, changes in species presence and abundance, increases in invasive species, disturbance to wildlife, sediment accretion and loss, changes to wetland function, and conversion of unaltered intertidal mudflat habitats to altered hard substrate communities (Dumbauld 2009; Hosack et al. 2006; Kelly et al. 1996; McKindsey et al. 2006; Quintino et al. 2012; Rumrill and Poulton 2004).

For example, significant unavoidable impacts from aquaculture operations are likely to affect several bird species that utilize the bay for feeding, resting, and as a migration corridor. Humboldt Bay is an internationally important site for overwintering and seasonally migrating shorebirds and waterfowl (Barnhart et al. 1992; Colwell 1994; Lee 2001; Page et al. 1999). Multiple unavoidable significant impacts to shorebirds are likely to occur due to the proposed expansion of aquaculture activities into currently undisturbed intertidal wetland habitat. These impacts include alteration of food sources, loss of foraging habitat, and disturbance from noise (Connolly and Colwell 2005; Forrest et al. 2009; Kelly et al. 1996; and Quintino et al. 2012). Specifically, some bird species avoid aquaculture areas located on mud flats that would otherwise utilize this habitat, thus substantially reducing the habitat available for feeding and resting (Connolly and Colwell 2005; Kelly et al. 1996). Also, the alteration of bird foraging habitats by aquaculture structures and activities change the quality of the environment favoring some species over others (Connolly and Colwell 2005; Kelly et al. 1996; and Quintino et al. 2012).

Conclusion

The HBHD has consulted with the Department regarding the appropriateness of either an Initial Study (IS) and Mitigated Negative Declaration (MND), or an EIR for the proposed Project. Pursuant to CEQA §15070(a), a Lead Agency shall prepare, or have prepared, a negative declaration or a MND when the IS shows there is no substantive evidence, in light of the whole record before the agency, that the Project may have a significant effect on the environment. Current studies of aquaculture impacts to the environment, as explained above, indicate that significant impacts may occur due to the

proposed Project and is likely to substantially degrade the quality of the environment and substantially reduce the habitat for fish or wildlife species [CEQA Mandatory Findings of Significance §15065 (a)(1)]. Therefore, the Department recommends the Lead Agency prepare an EIR for the proposed Project unless it can demonstrate the criteria justifying preparation of an MND pursuant to CEQA §15070 are met.

The Department appreciates the opportunity to review and comment on this Notice of Application. As always, Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. To arrange for discussion, please contact Rebecca Garwood, Environmental Scientist, California Department of Fish and Wildlife, 619 2nd Street, Eureka, California, 95501, phone (707) 445-6456, and email Rebecca.Garwood@wildlife.ca.gov.

Sincerely,

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Audubon CALIFORNIA

EARTHJUSTICE

OCEANA Protecting the World's Oceans

September 16, 2016

Jack Crider
Executive Director
Humboldt Bay Harbor, Recreation and Conservation District
601 Startare Drive
Eureka, CA 95501
Via email to: jcrider@humboldtbay.org

RE: Recirculated Draft EIR for the Proposed Coast Seafoods Company's Shellfish Culture Permit Renewal and Expansion Project, Humboldt County, California

Dear Mr. Crider,

Thank you for considering the following comments on the Recirculated Draft Environmental Impact Report (~~"R~~DEIR") for Coast Seafoods Company's (~~"C~~oast") proposed Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project in Humboldt Bay, California (~~"P~~roject"), submitted on behalf of Audubon California, Earthjustice, and Oceana. For the reasons explained below, the RDEIR is wholly inadequate to support approval of the Project.

While the Project presented in the RDEIR reflects some modifications to the proposal in the Draft Environmental Impact Report (~~"D~~EIR"), both the Project and its impacts remain enormous. The Project encompasses 622 acres of eelgrass and other sensitive tideland habitats, in addition to Coast's existing 300 acre footprint of operations, much of which also occupies eelgrass habitat. The RDEIR reports that, of the 6,201 acres of subtidal land leased for shellfish aquaculture in California, only12 percent – approximately 744 acres – are actively farmed. Coast's proposed expansion would thus nearly double the footprint of shellfish aquaculture in the state and would do so in some of the state's most sensitive, critical estuarine habitat.

Approximately 594 acres of the proposed expansion would be installed in eelgrass habitat, meaning that the proposed expansion alone (apart from impacts from ongoing operations) would affect about 15 percent of all eelgrass habitat in the North Bay of Humboldt Bay.[1] The majority of the expansion – 409 acres – would take place in continuous eelgrass habitat. This is in addition to ongoing adverse impacts caused by the portion of the Project located within the existing 300 acre footprint. The Project would also cause significant impacts to mudflat habitat used for foraging and resting by shorebirds and cause disturbance near key gritting sites for brant, among other impacts. Overall, the Project would cause significant adverse effects on numerous seabirds, shorebirds, commercially and ecologically important fish species, marine mammals, and other wildlife through habitat loss, disturbance, increased predation, and depletion

[1] Coast Seafoods Company's Recirculated Draft Environmental Impact Report (~~"R~~DEIR") Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project in Humboldt Bay, California (July 2016) at 6.5-42, Table 6.5.10.

of food sources. In addition, the Project would harm other uses of the North Bay, such as birdwatching, hunting, and navigation.

None of the project modifications, conservation measures, or mitigation measures set forth in the RDEIR, alone or together, come close to rendering the impacts of this Project less than significant. The revised Project does little to avoid eelgrass habitat or core spawning locations in the East Bay Management Area (–EBMA"). While it decreases overlap with continuous eelgrass habitat by 17 percent compared to the prior proposal, it increases overlap with patchy eelgrass by 58 percent. Contrary to the RDEIR's assertion, the use of 10-ft. longline spacing instead of 5-ft. spacing for the expansion area would still result in significant decreases in eelgrass density and function. The conversion of 100 acres of existing culture to 10-ft. spacing, which Coast offers as mitigation for Phase 1 of the Project, would not come remotely close to mitigating the damage to a less than significant level. And Coast offers no mitigation for adverse effects caused by renewing operations in the existing footprint or for Phase 1 of the expansion.

As detailed below, the RDEIR's analyses and findings rely on numerous factual inaccuracies, invalid applications of relevant studies, flawed modeling assumptions, and unfounded speculation to support its conclusions of less than significant impacts to biological resources, recreation, and navigation. One especially significant example is the RDEIR's fundamentally flawed analysis of impacts to eelgrass habitat. The RDEIR asserts that the Project's use of 10-ft. spacing for longline gear for part of the existing footprint and the expansion area will render the overall Project impacts less than significant. However, the best available information indicates that the proposed Project would result in a loss of eelgrass density on the order of 89-92 percent in the existing footprint (2.5-ft longline spacing) and of 45-67 percent in the expansion areas (10-ft. longline spacing). The RDEIR's invalid eelgrass analysis further undermines the basis for many of the RDEIR's findings of –less than significant" impact for species dependent on eelgrass, including Pacific herring, brant, Dungeness crab, and others. In addition, the RDEIR fails entirely to consider a reasonable range of alternatives to the Project and cumulative impacts of the Project. All in all, the RDEIR dismally fails to satisfy the requirements of the California Environmental Quality Act (–CEQA").

In order to provide a valid CEQA analysis to support project approval, including renewal of authorization for existing operations and the proposed expansion, Coast must substantially revise its proposal and the DEIR analyzing it. A properly revised DEIR must identify and analyze alternatives that avoid any significant impact to eelgrass habitat and fish and wildlife species dependent on it, as well as an alternative that both avoids eelgrass in any expansion areas and removes oyster farming operations from the EBMA, which is critical for Pacific herring spawning, black brant, other waterfowl, and shorebirds. We also recommend that aquaculture activities be discontinued in the EBMA and that Coast provide a 1000-ft. buffer for brant gritting areas and avoid areas with high densities of long-billed curlew territories. The public must then be given an opportunity to comment on the significant new information that this new revised DEIR would contain. We encourage Coast to work collaboratively with the relevant agencies and key stakeholders in a marine spatial planning framework to evaluate a revised project configuration that would meet project objectives while satisfying federal and state policy and law.

Project Description

The Project description presented in the RDEIR is confusing, with various phases, adaptive management junctures, and mitigation schemes. The Project consists of renewing regulatory approvals for 294.5 acres of Coast's existing shellfish culture, including intertidal cultch- and basket-on-longline culture, intertidal nurseries, subtidal Floating Upweller System (~~"F~~LUPSY") rafts, subtidal wet storage floats, and subtidal clam rafts. The Project proposes a two-phase, 622-acre expansion of intertidal shellfish aquaculture in the North Bay, the addition of eight bins to the existing FLUPSY and use of the existing clam rafts to culture Pacific and Kumamoto oysters. In Phase 1 of the expansion, Coast is proposing to culture 150 acres of 10-ft. spaced, double-hung cultch-on-longline, six acres of 10-ft. spaced, single-hung cultch-on-longline, and four acres of rack-and-bag. Coast is also proposing 50 acres of basket-on-longline with alternating spacing of two rows of baskets separated by nine feet, followed by a 16-ft. space. Of these, 20 acres of baskets will be placed above 1.3-ft. mean lower low water (~~"M~~LLW") and 30 acres will be placed below 1.3-ft. MLLW. As mitigation for potential eelgrass impacts in Phase 1, Coast is proposing to convert 100 acres of its existing footprint from 2.5-ft. spaced, single-hung cultch-on-longline to 10-ft. spaced, double-hung cultch-on-longline. In Phase 1I, Coast is proposing an additional 412 acres of single-hung cultch-on-longline planted at 10-ft. spacing. In total, the Project would result in 922 acres of intertidal oyster culture.[2]

Legal Background: California Environmental Quality Act

CEQA is intended to provide for the protection and enhancement of the state's environment and to ~~"e~~nsure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions."[3] CEQA accomplishes these goals in part by ensuring that proposed projects are authorized only after their environmental impacts are thoroughly analyzed in an EIR, the public has full opportunity to inform that analysis, and necessary mitigation measures have been adopted.

A. Analysis of Significant Impacts

CEQA requires that an ~~"E~~IR must demonstrate that the significant environmental impacts of the proposed project were adequately investigated and discussed and it must permit the significant effects to be considered in the full environmental context."[4] CEQA defines ~~"s~~ignificant effect on the environment" as ~~"a~~ substantial, or potentially substantial, adverse change in the environment."[5] In addition, an EIR ~~"m~~ust include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is

[2] RDEIR at 4-17.

[3] Pub. Res. C. § 21001(a)-(d).

[4] CEQA Guidelines, § 15125(c), (emphasis added).

[5] Pub. Res. C. § 21068.

published…or…at the time the environmental analysis is commenced, from both a local and regional perspective."[6]

Notably, CEQA requires analysis of effects on "ecosystems," the boundaries of which are not defined by state lines.[7] Therefore, the EIR must analyze environmental effects occurring both within California and outside of it. Indeed, as CEQA is "to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language" the Project's impacts must be analyzed in terms not only of their effects around Humboldt Bay, but throughout the Pacific Flyway and California Current Large Marine Ecosystem.[8] This is particularly important for this project given that many of the species it affects are highly migratory and commercially important.

The EIR's conclusions regarding the project impacts must be based on a full analysis of relevant factors and the best available information. A conclusion regarding the significance of an environmental impact that is not based on an analysis of the relevant facts fails to fulfill CEQA's informational goal.[9] Furthermore, CEQA requires an agency to "use its best efforts to find out and disclose all that it reasonably can."[10]

B. Analysis of Cumulative Impacts

CEQA requires that an EIR address cumulative impacts "when the project's incremental effect is cumulatively considerable."[11] The EIR must therefore identify all existing and likely future projects that contribute to the same impacts as the proposed project. Cumulative impacts are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."[12]

The cumulative impact analysis must address the severity of the impacts and their likelihood of occurring. An adequate discussion of significant cumulative impacts must include, among other things, a "summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available . . . ."[13] In other words, in deciding whether to approve a project, decision makers need to know what the expected impacts will be on the ground as a result of all of the projects identified as contributing to cumulative impacts.

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[6] CEQA Guideline § 15125(a).

[7] CEQA Guidelines § 15358(a)(2).

[8] *Laurel Height Improvement Ass'n. v. Regents of University of California*, 47 Cal.3d 376, 404 (Cal. 1988).

[9] *Stanislaus Natural Heritage Project v. County of Stanislaus*, (1996) 48 Cal.App.4th 182, 182; *Citizens of Goleta Valley v. Board of Supervisors of Cty of Santa Barbara*, (Cal. 1990) 52 Cal.3d 553, 568.

[10] CEQA Guidelines § 15144; *see also* Guidelines § 15151 (an EIR must disclose what is "reasonably feasible").

[11] CEQA Guidelines § 15130; *see also* CEQA Guidelines § 15355.

[12] CEQA Guidelines § 15355.

[13] CEQA Guidelines § 15130(b)(4).

C. Analysis of Alternatives

The analysis of alternatives to the proposed project lies at the ―core of an EIR."[14] In this analysis, the EIR must consider a reasonable range of alternatives that would avoid or substantially lessen the Project's adverse impacts while feasibly attaining most of the Project's basic objectives.[15] Identifying alternatives to the project is central to meeting CEQA's requirement to avoid or substantially lessen significant environmental damage. Alternatives identified should ―offer substantial environmental advantages over the project proposal."[16]

The project proponent may not exclude environmentally preferable alternatives simply because they do not meet all project objectives. The EIR's discussion of alternatives must focus on alternatives to the project that are ―capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly."[17]

A ―reasonable range" of alternatives includes alternative locations for a project as well as alternatives to the project.[18] In addition, the EIR must analyze a ―no project" alternative.[19] If the EIR refuses to consider a reasonable range of alternatives or fails to support its analysis with substantial evidence, the purposes of CEQA are subverted, and the EIR is legally inadequate.[20] If a feasible alternative exists that will meet the project's objectives while reducing or avoiding its significant environmental impacts, the project may not be approved.[21]

D. Mitigation Measures

CEQA's core substantive component requires that any public agency, including the Harbor District, ―*shall* mitigate or avoid the significant effects . . . of projects that it carries out or approves *whenever* it is feasible to do so."[22] CEQA requires agencies to adopt environmentally superior alternatives or feasible mitigation measures to substantially decrease or avoid otherwise significant adverse environmental impacts of the proposed project.[23] To enable that decision making process, the EIR must set forth mitigation measures that can be adopted at the findings stage of the planning process. Those measures should be capable of: (a) ―[a]voiding the impact

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[14] *Citizens of Goleta Valley*, 52 Cal. 3d at 564; *see also* Pub. Res. C. § 21002.1(a) (―The purpose of an environmental impact report is . . . . to identify alternatives to the project . . . .").

[15] *See* Pub. Res. C. § 21100(b)(4); CEQA Guidelines § 15126.6(a).

[16] *Citizens of Goleta Valley*, 52 Cal. 3d at 566.

[17] CEQA Guidelines § 15126.6(b).

[18] CEQA Guidelines § 15126.6(a).

[19] CEQA Guidelines § 15126.6(e).

[20] San Joaquin Raptor/Wildlife Rescue Ctr. v. County of Stanislaus (1994) 27 Cal.App.4th 713, 735-38; Kings County Farm Bureau v. City of Hanford (1990) 221 Cal.App.3d 692, 736-37.

[21] Pub. Res. C. § 21002.

[22] Pub. Res. C. § 21002.1(b) (emphasis added).

[23] Pub. Res. C. §§ 21002, 21081(a); CEQA Guidelines §§ 15002(a)(3), 15021(a)(2), 15091(a)(1).

altogether by not taking a certain action or parts of an action"; (b) "[m]inimizing impacts by limiting the degree or magnitude of the action and its implementation"; (c) "[r]ectifying the impact by repairing, rehabilitating, or restoring the impacted environment"; or (d) "[r]educing or eliminating the impact over time by preservation and maintenance operations during the life of the action."[24] The EIR must also include evidence of each mitigation measure's efficacy.[25]

In addition, agencies may review a project proponent's prior shortcomings in analyzing the adequacy of proposed mitigation measures. The Supreme Court has stated that, "[b]ecause an EIR cannot be meaningfully considered in a vacuum devoid of reality, a project proponent's prior environmental record is properly a subject of close consideration in determining the sufficiency of the proponent's promises in an EIR."[26]

In addition to CEQA's mitigation requirements, the California Endangered Species Act ("CESA") requires full mitigation of impacts to state-listed species.[27] In particular, any permit issued to authorize incidental take of such species by the project must provide mitigation for all impacts on the species resulting from the project, meaning that mitigation must address habitat loss as well as direct take.

The Proposed Project Will Have Significant, Adverse Effects on Eelgrass.

The RDEIR's analysis of the Project's effects on eelgrass is fundamentally flawed, and the conclusions based on that analysis are wrong. The RDEIR's "less than significant impact" determination rests on a profound misinterpretation of relevant scientific studies and a mistaken theory that aquaculture gear; disturbed, broken-up eelgrass habitat; and "mitigation" provided by increased spacing on longlines in some of the Project area somehow provide habitat value equivalent to 622 acres of unmodified dense and patchy eelgrass habitat and mudflat. Contrary to the RDEIR's statements, the Project would have significant adverse effects on eelgrass and the numerous species that depend on it. The Harbor District must not approve such a significant adverse impact to Humboldt Bay and the many fish and wildlife species that depend on it.

A. Eelgrass Habitat Is Uniquely Important and Sensitive and Thus Is Subject to Special Protections, and Eelgrass is Declining

Humboldt Bay contains approximately 5,646 acres of eelgrass, which represents between 45- 53 percent of the state's total eelgrass. Though eelgrass is the dominant macrophyte of the shallow subtidal and lower intertidal zones in the bay, it is one of the rarest habitats in California. Just five bays — Humboldt, San Francisco, San Diego, Mission, and Tomales — support more than 80 percent of the known eelgrass in the state.

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[24] CEQA Guidelines § 15370.

[25] *See Save Our Peninsula Committee v. Monterey County Board of Supervisors* (2001) 87 Cal. App. 4th 99, 130.

[26] *Laurel Heights Improvement Assoc. of San Francisco v. Regents of the University of California*, 47 Cal.3d at 420.

[27] Pub. Res. C. § 2081(b)-(c).

Eelgrass has declined in California,[28] making any continuing or additional loss in Humboldt Bay more important from a cumulative impacts standpoint.[29] In a comment letter on the 2015 DEIR, these losses are described in detail by eelgrass experts Jeff Black (Humboldt State University) and David Ward.[30] The letter expresses opposition to any activities that would further harm eelgrass in the bay, and enumerates extensive losses to eelgrass in recent years in San Juan Islands, WA; San Francisco Bay, CA; Morro Bay, CA; Mission Bay, CA; and San Ignacio Lagoon and San Quintin Bay, Baja California. Drivers for these losses include high sea and air temperatures and eelgrass wasting disease. The authors note ―[e]elgrass populations along the Pacific coast are currently under stress and it would be imprudent to add additional stresses to this threatened and cherished biotype." The authors further point out in their September 2016 comment letter to the Harbor District on the RDEIR the unique nature of the intertidal eelgrass in the bay. They note that the north bay hosts ―. the largest remaining bed of intertidal eelgrass along the Pacific coast between Mexico and Washington…recent eelgrass losses reported above have been greatest for intertidal populations, the eelgrass population that will be potentially most affected by the expansion. San Quintin Bay has lost 45 percent of its intertidal eelgrass (1,046 hectares in 2000 to 433 hectares in 2014), including nearly all of its dense cover of intertidal eelgrass (604 hectares in 2000 to 5 hectares in 2014) over the last decade.[31] Only sparse eelgrass remains. Similarly, Morro Bay has lost virtually all of its intertidal eelgrass beds. Humboldt Bay managers should guard against similar losses in Humboldt Bay."[32]

Notably, between 2009 and 2015, eelgrass declined considerably in Humboldt Bay, mostly at higher elevations. The RDEIR acknowledges that a Pacific Watershed Associates survey that compared eelgrass conditions between 2015 and 2009 found that ―there was approximately 20 percent less eelgrass in 2015 than in 2009 (based on a comparison of areas classified as eelgrass in both years)."[33] The 2015 report notes that ―large areas of the elevated and unchanneled intertidal mudflats within the study area previously characterized as providing patchy eelgrass habitat, are not capable of supporting eelgrass under current conditions." [34] The microhabitat features include ponds and depressions that provide de facto lower elevation habitat associated with reduced thermal stress and desiccation. This decline is significant and may signal a continuing trend toward further eelgrass loss. Yet the RDEIR fails to include the decline in

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[28] Merkel & Associates. 2014. San Francisco Bay Eelgrass Inventory. Report for the National Marine Fisheries Service. Santa Rosa.

[29] Schlosser, S. and A. Eicher. 2012. The Humboldt Bay and Eel River Estuary Benthic Habitat Project. California Sea Grant Publication T-075.

[30] Black, J, and D. Ward. 2015. Letter to the Humboldt Bay Harbor, Recreation and Conservation District.

[31] Ward. D.H., A. Morton, T.L. Tibbitts, D.C. Douglas and E. Carrera-Gonzalez. 2003. Long-term Change in Eelgrass Distribution at Bahia Quintin, Baja California, Mexico, using Satellite Imagery. Estuaries 26: 1529-1539; Simancas, J.E. 2013. Assessment of the quality eelgrass habitat for black brant, Branta bernicla nigricans, during the non-breeding season of San Quintin, Baja California, Mexico. Master's Thesis. CICESE, Ensenada, Baja California.

[32] Black, J. and D. Ward. 2016. Letter to the Humboldt Bay Harbor, Recreation and Conservation District.

[33] Revised Eelgrass Impacts Analysis. Pg 5.

[34] Pacific Watershed Associates. 2015. Preliminary Eelgrass (*Zostera marina*) Mapping and Habitat Characterization, North Humboldt Bay, California. For: Humboldt Bay Harbor, Recreation, and Conservation District Mariculture Pre-Permitting Project, Eureka, California. Pg. 14.

patchy eelgrass, the current climatic conditions driving these changes, and the high vulnerability of eelgrass at high elevations in the Bay in its evaluation of impacts. A properly revised DEIR must address this significant new information.

Eelgrass is highly productive and is considered to be a foundation or habitat-forming plant species. Eelgrass contributes to ecosystem functions at multiple levels: as a primary and secondary producer, habitat structuring element, substrate for epiphytes and epifauna, a sediment stabilizer, and nutrient cycling facilitator. Eelgrass provides important foraging areas and shelter to young fish and invertebrates, food for migratory waterfowl and sea turtles, and spawning surfaces for invertebrates and fish, such as Pacific herring. Indeed, eelgrass is an essential refuge, foraging, and spawning habitat for many marine species, including such economically valuable species as Pacific salmon, Pacific herring, and Dungeness crab.[35] Dungeness crab adults are found in subtidal or intertidal areas on sand, mud, or associated with eelgrass beds. Bare habitats are infrequently used by juveniles, most likely due to a lack of refuge from predation and decreased food abundance. Vegetated, intertidal estuaries appear to be important nursery habitats for young crabs.[36] Eelgrass also is a source of organic carbon in estuarine and nearshore marine food webs, thus contributing to productivity beyond the eelgrass beds themselves. In addition, eelgrass has the capacity to sequester carbon in the underlying sediments and may help offset carbon emissions.[37]

Many species that depend on eelgrass are highly migratory. If these species are adversely affected by the loss of habitat in Humboldt Bay, the effects will be seen throughout the California coast and beyond. The uneven distribution of eelgrass resources increases the risk to this habitat and contributes to its dynamic nature. Moreover, the narrow depth range within which eelgrass can occur further places this habitat at risk in the face of global climate change and projected sea-level rise.

B. Eelgrass Is Protected by State and Federal Law and Policy.

The importance of protecting eelgrass is further reflected in state and federal regulations. California regulations prohibit cutting or disturbing eelgrass.[38] Aquaculture leases produced by the California Department of Fish and Wildlife (―DFW") reflect this regulation by including explicit language in lease agreements that eelgrass ―may not be cut or disturbed."[39] DFW further requires a 10-foot buffer between the eelgrass and the aquaculture gear.[40] In San Francisco Bay, the Subtidal Goals Project recommends protecting existing, established eelgrass beds by

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[35] Plummer, M., et al. 2013. The Role of Eelgrass in Marine Community Interactions and Ecosystem Services: Results from Ecosystem-Scale Food Web Models. Ecosystems, Volume 16, Issue 2, pp 237-251.

[36] University of Washington. 2015. Encyclopedia of Puget Sound: Dungeness Crab.

[37] Simenstad, C. A., and R. C. Wissmar. 1985. Delta carbon-13 evidence of the origins and fates of organic carbon in estuarine and nearshore food webs. Mar. Ecol. Prog. Ser. 22:141-152.

[38] 14 C.C.R. § 30.10.

[39] DFW. 1985. Lease agreement between Cove Mussel Company and DFW. Sacramento, CA.

[40] Ramey, K. DFW. Pers. Comm. 2015.

establishing eelgrass reserves.[41] The Harbor District's own Humboldt Bay Management Plan also requires that project proponents first avoid impacts altogether, then proceed to minimize those impacts.[42]

The National Marine Fisheries Service (~~"N~~MFS") developed a specific policy to protect eelgrass habitat in California. The California Eelgrass Mitigation Policy and Implementing Guidelines (~~"C~~EMP") notes that ~~"e~~elgrass warrants a strong protection strategy because of the important biological, physical, and economic values it provides, as well as its importance to managed species under the Magnuson-Stevens Fishery Conservation and Management Act (~~"M~~SA"). Vegetated shallows that support eelgrass are also considered special aquatic sites under the 404(b)(1) guidelines of the Clean Water Act (40 C.F.R. § 230.43)."

Federal fisheries management regulations protect eelgrass habitat due to its vital role in supporting commercially targeted fish populations. The Fishery Management Plan for the Pacific Coast Groundfish Fishery and regulations implementing essential fish habitat (~~"E~~FH") designations for this fishery include Humboldt Bay as a Habitat Area of Particular Concern (~~"H~~APC") for Estuaries and for Sea Grass.[43] A HAPC is an area within designated EFH that is ~~"r~~are, particularly susceptible to human-induced degradation, especially ecologically important, and/or located in an environmentally stressed area. HAPC designations are used to provide additional focus for conservation efforts."[44] In designating sea grass habitat as an HAPC, fishery managers noted that it has great ecological importance and is sensitive to human-induced environmental degradation.

The Pacific Fishery Management Council (~~"C~~ouncil") reviewed the DEIR and stated its opposition to the proposed project due to its adverse impacts to EFH for groundfish, salmonids, and coastal pelagic species. The Council specifically supported the Eelgrass Avoidance Alternative, and No Net Loss of Eelgrass. In a draft letter for consideration at the Council's September meeting, the Council's Habitat Committee reiterated its concerns by enclosing its December 2015 letter on the DEIR and noting its continued concern with regard to the Project described in the RDEIR. The Committee expressed particular concern regarding the Project's expected impacts on the eelgrass HAPC, which is designated as Essential Fish Habitat in the groundfish, salmon and coastal pelagic species Fisheries Management Plans.[45]

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[41] San Francisco Bay Subtidal Goals Habitat Project Report. 2011. California Coastal Conservancy.

[42] Humboldt Bay Harbor, Conservation and Recreation District. 2007. Humboldt Bay Management Plan.

[43] Pacific Coast Groundfish Fishery Management Plan. Essential Fish Habitat Designation and Minimization of Adverse Impacts Final Environmental Impact Statement Prepared by National Marine Fisheries Service Northwest Region; 50 C.F.R. §§ 660.395, 660.399.

[44] NOAA Fisheries. 2015. Habitat Areas of Particular Concern. http://www.westcoast.fisheries.noaa.gov/habitat/habitat_types/HAPC.html.

[45] Pacific Fishery Management Council, Habitat Committee. 2016. Draft letter for Council consideration at September meeting. At: http://www.pcouncil.org/wp-content/uploads/2016/08/C1_Att2_Humboldt_Aquaculture_Ltr_SEPT2016BB.pdf

C. The RDEIR Fails to Meet the "No Net Loss" Standard for Determining Significance of Impact to Eelgrass Habitat and Function

The RDEIR states that it ―incorporates … a _no net loss' threshold of significance for eelgrass impacts" as required under CEQA and the Coastal Act and noted in DEIR comment letters from permitting agencies.[46] The No Net Loss policy is the primary directive of NMFS' CEMP. According to the CEMP, ―It is NMFS' policy to recommend no net loss of eelgrass habitat function in California. For all of California, compensatory mitigation should be recommended for the loss of existing eelgrass habitat function, but only after avoidance and minimization of effects to eelgrass have been pursued to the maximum extent practicable."[47] NMFS formulated the CEMP specifically because eelgrass is uniquely ecologically important, productive, and sensitive, and its function cannot be replaced with manmade structures or other habitat types. The CEMP further notes that ―while improvements in eelgrass management have occurred overall, the importance of eelgrass both ecologically and economically, coupled with ongoing human pressure and potentially increasing degradation and losses associated with climate change, highlight the need to protect, maintain, and, where feasible, enhance eelgrass habitat."

However, the Project fails to meet the No Net Loss standard. As explained below, actual impacts to eelgrass habitat far exceed those estimated in the RDEIR. Even the RDEIR's own misguided estimate that the Project would result in significantly reduced eelgrass density in 22 to 17.1 acres of the North Bay represents a significant net loss of eelgrass. Moreover, the Project does not propose any mitigation for impacts from renewed operations within the existing 300-acre footprint of operations or for the proposed Phase 2 expansion of 412 acres of 10-ft. longline double-hung longline, and proposes inadequate mitigation for the proposed Phase 1 expansion (150 acres of 10-ft. spaced double-hung longline and 50 acres of 10-ft. spaced basket-on-longline). Overall, the Project would result in a significant net loss of eelgrass habitat for Humboldt Bay and the entire state.

The RDEIR's Eelgrass Analysis Is Fundamentally Flawed and Conclusions Based on It Are Invalid

The RDEIR's analysis of impacts to eelgrass habitat suffers from several fundamental flaws that ultimately render its ―no significant impact" conclusions entirely invalid. First, the RDEIR's eelgrass analysis continues to rely on an invalid assumption that eelgrass loss only occurs in a narrow zone under and immediately adjacent to longlines. The RDEIR thus vastly underestimates the extent of eelgrass loss throughout the Project site. Second, the RDEIR misinterprets and misapplies relevant study results presented by Rumrill & Poulton (2004)[48] and Rumrill (2015)[49] to suggest that installing oyster longlines at 10-ft. spacing in previously unused

[46] RDEIR at 1-2.

[47] CEMP at 1.

[48] Rumrill, S. and V. Poulton. 2004. Ecological role and potential impacts of molluscan shellfish culture in the estuarine environment of Humboldt Bay, CA. Western Regional Aquaculture Center Annual Report November 2004. 79 p.

[49] ―Answers to Questions for Dr. Steve Rumrill regarding Rumrill and Poulton (2004)" Compiled by Korie Schaeffer, NMFS (April 3, 2015) (―Rumrill (2015)").

areas will not cause a significant decrease in eelgrass. Third, the RDEIR does not adequately account for impacts to eelgrass habitat caused by trampling and numerous sublethal effects. Finally, the RDEIR attempts to discount significant impacts to eelgrass habitat and species dependent on it by asserting that aquaculture gear and fragmented eelgrass habitat (which the RDEIR calls a "habitat mosaic") will provide habitat for a different suite of species.

A. RDEIR Vastly Underestimates Impacts to Eelgrass that Occur Throughout Cultured Plots

The RDEIR's Revised Eelgrass Impact Analysis for its proposed expansion (Phase 1 and Phase 2) continues to rely on the flawed assumption that eelgrass loss only occurs in a narrow zone under and immediately adjacent to longlines. In comments on the DEIR, our organizations, as well as the Department of Fish and Wildlife, California Coastal Commission, and Pacific Fishery Management Council, explained that this assumption and the analytical approach based on it were invalid. Nonetheless, the RDEIR continued to use a slightly modified version of that invalid analysis. As with the DEIR, the RDEIR's flawed assumptions lead to invalid conclusions.

Coast presents five "impact scenarios" that estimate impacts by "accounting for the mechanisms of effect that may extend beyond the footprint of individual culture lines, including stranding, physical abrasion, trampling, and shading by incorporating two-tiered impact zones, with the central tier assumed to result in complete exclusion of eelgrass and a slightly wider zone where eelgrass density is predicted to decrease by a lower amount."[50] As we have explained in our prior comments, this "width of effect" approach is not based on the best available information.

Coast bases its "width of effect" analysis largely on Rumrill & Poulton (2004). However, the samples in the Rumrill & Poulton (2004) were randomly selected along survey transect lines in the *entire plots*, not just under the longlines. In other words, the study measured changes in eelgrass density both under the longlines and between them. In April 2015, the study's lead author, Dr. Steven Rumrill, provided clarification regarding the methods and results of the 2004 study, particularly for the changes the study found in eelgrass density and percent cover within plots in a recently dredged area and in a separate area that had not been recently dredged. In a memorandum to NMFS (Rumrill (2015)), Dr. Rumrill clarified that the changes that the study found in eelgrass turion density and spatial cover represent conditions throughout the entire plot, not just under the longlines.

Coast's erroneous assumption that aquaculture operations primarily cause decreases in eelgrass density within a very narrow zone directly under and adjacent to the longlines, and do not cause decreases between the longlines, renders invalid Coast's analysis of losses in eelgrass density in the proposed expansion area.

[50] Confluence Environmental Company. 2016. Coast Seafoods Shellfish Aquaculture Humboldt Bay Permit Renewal and Expansion Project Revised Eelgrass Impacts Analysis. 2016.

B. RDEIR Relies on Misinterpretations of Relevant Studies to Find No Significant Impact to Eelgrass Density and Function

Coast relies on this flawed analytical approach to reach its conclusion that "the best available science indicates that effects to eelgrass at a 10-ft. single longline spacing do not result in an overall loss to eelgrass habitat, and eelgrass habitat associated with shellfish aquaculture can potentially have higher or equivalent densities compared to control or reference plots (Rumrill and Poulton 2004)."[51]

This conclusion is based on a fundamental misinterpretation of Rumrill and Poulton (2004). As Dr. Rumrill clarified in 2015[52], the study compared eelgrass spatial cover and density between control plots and plots that had recently been dredged and then had longlines installed at various spacings. That portion of the study thus looked at how well eelgrass recovered from severe disturbance under different longline spacing regimes. It did not test what the effect of those spacing regimes would be on undisturbed eelgrass areas, like the ones at issue for this Project. For previously dredged areas, the study found that, compared to control areas, areas where longlines were installed with 10-ft spacing had 11 percent lower eelgrass spatial cover and 16 percent lower eelgrass density.

Dr. Rumrill also provided clarification on the component of this study that sampled eelgrass spatial cover and density in large-scale areas in the bay that had not been dredged – like the areas at issue for this Project – before having longlines installed. That sampling revealed that in areas where longlines were installed with 10-ft. spacing, eelgrass spatial cover was reduced by 45-58 percent and density was reduced by 45-67 percent compared with control areas. Importantly, the study author considers this latter set of values to constitute the best estimate of the impact of oyster longline spacing on eelgrass habitat: "[t]he level of loss for eelgrass beneath the large-scale oyster-on-cultch longlines can be estimated from the transect data collected in areas EB 1-1 and EB 6-2 by comparison of the average spatial cover and density values against the eelgrass metrics measured in the adjacent control plots."[53]

Based on its misapplication of Rumrill & Poulton (2004), Coast calculates that impacts to eelgrass from Phase 1 would be a loss of 2.2 to 17.1 acres, depending on the corresponding "impact scenario."[54] For Phase 2, consisting of 412 acres of single-hung, 10-ft spaced longlines, Coast cites Rumrill and Poulton (2004): "eelgrass at this [10-ft.] line spacing was equal to (or exceeded both the control and reference sites by the end of the study period, even with elevation differences between reference sites." Coast then concludes there is unlikely to be any net loss of eelgrass in Phase 2.[55] Even the RDEIR's incorrect analysis fails to support its "no significant impact" conclusion, as losing multiple acres of scarce and important eelgrass habitat is quite

[51] Eelgrass Impacts Analysis at 32.

[52] Rumrill (2015).

[53] Rumrill (2015) at 15, referring to Tables 6 and 7.

[54] RDEIR at 6.5-49.

[55] RDEIR at 6.5-53.

significant. Had the RDEIR used the study correctly, however, it would have shown that the Project's actual impact is even more significant and, in fact, unacceptable.

C. RDEIR Fails to Adequately Account for Trampling Impacts and Sublethal Impacts

The RDEIR underestimates likely impacts to eelgrass from trampling. The RDEIR analyzes potential effects of trampling in its Maximum Impact Scenario, which would result in a loss of 17.1 acres of eelgrass spatial cover in the 210-acre Phase 1 expansion area.[56] However, the impacts of trampling are likely to be both greater, and different, than the modeled scenario Coast presents, hence the finding of No Significant Impact from trampling (Impact BIO-4) is invalid.

The RDEIR indicates "eulch on longline requires approximately one day per month for each 10-acre area to monitor and repair lines, and 2 days per acre every 18 to 36 months to plant and harvest."[57] The RDEIR then makes the following speculative statements that lack any supporting information: "it assumed that "each footprint results in a trampling area 0.05m^2 with a stride length of 0.3 m" and "for proposed aquaculture activities it is likely that recovery would occur within this one month period…" [58] The RDEIR cites a 2004 study from Willapa Bay, WA, where non-native eelgrass "recovered [from trampling] within a 1-month period."[59] The RDEIR does not describe the nature of this trampling nor how it is similar or different from the proposed activities in Humboldt Bay. Figures 1a, 1b, and 1c provided by DFW, were taken June of 2016 and clearly show skiffs hauled onto eelgrass adjacent to farmed areas, and workers knee deep in mud within the farmed areas. The trampling impact analysis, Impact BIO-4, provided in the RDEIR does not acknowledge or discuss the depths to which these Coast workers sink into the mud, or how these observable activities compare with their modeled impact area from trampling.

The impact analysis also fails to consider non-lethal impacts to eelgrass. The impacts from aquaculture to eelgrass and mudflat habitats are well documented in the literature and include impacts from shading, trampling, sedimentation and erosion, anchoring, and boat scarring, as well as biodeposition from psuedofaeces and feces, among others.[60] A study evaluating oyster stake culture in Willapa Bay, WA, found that eelgrass in aquaculture areas had smaller plants (32 percent smaller) and lower production (70 percent lower production) than in uncultivated areas,[61] and these authors note that "most research to date has shown that eelgrass is less dense within aquaculture than at similar tidal elevations outside aquaculture areas." In Coos Bay, OR, oyster stake culture in an intertidal eelgrass meadow reduced eelgrass cover by 75 percent relative to

[56] RDEIR at 6.5-48 to 6.5-49.

[57] RDEIR at 6.5-54.

[58] RDEIR at 6.5-54.

[59] RDEIR at 6.5-55.

[60] DFW. 2015. Letter to the Humboldt Bay Harbor, Recreation and Conservation District.

[61] Tallis, H., J. Ruesink, B. Dumbauld, S. Hacker, and L. Wisehart. 2009. Oysters and aquaculture practices affect eelgrass density and productivity in a Pacific Northwest Estuary. Journal of Shellfish Research 28(2): 251-261.

nearby control areas.[62] In a subset of beds in Willapa Bay, eelgrass densities were approximately 60 percent lower in both long-line and dredged oyster beds relative to uncultivated areas.[63]

D. RDEIR Incorrectly Dismisses Significance of Eelgrass Impacts by Asserting that the Project Will Foster a Different Habitat and Species Assemblage

In addition to the invalid finding of no significant impact from IMPACT BIO-3 above, Coast provides inadequate justification for its findings of less than significant impact from IMPACT BIO-2, changes to unstructured habitat from the addition of shellfish aquaculture gear. The RDEIR asserts that ―both structured and unstructured habitats are important resources that create a mosaic of habitats and provide edges or transitional zones between two habitat types.‖ The RDEIR uses this rationale to conclude that IMPACT BIO-2 ―changes to unstructured habitat and the addition of shellfish aquaculture gear are considered less than significant under CEQA.‖ The RDEIR's suggestion that replacing intact eelgrass habitat with a ―mosaic of habitats‖ that provides equivalent habitat value was also presented repeatedly in the 2015 DEIR and is spurious. Research has found that intact natural habitats function differently and are more resilient than altered, degraded, or fragmented habitats.[64, 65, 66] In addition, estuarine and nearshore artificial habitats have been shown to be ―poor surrogates‖ for natural habitats, as they support different assemblages of fish and invertebrates, facilitate establishment of non-native species, and do not function or provide the equivalent ecological services provided by natural habitat.[67,68] Similarly, the addition of aquaculture gear in eelgrass habitat will alter the vertical and horizontal structure of the habitat. This modification of structure will likely attract a different composition of fish and invertebrate species, while displacing others due to changes in habitat suitability or food availability.[69,70,71] The types of impacts referenced above could directly

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[62] Everett, R., G. Ruiz and J. Carlton. 1995. Effect of oyster mariculture on submerged aquatic vegetation: an

[63] Wisehart, L., B. Dumbauld, J. Ruesink and S. Hacker. 2007. Importance of eelgrass life history stages to respond to oyster aquaculture disturbance. Mar. Ecol. Prog. Ser. 344:71-80.

[64] Harrison, S. & E. Bruna. 1999. Habitat fragmentation and large-scale conservation: what do we know for sure?. Ecography. 22(3): 225-232.

[65] Wilcove, D., McLellan, C. & A. Dobson. 1986. Habitat fragmentation in the temperate zone. Conservation Biology. 6: 237-256.

[66] Wilcox, B. & D. Murphy. 1985. Conservation strategy: the effects of fragmentation on extinction. American Naturalist. 879-887.

[67] Glasby, T., Connell, S., Holloway, M. & C. Hewitt. 2007. Nonindigenous biota on artificial structures: could habitat creation facilitate biological invasions?. Marine Biology. 151(3): 887-895.

[68] Moschella, P., Abbiati, M., Åberg, P., Airoldi, L., Anderson, J., Bacchiocchi, F. & Hawkins. 2005. Low-crested coastal defence structures as artificial habitats for marine life: using ecological criteria in design. Coastal Engineering. 52(10): 1053-1071.

[69] Erbland, P. & G. Ozbay. 2008. A comparison of the macrofaunal communities inhabiting a *Crassostrea virginica* oyster reef and oyster aquaculture gear in Indian River Bay, Delaware. Journal of Shellfish Research. 27(4): 757-768.

[70] Pinnix, W., Shaw, Y., Acker, K. & N. Hetrick. 2005. Fish communities in eelgrass, oyster culture and mudflat habitats of north Humboldt Bay, California, Final Report. US Fish and Wildlife Service, Arcata, California Technical Report Number TR2005-02.

change the habitat and species composition at the altered site but is likely to also have impacts that extend into the adjacent "intact" habitat.[72,73]

In addition, the RDEIR improperly dismisses the significance of impacts to eelgrass habitat by suggesting that the introduction of manmade structures and edge habitat will attract a diverse assemblage of new species even if it harms species that currently depend on existing eelgrass habitat. However, under CEQA, the RDEIR must consider impacts to specific sensitive species and habitats; it is not sufficient to suggest that some other assemblage of species and habitats will take their place, thus providing a supposedly equivalent environmental value. Causing a shift in the habitat and species assemblage in the North Bay is a significant impact on the environment that must be addressed.

Proposed "Conservation Measures" and Mitigation Measures Do Not Adequately Prevent, Reduce, or Mitigate Adverse Impacts to Eelgrass Habitat

As means to arrive at a "no significant impact" conclusion, the RDEIR proposes Conservation Measures BIO-1 through 9[74], Mitigation Measure BIO-1[75], and an Adaptive Management and Monitoring Plan.[76] None of these measures, alone or together, suffice to render the Project's impacts on eelgrass less than significant.

It is worth noting at the outset that Coast has done little to avoid eelgrass in its proposed siting, despite applicable legal requirements and multiple requests by trustee, advisory, and permitting agencies to pursue an Eelgrass Avoidance Alternative. As explained further below, Coast's refusal to analyze such an alternative on the basis that it would reduce the size and profitability of operations is inconsistent with CEQA requirements. The conservation and mitigation measures that Coast offers instead of avoiding eelgrass are not nearly adequate to meet CEQA requirements.

The primary eelgrass mitigation proposed in the RDEIR is Mitigation Measure BIO-1, which involves converting 100 acres of Coast's existing culture footprint from 2.5-ft. spaced, single-hung culch-on-longline to double-hung culch-on-longline. The RDEIR assert that this measures, when implemented along with the other Conservation Measures, will mitigate impacts to eelgrass associated with Phase 1 (totaling 210 acres of new oyster culture primarily in eelgrass) to a less than significant level. That assertion is wrong on multiple counts.

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[71] Tallman, J. & G. Forrester. 2007. Oyster grow-out cages function as artificial reefs for temperate fishes. Transactions of the American Fisheries Society. 136(3): 790-799.

[72] Forrest, B. & R. Creese. 2006. Benthic impacts of intertidal oyster culture, with consideration of taxonomic sufficiency. Environmental Monitoring and Assessment. 112(1-3): 159-176.

[73] Tanner, J. 2005. Edge effects on fauna in fragmented seagrass meadows. Austral Ecology. 30(2): 210-218.

[74] RDEIR at 6.5-110-111.

[75] RDEIR at 6.5-111.

[76] RDEIR at 6.5 117.

As described above, 10-ft. spacing has very substantial effects on eelgrass spatial cover and density, even without accounting for potential non-lethal effects to this rare habitat type. The RDEIR's assertion that Phase 1 of the project "is calculated to result in a net neutral or potentially beneficial overall impact to eelgrass density (Table 6.5.14)"[77] is wrong. Mitigation Measure BIO-1 may lead to some recovery from and mitigation for impacts stemming from continued culture operations, but it is not nearly sufficient to offset losses in spatial cover and density of 45 percent or more – the likely level of impacts suggested by Rumrill & Poulton (2004) – across nearly 200 acres of eelgrass habitat. Moreover, the RDEIR's assertions that "eelgrass recovery in areas where eelgrass suppression is removed by increasing line spacing is likely to be rapid and exceed the recovery rates implied in the CEMP" and "this infilling process is expected to be rapid"[78] are not supported by science.

Coast then proceeds to develop a misinterpretation of the CEMP, culminating in the statement "...eelgrass recovery in areas where eelgrass suppression is removed by increasing line spacing is likely to be rapid and exceed the recovery rates implied in the CEMP." [79] The RDEIR's predicted rapid rates of recovery for eelgrass in so-called mitigation areas are wholly unsupported by the CEMP. In contrast to the RDEIR assumptions, the CEMP notes low rates of success in eelgrass restoration efforts in the region, noting that for northern California, "[f]or mitigation activities that occur concurrent to the action resulting in damage to the existing eelgrass habitat, a starting ratio of 4.82 to 1 (transplant area to vegetated cover impact area) should be recommended based on a 75 percent failure rate over the past 25 years (four transplant actions). That is, for each square meter of eelgrass habitat adversely impacted, 4.82 square meters of new habitat with suitable conditions to support eelgrass should be planted with a comparable bottom coverage and eelgrass density as impacted habitat."[80]

The CEMP further notes that "[d]egradation of existing eelgrass habitat that results in a permanent reduction of eelgrass turion density greater than 25 percent, and that is a statistically significant difference from pre-impact density, should be mitigated based on an equivalent area basis. Mitigation for reduction of turion density without change in eelgrass habitat area should be on a one-for-one basis either by augmenting eelgrass density at the impact site or by establishing new eelgrass habitat comparable to the change in density at the impact site. For example, a 25 percent reduction in density of 100-square meters (100 turions/square meter) of eelgrass habitat to 75 turions/square meter should be mitigated by the establishing 25 square meters of new eelgrass habitat with a density at or above the 100 turions/square meter pre-impact density."

In addition, the RDEIR offers no scientific support for its statement that "initial impacts associated with longline placement may result in some initial loss of eelgrass function through

[77] RDEIR at 6.5-112.

[78] Eelgrass Impact Analysis at 35.

[79] RDEIR at 6.5-114.

[80] CEMP at page 22.

trampling, but recovery for these activities is expected within 1 month, and other potential impacts will occur over a 2-year period."[81]

The RDEIR does not propose any mitigation for Phase 2, comprised of installing 412 acres of single-hung longline at 10-ft. spacing. Rather, Coast incorrectly asserts that "[c]ultch-on-longline spaced at 10-ft. intervals has been shown to result in no net loss of eelgrass (see discussion in Sections 6.5.4 and 6.5.7). This impact assumption will be verified via monitoring of Phase 1 culture (6 acres of 10-ft., single hung cultch will be planted in Phase 1) prior to implementation of Phase 2."[82] As discussed above, Coast's assertion that spacing gear at 10-ft. intervals does not result in any net loss of eelgrass is wrong. Its suggestion that vague, deferred mitigation and monitoring can justify a "no significant effect" finding is also wrong.

Coast suggests that implementation of "adaptive management" and associated "intensive ecological monitoring" will "achieve and maintain no-net-loss of ecological function of eelgrass."[83] Neither the "2016 eelgrass monitoring framework" provided in Appendix H of the RDEIR nor the "decision tree-adaptive management"[84] provide sufficient specificity to guarantee that specific mitigation measures would be implemented or that they would be effective in actually mitigating the harm to eelgrass. As such, they are not sufficient to meet CEQA requirements.[85]

The RDEIR proposes several other measures but fails to provide compelling evidence that they would be effective: Conservation Measures BIO-2, 10-ft. longline spacing for new shellfish culture plots, and alternating 9- and 16-ft. spacing for basket–on-longline as a means to reduce impacts to eelgrass. Yet, as described above, installing new gear in this configuration still would have substantial impacts on eelgrass habitat and species that depend on it.

Conservation Measures BIO 5-7, pertaining to field practices of skiffs, larger work boats, and the longline harvester, would help to minimize impacts if implemented. These conservation measures would require changes in at least some aspects of current practice, as illustrated by the fact that Coast's vessels and workers have been documented to haul up on eelgrass beds, as shown in Figures 1a and 1b.

Finally, the RDEIR fails to adequately evaluate the impact of double-hung versus single-hung longlines for the 250 acres in which this novel approach is proposed, in terms of potential increased worker visits, oyster growing efficiency, and impact to carrying capacity and other biological elements. This concern was also raised by the Habitat Committee of the Council in its

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[81] RDEIR at 6.5-115.

[82] RDEIR 4-17.

[83] RDEIR at 6.5-117.

[84] RDEIR at 6.5-116.

[85] *See, e.g., Sundstrom v. County of Mendocino* (1st Dist. 1988) 202 Cal. App. 3d 296, 308-11 (lead agency may not base no impact finding on presumed success of mitigation measures that have not been fully formulated at time of project approval; future mitigation measures must be specific, enforceable, and clearly adequate to eliminate significant impacts).

September 2016 draft letter pertaining to the RDEIR for Council consideration at its September meeting.

The RDEIR Fails to Analyze Future Impacts Caused by Continuation of Existing Operations

The RDEIR unlawfully fails to analyze the future impacts of continuing existing operations to special status species, riparian habitats and sensitive natural communities, wildlife corridors, nursery sites, and federally protected wetlands. The proposed Project includes Coast's request for a renewal of its regulatory approvals for 294.5 acres of existing shellfish culture, including intertidal cultch- and basket-on-longline culture, intertidal nurseries, subtidal FLUPSY rafts, subtidal wet storage floats and subtidal clam rafts. Existing operations are thus part of the Project impacts that must be analyzed. Indeed, Coast does not deny that, if approved, the continuation of these operations will have impacts on eelgrass, birds, fish species, and other components of the environment. An analysis of continued impacts from existing operations is essential to completing an accurate assessment of the cumulative impacts of continued operations, hundreds of acres of proposed expanded operations, and the Harbor District's proposed aquaculture project.

This analysis is particularly essential in light of the fact that existing operations have likely significantly reduced eelgrass structure and function in nearly 300 acres relative to areas not in cultivation. In 2006, the Coastal Commission found that Coast's operations were having and would continue to have significant adverse effects on eelgrass. In its 2006 Finding, the Commission notes:

> [T]here is strong empirical evidence that oyster culture causes adverse impacts to eelgrass beds. At the long-line oyster culture beds operated by Coast, simple observation reveals a greater cover of eelgrass between the culture beds than within them. Quantitative studies conducted in Arcata Bay and elsewhere support this observation … 70 percent or more of the substrate in undisturbed reference areas is covered by eelgrass, whereas only 20 percent or less of the substrate is covered by eelgrass in oyster aquaculture areas. The results of the experimental studies indicate that this difference is caused by the aquaculture activities. This is equivalent to about a 71 percent decrease in the area covered by eelgrass with areas of active aquaculture.[86]

Rumrill (2015) also supports the conclusion that existing operations with 2.5 ft. spacing significantly degrade eelgrass density and function. Compared with controls, in both experimental and sampled plots in North Bay, eelgrass spatial cover is reduced 92-93 percent and eelgrass density in the North Bay is reduced by 83 percent to 94 percent.[87] The RDEIR contains no analysis to indicate otherwise.

[86] California Coastal Commission. 2006. Final Adopted Findings on CDP Application E-06-003, at 26.

[87] Rumrill 2015 at 18-19.

The Proposed Project Would Have Significant Adverse Impacts on Pacific Herring

The RDEIR fails to acknowledge significant adverse impacts to Pacific herring. Contrary to the RDEIR's "no significant impact" finding, the Project would cause severe harm to herring by excluding them from half of their core spawning habitat in the North Bay, decreasing egg and larvae survival, degrading eelgrass habitat necessary for spawning, and depleting the planktonic food supply (discussed below). These effects are significant not only for herring, but for the multiple predators that depend on them.

Herring are critically important as prey for salmon and other fish species, cetaceans, pinnipeds, shorebirds, and seabirds. As a result, DFW's statewide herring commercial fishery program requires that management measures "safeguard herring as an important forage species for all living resources of marine and estuarine ecosystems that utilize herring as a food source."82 Recent analyses of predator diets in the California Current System (British Columbia through Baja California) highlight the importance of herring to predators. For 32 predators evaluated in this region, Pacific herring ranks as the fourth most significant prey species out of a total of 27 prey species.[88] Humboldt Bay is the third most important herring spawning site in California, after San Francisco and Tomales Bays.

As the RDEIR notes, the 622-acre expansion area overlaps with approximately 310 out of 1,274 acres that DFW has delineated as essential herring spawning area. Moreover, the Project's existing 300-acre footprint already overlaps with this essential spawning area. The proposed project would thus overlap with and adversely affect roughly half of essential core herring spawning habitat in Humboldt Bay. As discussed below, herring appear to avoid spawning in the existing aquaculture areas. Preventing them from spawning in another 300+ acres of core habitat is clearly a very significant impact.

RDEIR Figure 6.5.24 includes information provided by DFW on the locations of herring spawning events in Humboldt Bay in 2015 and 2016. Herring appear to not have spawned within aquaculture plots. This observation is consistent with the Coastal Commission's 2015 comment on the DEIR that:

> In its authorization of Coast's existing operation in 2006, the Commission included several permit requirements to ensure that adverse impacts to Pacific Herring are avoided and minimized. These measures included limitations in the amount of culture activities occurring within the East Bay Management Area, an area that has historically been shown to support high levels of herring use, and surveys and annual reporting of observed herring spawn on or around aquaculture gear and cultured shellfish. In the nearly 10 years since this permit was issued, Coast has reported no observations of herring spawn on or around aquaculture gear in Humboldt Bay. Although the absence of such observations by Coast is not definitive evidence that

[88] Ainley, D., P. Adams, and J. Jahncke. 2014. Towards ecosystem based-fishery management in the California Current System – Predators and the preyscape: a workshop. Unpublished report to the National Fish and Wildlife Foundation. Point Blue Conservation Science. Petaluma, CA.

> herring would not spawn on aquaculture gear in the future, it appears to be a strong indication that use of aquaculture beds by herring is unlikely. Please revise the discussion of potential impacts to herring spawning to include this information about herring use of existing aquaculture areas in the East Bay Management Area.[89]

The RDEIR fails to respond to this request from the Coastal Commission. The RDEIR notes "there is no evidence to indicate Pacific herring are spawning on gear"[90] but fails to discuss the crucial implication of that finding. Namely, herring avoid spawning on aquaculture gear even when it is located within an otherwise preferred spawning area. If herring will not spawn on aquaculture apparatus, the Project would exclude Pacific herring from half of its most essential spawning grounds in Humboldt Bay. Reducing available spawning grounds could lead to significant decreases in spawning, which could significantly affect the overall herring population. This is clearly a significant impact.

The lack of evidence indicating that herring are spawning on aquaculture gear in the existing operation footprint is consistent with other scientific evidence. While herring will to some extent spawn on hard natural and artificial substrates, such as unsilted gravel and pilings, artificial surfaces do not provide the same quality spawning habitat as eelgrass.[91,92] Indeed, a study in Puget Sound found that "[t]he local disappearance of some eelgrass meadows has led to the cessation of herring spawning activity in particular areas."[93]

In West Coast estuaries, herring spawn preferentially in certain locations with certain areas representing persistent spawning sites.[94] Within spawning habitat, numerous factors, such as environmental variables and fish abundance, influence the locations where spawning occurs in a given year, and this spatial diversity of spawning locations promotes population resiliency and may enable the population to spawn in years with varying environmental conditions: "[t]he locations that support large and repetitive spawnings deserve the most attention and consideration from possible environmental impacts."[95]

The proposed Project's likely significant adverse impacts on herring are all the more serious in light of the reduced abundance of Pacific herring stocks on the West Coast,[93] including in

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[89] California Coastal Commission. 2015. Letter to the Humboldt Bay Harbor, Recreation and Conservation District.

[90] RDEIR at 6.5-88.

[91] Shelton. A., T. Francis, G. Williams, B. Feist, K. Stick and P. Levin. 2014. Habitat limitation and spatial variation in Pacific herring egg survival. Mar. Ecol. Prog. Ser. 514: 231-245.

[92] CDFW. 2014. Pacific herring commercial fishing regulations: Final Supplemental Environmental Document.

[93] Gaeckle, J.L., P. Dowty, H. Berry, and L. Ferrier. 2009. Puget Sound Submerged Vegetation Monitoring Project: 2008 Monitoring Report, Nearshore Habitat Program. Washington State Department of Natural Resources, Olympia, WA.

[94] Haegele, Schweigert, J. 2011. Distribution and Characteristics of Herring Spawning Grounds and Description of Spawning Behavior.

[95] Hay, D. 2013.Herring spawning areas of British Columbia: a review, geographic analysis, and classification. Fisheries and Oceans Canada. Internal Report.

Humboldt Bay. From 1974 to 2007, herring biomass estimates for Humboldt Bay averaged just under 400 tons.[94]

The RDEIR attempts to downplay the seriousness of these impacts by noting that ―[t]here were successful detections of herring egg deposition in historical culture areas and areas directly adjacent to actively farmed oyster plots. While this does not provide information on spawning potential in culture areas, it does indicate these culture operations are not impeding spawning behavior."[96] This statement is inaccurate; the fact that no herring spawning has been detected in aquaculture areas since 2007 indicates that culture operations do impede spawning within farmed areas. Moreover, evidence indicates that routine maintenance operations associated with the Project are likely to disturb holding and spawning herring. The Washington Department of Fish and Wildlife notes that ―[c]onservation of herring spawning habitat, and *minimizing disturbance in the prespawning holding areas* is key to the preservation of the herring stocks inside Puget Sound."[97] Pacific herring genetics and life history are similar along the West Coast, therefore, the same conservation needs apply in Humboldt Bay.

If herring were to begin to spawn on aquaculture gear, the RDEIR acknowledges that their eggs could be exposed to air more frequently and thus be at greater risk for desiccation.[98] The RDEIR attempts to dismiss this effect by asserting that ―[i]ncreased mortality due to desiccation is likely to be offset by reduced predation pressure from invertebrates and fish during high tides."[99] It provides no data to support that assertion. In reality, there is uncertainty about the survivorship of herring eggs deposited on aquaculture gear relative to natural vegetated substrates, as shown by Palsson (1984).[100] This study evaluated egg survivorship on several types of artificial substrate (including: polypropylene and hemp rope, polyethylene netting, tubing and turf mats, and plastic sheeting) deployed within natural eelgrass habitat. Overall, total survival and larval production was significantly lower for the artificial substrates compared to natural eelgrass spawning substrate. Moreover, since herring do not appear to be spawning on aquaculture gear and from 2007-2015 Coast never once contacted DFW to report a spawning event, Mitigation Measure BIO-2 (herring egg monitoring and consultation with CDFW[101]) is unlikely to be applicable, let alone effective.

As explained above, the RDEIR offers little support for its conclusion that the Project would have a less than significant impact on eelgrass habitat, which is crucial for spawning Pacific herring. Because impacts to eelgrass and herring spawning are actually quite serious, we oppose the re-permitting or expansion of oyster farming operations in the East Bay Management Area, the most important herring spawning area in Humboldt Bay and the third most important in the

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[96] RDEIR at 6.5-89.

[97] Washington State Department of Fish and Wildlife. Pacific Herring Information Summary (emphasis added). http://wdfw.wa.gov/conservation/fisheries/PacificHerringInformation_121911.pdf

[98] RDEIR at 6.5-87 and Table at 6.5-69.

[99] RDEIR at 6.5-87.

[100] Palsson, W. 1984. Egg mortality upon natural and artificial substrata within Washington state spawning grounds of Pacific herring (*Clupea harengus pallasi*). MS thesis, University of Washington, Seattle, WA.

[101] RDEIR at 6.5-118.

state of California. Given the very high sensitivity and importance of eelgrass beds in the East Bay Management Area for eelgrass, Pacific herring, and the estuarine ecosystem, we recommend that existing aquaculture operations be removed from the East Bay Management Area entirely.

Finally, the RDEIR also fails to respond to the Coastal Commission's request to provide a full cumulative impacts analysis ~~to~~ include an estimate of the combined total impact to Pacific herring from potential loss of spawning areas from both existing operations, the proposed project, and future projects in Humboldt Bay including the Harbor District's pre-permitting project."[102]

The Proposed Project Would Have Significant, Unavoidable Impacts on Pacific Brant, Other Waterfowl, and Shorebirds

A. Humboldt Bay Provides Important Habitat for Brant

According to the U.S. Fish and Wildlife Service's (FWS) 2015 comment on the DEIR: ~~[~~b]lack brant are a species of concern in California which are dependent on this ecosystem for survival. Humboldt Bay is the second largest estuary in California, and supports the largest stands of eelgrass between brant wintering grounds in Baja, Mexico and Willapa Bay, Washington. The assertion that there is more than sufficient eelgrass available is an unproven paradigm that unfortunately has been played out with irreversible results for other ecosystems and species in the past."[103] Researchers have noted ~~th~~e need to conserve large eelgrass habitats along the Pacific Coast, and we suggest this may be exceptionally important for isolated staging areas, such as Humboldt Bay and San Quintin Bay. Since large, alternative feeding locations are not nearby, these remote bays may serve as critical sites for birds to better accumulate nutrient for migration and successful reproduction."[104]

Humboldt Bay is the most important spring staging area for brant in California and one of the most important in the entire Pacific Flyway. Notably, these eelgrass beds host up to 60 percent of the total brant population each year.[105] An estimated 80,000 birds use Humboldt Bay each year. In recent years, brant are increasingly found in the relatively quiet eastern section of the North Bay due to disturbance in the South Bay. FWS has initiated bay-wide surveys providing data confirming this trend, and in the first year of this survey (2015-2016), brant used the North Bay with equal or greater frequency than South Bay from December through February (three

[102] California Coastal Commission. 2015. Comment letter to the Humboldt Bay Harbor, Recreation and Conservation District on the DEIR.

[103] U.S. Fish and Wildlife Service. 2015. Comment to the Humboldt Bay Harbor, Recreation and Conservation District.

[104] Moore, J.E., M.A. Colwell, R.L. Mathis, and J.M. Black. 2004. Staging of Pacific flyway brant in relation to eelgrass abundance and site isolation, with special considerations of Humboldt Bay, California. Biological Conservation 115: 475-486.

[105] Pacific Flyway Council. 2002. Pacific Flyway management plan for Pacific brant. Portland, Oregon: Pacific Flyway Study Committee, U.S. Fish and Wildlife Service.

months) and use the north bay at lower frequency in March and April (two months).[106] Tests of significance were not provided.

We used eBird[107]to gain an increased understanding of recent brant use of the North Bay. We found eBird data show detections throughout the perimeter of the North Bay in 2010-2014 (Figure 2, with the highest numbers of birds reported in the north end of the bay).[108]

B. The Project Would Have Significant Impacts on Black Brant

The RDEIR acknowledges that brant avoid feeding, walking in, or flying through longline plots at low tides, when they are actively foraging[109] and then incorrectly asserts that impacts to brant would be less than significant because "[b]ay-wide eelgrass available for brant should be reduced by less than 3 percent following the implementation of both phases of the revised plan."[110] As described above, the calculated 3 percent reduction in eelgrass available to brant is based on modeling results that are invalid due to a dramatic underestimate of the loss of eelgrass associated with longline aquaculture. This fundamental error renders invalid the conclusion of no significant impact for IMPACT BIO-25, potential impacts to black brant foraging from the expansion of oyster aquaculture in Humboldt Bay. Mitigation Measure BIO-1, the conversion of 100 acres of existing longline culture to 10-ft. spacing, and Mitigation Measure BIO-4, providing mitigation should monitoring show impacts to eelgrass, are above the Project's Adaptive Management threshold and will not mitigate this significant, unavoidable impact. Mitigation Measure BIO-4 actually defers mitigation and hence does not qualify as mitigation under CEQA.

The existing project includes 57 boat trips totaling 218 hours, per week. The RDEIR fails to evaluate the disturbance to brant from the impacts associated with proposed continued operations on 294.5 acres of oyster culture. The expanded project would add 18 more boat trips totaling 74 additional hours per week. This would bring the total presence of vessels per week to 75 trips and 292 hours.[111] The RDEIR fails to explain why this existing and increased vessel presence in the North Bay would not significantly impact this highly sensitive species. The RDEIR relies heavily on the model developed by Stillman et al.[112] to evaluate whether the Project would reach a 10 percent threshold for disturbance used as a benchmark for significant impacts and concludes this threshold would not be reached. This conclusion is invalid due to Coast's failure to evaluate

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[106] U.S. Fish and Wildlife Service. 2016. Unpublished data provided by E. Nelson.

[107] **eBird** is an online database of bird observations providing scientists, researchers and amateur naturalists with real-time data about bird distribution and abundance. eBird documents the presence or absence of species, as well as bird abundance through checklist data. http://ebird.org/content/ebird/about/

[108] Importantly, eBird observation points are not generated through survey design. Rather, the data reflect the number of birds observers see from accessible vantage points.

[109] RDEIR at 6.5-98.

[110] RDEIR at 6.5-100.

[111] RDEIR at 4-31.

[112] Stillman, R.A., Wood, K. A., Gilkerson, W., Elkinton, E., Black, J. M., Ward, D. H. and Petrie, M. (2015) Predicting effects of environmental change on a migratory herbivore. Ecosphere, 6(7), 114. http://dx.doi.org/10.1890/ES14-00455.1.

disturbance resulting from continued operations on 294.5 acres and the erroneous eelgrass analysis. Furthermore, even if the 10 percent threshold increase in disturbance would not be reached, Stillman, in comments on the DEIR, provided clarification that Coast had not correctly interpreted the key results (italics the author's): "*my interpretation of this figure is that any reduction in eelgrass abundance is predicted to increase stopover duration and reduce rates of mass gain. Doing this, my interpretation of this figure is that any increase in the time lost due to disturbance is predicted to increase stopover duration and reduce rates of mass gain.*"[113]

FWS further notes in its comments on the 2015 DEIR: "[o]ur primary concerns involve what we consider a significant underestimation of the 'disturbance' impact that would result from the proposed expansion, as well as the lack of consideration for the impact reduced brant grazing would have on the eelgrass beds themselves, and potential cumulative impacts to brant from this and other proposed aquaculture projects combined with ever increasing incidental disturbance to brant from both recreation and commerce. Recent surveys indicate brant distribution on Humboldt Bay has shifted significantly, with spring of 2015 monitoring showing greater use of North Bay (192,400 bird use days) compared to South Bay (147,930 bird use days). While the exact reason has not been documented, hypotheses include increased disturbance on South Bay and improved eelgrass beds in North Bay, or likely a combination thereof." [114]

Brant are known to change their seasonal use patterns due to disturbance. In Washington, oyster farming activities were correlated with reductions in eelgrass abundance and, in turn, significant decreases in brant use-days.[115] Aquaculture activities, including oyster operations, have specifically been noted to negatively affect brant populations.[116,117] Additionally, persistent human disturbance, such as occurs during aquaculture operations, could reduce the amount of time black brant use Humboldt Bay and prevent populations from returning to historical levels.[118] Reducing winter food availability would decrease the ability of adults to breed and has the potential to decrease the brant population. The dependence of brant on eelgrass and other intertidal habitats leaves them vulnerable to the human activities that increasingly impact shallow

[113] R. Stillman. 2015. Letter to the Humboldt Bay Harbor, Recreation and Conservation District on the DEIR (emphasis added).

[114] FWS 2015. Comment to the Humboldt Bay Harbor, Recreation and Conservation District.

[115] Wilson, U.W., and J.R. Atkinson. 1995. Black brant and spring-staging use at two Washington coastal areas in relation to eelgrass abundance. Condor 97: 91-98.

[116] Schmidt, P. 1999. Population counts, time budgets, and disturbance factors of black brant (*Branta bernicla nigricans*) at Humboldt Bay, California. Master's Thesis. Humboldt State University. 58pps.

[117] Shuford, W. D. and Gardali, T., editors. 2008. Brant chapter in: California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

[118] Moore, J. and J. Black. 2006. Slave to the tides: spatio-temporal foraging dynamics of spring staging black brant. Condor 108, 661-677.

bays and estuaries along North America's coast, including the large-scale expansion of mariculture.[119]

Regarding the impacts of reduced brant grazing on eelgrass beds, FWS notes in its 2015 letter on the DEIR: "[w]hile numerous other agencies and experts have voiced concerns regarding the impact of aquaculture on eelgrass, there is an additional potential impact on eelgrass as a result of reduced brant grazing. Enhanced production by monocots after moderate grazing has been demonstrated in both terrestrial and marine ecosystems (McNaughton 1983, Moran and Bjorndal 2005, Valentine and Duffy 2006). Ferson (2007) conducted an experiment in Humboldt Bay to mimic the relationship between brant grazing and eelgrass productivity. The results showed that moderate grazing increased the below-ground biomass (rhizomes) and above-ground shoot biomass. There was even an increase (though not statistically significant likely due to sample size) in flowers, for a plant that primarily reproduces asexually. These results exemplify an important symbiosis between graminoid and grazer that exists in other ecosystems as well. Therefore, a significant reduction in brant grazing time is likely to impact the long-term health of eelgrass beds."

C. Other Waterfowl

Humboldt Bay is very important for many species of waterfowl on the Pacific Flyway, including wigeon, greater and lesser scaup, pintail, canvasback, ruddy duck, surf scoter, and western grebe. Humboldt Bay has been designated by the National Audubon Society and BirdLife International as an Important Bird Area of national and global significance due to its importance to waterfowl and shorebirds. Humboldt Bay tidelands provide critical foraging habitat for waterbirds, especially during winter and migration periods. The RDEIR acknowledges that "boat traffic and the presence of personnel associated with visits to shellfish culture sites could disturb waterfowl and cause birds to flush from foraging areas and reduce temporal and/or spatial access to food."[120] Yet the RDEIR asserts that IMPACT BIO-31, energetic costs to waterfowl from the Project, are less than significant, based on the same unfounded modeling results used for black brant, while failing to account for the impacts of disturbance caused by the existing project. The RDEIR asserts that "waterfowl in the Bay are already somewhat habituated to the current level of human disturbance from boat traffic and other activities… their winter habitat use of the Bay is not particularly influenced by disturbance." [121] These statements are unsubstantiated.

The RDEIR further asserts that IMPACT BIO-32 — potential impacts to waterfowl from the expansion of oyster aquaculture in Humboldt Bay — is less than significant, even though the RDEIR acknowledges that "waterfowl avoid moving among shellfish beds at low tide."[122] The existing 300-acre Project makes wholly or partly unavailable seven percent of waterfowl foraging habitat, and the total Project would make wholly or partly unavailable 28.6 percent of

[119] Ward, D.H., A. Reed, J.S. Sedings, J.M. Black, D.V. Dirkson, and P.M. Castelli. 2005. North American Brant: effects of changes in habitat and climate on population dynamics. Global Change Biology 11:869-880.

[120] RDEIR at 6.5-106.

[121] RDEIR at 6.5-106.

[122] RDEIR 6.5-107.

waterfowl foraging habitat, mostly in dense and patchy eelgrass.[123] Hence, contrary to the RDEIR's unsupported conclusion that impacts to waterfowl would be less than significant, the proposed project would likely adversely affect numerous waterfowl species by reducing their food supply and increasing disturbance.

Eelgrass has been noted as the most important single food item to waterfowl that winter in Humboldt Bay.[124] Waterfowl, including pintail, mallard, and green-winged and cinnamon teal feed on eelgrass seeds and infaunal bivalves.[125] Kelly & Evens (2013) found that many waterbirds are highly susceptible to disturbance and unlikely to habituate to it. Buffer distances well over 250 m. would be required to protect species including wigeon, greater and lesser scaup, goldeneye, surf scoter, canvasback, ruddy duck, grebes, mergansers, and loons from the negative impacts of motorized vessels.[126]As described above, the expanded project would bring 75 boat trips per week for a total of 292 hours. Yet the RDEIR fails to address the impacts of either existing or increased levels of disturbance to waterfowl.

D. Shorebirds

The RDEIR notes that several shorebird species that occur in Humboldt Bay are FWS birds of conservation concern (lesser yellowlegs, whimbrel, long-billed curlew, marbled godwit, short-billed dowitcher, and red knot). The mudflats and eelgrass beds of Humboldt Bay have extraordinary importance at local, regional, and hemispheric scales for shorebirds. Large percentages of global populations of shorebirds rely on Humboldt Bay each winter and fall. On the Pacific Flyway, migratory and wintering sites for shorebirds continue to shrink with coastal development, reducing habitat for these birds and increasing the importance of fairly intact existing sites such as the EBMA in Humboldt Bay. Shorebirds are generally in a state of decline. Yet the RDEIR concludes that impacts to shorebirds will be less than significant and provides no mitigation for loss of eelgrass habitat or increased disturbance to shorebirds. The finding of less than significant impact is unsubstantiated, based on numerous factual inaccuracies and false statements, and contradicted by existing science.

Status of Migratory Shorebirds and Importance of Humboldt Bay

Migratory birds depend on a series of sites to provide resources and places to rest during physiologically challenging migrations. Threats to unprotected links in these chains of sites are driving rapid population declines of migratory birds around the world. Globally, 91 percent of migratory bird species have inadequate protected area coverage for at least some part of their annual cycle. Shorebirds are a group of migratory birds reliant on estuaries and are experiencing population declines. Loss of habitat due to anthropogenic impacts has been the primary driver of

[123] RDEIR at 7-6.

[124] Yocum, C. and M. Keller. 1961. Correlation of food habits and abundance of waterfowl, Humboldt Bay, California. Calif. Fish Game 47:41-53.

[125] Schlosser, S., and A. Eicher. 2012. The Humboldt Bay and Eel River Estuary Benthic Habitat Project. California Sea Grant Publication T-075.

[126] Kelley, J., J. Evens, R. Stallcup, and D. Wimpfheiner. 1996. Effects of aquaculture on habitat use by wintering shorebirds in Tomales Bay, California. California Fish and Game 82(4): 160-174.

these losses in the U.S. and worldwide.[127] For the U.S., the 2014 State of the Birds Report[128] found that:

> …shorebirds are declining more than many other species groups. Long-term migration counts for 19 shorebird species show an alarming 50 percent decline since 1974. Declines are particularly strong for long-distance migrants that breed in the Arctic and boreal forest.

Coastal wetlands are among the most productive and ecologically important ecosystems in the world and are under increasing threat globally due to anthropogenic impacts and changing environmental conditions, such as sea-level rise.[129] In the last 100 years, California has lost more than 70 percent of its intertidal wetlands to anthropogenic alterations.[130] Humboldt Bay hosts highly productive intertidal areas: "[i]mpressive populations of vertebrate predators suggest that the secondary production of the mudflats is high,"[131] and "[t]he value and biological productivity of intertidal mudflats cannot be overemphasized. The bulk of the food organisms in Humboldt Bay consumed by fish and birds are produced here."[132] Humboldt Bay wetlands (intertidal areas and marshes) had been reduced by approximately 30 percent as of 1980.[133]

In 1998, Humboldt Bay was designated as a Western Hemisphere Shorebird Reserve Network (WHSRN) site of International Importance for shorebirds, supporting over 100,000 shorebirds annually. Its relatively intact, productive mudflat and eelgrass habitats attract large numbers of shorebirds. In addition to its International Importance, Humboldt Bay likely qualifies as a site of Hemispheric Importance, supporting over 500,000 birds annually, or, which account for more than 30 percent of the biogeographic population for a species (see table below).

Compared with other Pacific coast sites, Humboldt Bay supports a rich shorebird community in terms of species diversity. Forty-six species have been recorded, including approximately 30 encountered regularly.[134] In comparison, 24 species have been recorded at Grays Harbor, Washington, 38 species at San Francisco Bay, and 26 species at the Frazer River Delta in

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[127] Runge, C., J. Watson, S. Butchart, J. Hnason, H. Possingham, and R. Fuller. 2015. Protected areas and global conservation of migratory birds. Science Vol 350:6265

[128] North American Bird Conservation Initiative, U.S. Committee. 2014. The State of the Birds 2014 Report. U.S. Department of Interior, Washington, D.C. 16 pages.

[129] Bildstein, K.L. et al. 1991. Approaches to the conservation of coastal wetlands in the Western Hemisphere. The Wilson Bulletin 103:218-254.

[130] Speth, J. 1979. Conservation and management of coastal wetlands in California. Studies in Avian Biology 2:151–155.

[131] Barnhart, R., Boyd, M., Pequegnat, J. Ecology of Humboldt Bay, California: an estuarine profile. 1992. U.S. Fish and Wildlife Service.

[132] Schlosser, S., and A. Eicher. 2012. The Humboldt Bay and Eel River Estuary Benthic Habitat Project. California Sea Grant Publication T-075. 246 pp.

[133] Colwell, M. 1994. Shorebirds of Humboldt Bay, California: abundance estimates and conservation implications. Western Birds 25:137-145.

[134] Colwell, M. 1994. Shorebirds of Humboldt Bay, California: abundance estimates and conservation implications. Western Birds 25:137-146.

Canada, all designated WHSRN sites of Hemispheric Importance.[135] The reasons for the higher diversity of shorebirds using Humboldt Bay are not fully known but are suggested to be significantly correlated with substrate heterogeneity. This correlation suggests that tidal flats with more microhabitats (as represented by substrate variation) support more taxa.[136] In addition to open mudflat, many shorebirds also forage in the bay's "leopard skin" mudflat characterized by patches of eelgrass in small depressions. Species commonly found in this habitat are black-bellied plover, semipalmated plover, marbled godwit, black turnstone, long-billed curlew, dunlin, whimbrel, willet, long- and short-billed dowitchers, sanderling, and lesser and greater yellowlegs.[137] In sum, a combination of diverse habitats optimally support shorebird diversity as well as abundance in Humboldt Bay.

Within Humboldt Bay, the EBMA is the largest contiguous mudflat and has associated roosting areas at Arcata Marsh and Jacoby Creek in the northwest part of the bay. Wide expanses of mudflat located there provide the unobstructed habitat needed by western sandpiper and dunlin to optimize feeding and energetics (Figure 2). Observations recorded in eBird from 2010-2014 suggest higher shorebird counts in the East Bay Management Area compared to other areas in the north or south bay.[138] However, this is a qualitative assessment that does not control for sampling effort, which is not uniform around the bay. Quantifying the importance of the East Bay Management Area requires further study. Regardless, all unmodified mudflat habitat in the Bay is of essential importance to shorebirds.[139]

Humboldt Bay Is an Essential Link in the Chain of Migratory Stopover and Wintering Sites for Pacific Flyway Shorebirds

Migratory shorebirds are dependent on a sequence of sites, a "linked chain of areas essential for completing their annual cycles."[140] Indeed, the system can only function successfully if each link remains strong and the chain unbroken. Use of particular stopover sites is not random.[141] Humboldt Bay is a link in the Pacific Flyway chain for migratory shorebirds. For example, in 1996, 30 percent of western sandpipers fitted with radio tags at San Francisco Bay were relocated at Humboldt Bay on their spring migration north, providing evidence of the chain effect.[142]

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[135] Western Hemisphere Shorebird Reserve Network. 2016.

[136] Colwell, M. 1994.

[137] Schlosser & Eicher. 2012.

[138] Unpublished review of eBird data. 2016. Audubon California.

[139] Colwell. M. 2016. Letter to the Humboldt Bay Harbor, Recreation, and Conservation District.

[140] Myers, J.P. et al. 1987. Conservation Strategy for Migratory Species. American Scientist 75:19-26

[141] Warnock, N., J.Y. Takekawa, and M.A. Bishop. 2004. Migration and stopover strategies of individual dunlin along the Pacific coast of North America. Can. J. Zool. 82: 1687–1697.

[142] Bishop, M.A., Warnock, N. & Takekawa, J.Y. 2006. Spring migration patterns in Western Sandpipers *Calidris mauri*. *Waterbirds around the world.* Eds. G.C. Boere, C.A. Galbraith & D.A. Stroud. The Stationery Office, Edinburgh, UK. pp. 545-550.

Humboldt Bay is one of the three most important estuaries for shorebirds between the U.S.-Mexico border and the Fraser River Delta in Canada. It is the key estuary for shorebirds between San Francisco Bay to the south and Willapa Bay to the north and one of only three International or Hemispheric WHSRN sites between Mexico and Canada. With about 15,000 acres of mudflat at mean low tide, Humboldt Bay contains about half the amount of similar habitat in San Francisco Bay (29,000 acres), and 8-15 times more mudflat than Tomales and Bodega Bays (2000 acres and 900 acres, respectively).[143] As described below, Humboldt Bay is a critical wintering area—likely *the* critical wintering area—for the Beringean subspecies of marbled godwits.

Selected Species of High Concern

Table 1. Importance of Humboldt Bay to a subset of shorebird species using the bay primarily during migration (A) or winter (B).

Species	Count[a]	Estimated Population[d]	Estimated % Population Reliant on Humboldt Bay[e]
A) migration			
Western Sandpiper	100,000[b]	3,500,000	22.86%
Least Sandpiper	36,046	700,000	41.20%
Dunlin (Pacific breeding subspecies)	56,115	550,000	81.62%
B) winter			
Marbled Godwit	17,546	170,000	10.32%
Long-billed Curlew	609	140,000	0.435%

a: from Colwell & Danufsky 2006 unless otherwise noted. Danufsky. T. and M. Colwell. 2003. Winter shorebird communities and tidal flat characteristics at Humboldt Bay, CA. The Condor, 105(1):117-129. 2003
b: Colwell, M. 2015. Letter to Humboldt Bay Harbor, Recreation, and Conservation District.
c: Pacific Flyway Shorebird Survey. 2013. Note: Data are provided simply as north and south bay. Underlying raw data were not available from Pt Blue Conservation Science.
d: Andres, B.A., Smith, P.A., Morrison, R.I.G., Gratto-Trevor, C.L., Brown, S.C. & Friis, C.A. 2012. Population estimates of North American shorebirds, 2012. Wader Study Group Bull. 119(3): 178–194.
e: Assuming 100 percent turnover, twice a week for four weeks, for sandpipers and dunlin only. Godwit and curlew are winter residents and the population estimates are calculated directly from high counts.

Western Sandpiper (*Calidris mauri*)

The RDEIR asserts that ~~–~~many species (e.g. western sandpipers) demonstrate plasticity in selecting stopover sites, thus allowing them to exploit food sources when available and to avoid predators. This is evidenced by large flocks of sandpipers routinely observed foraging on mudflats throughout Humboldt Bay for brief periods during migration. Because sandpipers demonstrate low site fidelity and rely on a very small proportion of the bay during migration, the Project (particularly given its generally low elevation) is unlikely to restrict foraging opportunities."[144] This assertion is unsupported and is contradicted by the best available

[143] Western Hemisphere Shorebird Reserve Network. 2016.

[144] RDEIR at 6.5-10.

information about western sandpipers and their use of Humboldt Bay, as well as by shorebird conservation ecology and status in general. The Project, particularly the 95.5 acres proposed in the EBMA, would have significant impacts to western sandpipers that are not mitigated.

An estimated 22.86 percent of all western sandpipers use Humboldt Bay each winter in their migratory cycle (Table above). This is likely an underestimate, based on more current observations. On April 17, 2012, expert birder David Fix counted 250,000 western sandpipers at one location in the EBMA. This single count represents seven percent of the global population of western sandpipers, 3.5 million.[145] The species is thought to be declining.[146] Habitat loss and degradation and disturbance, may be the most significant threats to western sandpipers.[147]

Three sandpipers—dunlin, least, and western sandpipers—account for 53-87 percent of all shorebirds using Humboldt Bay.[148] All three species, but especially western sandpiper and dunlin, primarily use open habitats, such as mudflats, during migration and winter. Species using open habitats tend to rely on fast flights from the ground to escape aerial predators, which can be a major source of morality in Pacific estuaries.[149,150] Thus, vegetation and topographical features are not perceived as safe but as obstructive cover, allowing undetected approach by aerial predators, and are generally avoided.[151] These species are known to avoid structures including aquaculture.[152,153] The Project includes 184.4 acres of patchy eelgrass that is likely heavily utilized by western sandpiper. This includes 95.5 acres in the East Bay Management Area, where eBird records report the largest flocks.

Western sandpiper and dunlin avoid cultured areas and do not go under structures in Tomales Bay.[154] Further ―a net decrease in overall shorebird use of open tidal flats developed for aquaculture" was driven in large part by the avoidance of these areas by western sandpiper and dunlin, the two most abundant shorebirds in the bay.[155] The authors cite other studies showing that small losses in the extent or quality of available shorebird feeding habitat could result in proportionally greater decreases in wintering shorebird populations.

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[145] Fix, D. 2012. April 17. Ebird record from ―Acata Bay" hotspot, 40.8548512,-124.1050386

[146] Fernández, G., N. Warnock, D.B. Lank, and J.B. Buchanan. 2010. Conservation Plan for the Western Sandpiper (Calidris mauri). Version 1.1. Manomet Center for Conservation Sciences, Manomet, Massachusetts.

[147] Fernandez et al. 2010.

[148] Colwell, M. 1994.

[149] Page, G. & Whitacre., D. F. 1975 Raptor predation on wintering shorebirds. *Condor* 77, 73–83.

[150] Burns, J. G. and Ydenberg, R. C. 2002. The effects of wing loading and gender on the escape flights of least sandpipers (*Calidris minutilla*) and western sandpipers (*Calidris mauri*). – Behav. Ecol. Sociobiol. 52: 128–136.

[151] Piet J. van den Hout,a Kimberley J. Mathot,b Leo R.M. Maas,c and Theunis Piersm. 2009. Predator escape tactics in birds: linking ecology and aerodynamics Behavioral Ecology doi:10.1093/beheco/arp146

[152] Kelley, J., J. Evens, R. Stallcup, and D. Wimpfheiner. 1996. Effects of aquaculture on habitat use by wintering shorebirds in Tomales Bay, California. California Fish and Game 82(4): 160-174.

[153] Fernandez et al. 2010.

[154] Kelley, J. 2016. Personal Communication.

[155] Kelley, J., et al. 1996.

Dunlin (Calidris alpina)

The RDEIR fails to evaluate the impacts of the existing operations of the Project on dunlin, even though an estimated 81.62 percent of the western Alaska breeding subspecies (*C. a. pacifica*)—the majority of the total population of dunlin rely on Humboldt Bay in the winter. This subspecies, numbering about 550,000, uses the Pacific Flyway exclusively and largely winters on the North Pacific coast from Baja to southern British Columbia.[156] The one-day high count for one site at Humboldt Bay reported in eBird by bird guide author David Fix, is 40,000 birds[157], more than seven percent of the total western subspecies and almost three percent of the total North American breeding population comprising three subspecies. Dunlin avoid structured natural and artificial habitats including aquaculture areas,[158,159] making the unmodified mudflat and patchy eelgrass of Humboldt Bay critically important to this species. As noted above, the 184.4 acres of patchy eelgrass and mudflat are essential foraging habitat for dunlin.

Marbled Godwit (*Limosa fedoa*)

The RDEIR barely mentions and fails to evaluate the impacts of the Project or existing operations to the marbled godwit, a species on the 2016 State of the Birds Watchlist, despite the fact that 10.32 percent of its global population winters on the bay (table above). Marbled godwit is among the species most at risk of extinction without significant conservation action.[160] The RDEIR states that "shorebirds are unlikely to forage in the 409 acres of the Project proposed in dense eelgrass beds; those areas experience frequent inundation and are of lower value to shorebirds compared to unvegetated mudflats, where shorebirds typically forage… in general, the elevation of the Project footprint is low in the tidal frame." [161] These statements are largely false. Marbled godwits forage on mudflats and in continuous and patchy eelgrass; in fact, marbled godwit correlates positively with eelgrass cover.[162] That Humboldt Bay is of substantial importance to the marbled godwit is evidenced by the choice of this species as the mascot of the biannual "Godwit Days" shorebird festival focused on the bay.

Further, the RDEIR unlawfully fails to mention or evaluate impacts to the Beringian subspecies of marbled godwit (*Limosa fedoa beringea*). Humboldt Bay is especially vital for this rare bird. Numbering only about 2,000 individuals, this species breeds only in a discrete area in southwest Alaska and winters from Washington to California, relying heavily on Humboldt Bay in the winter. This subspecies has a larger body and shorter beak than other marbled godwits and

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[156] Andres, B. et al. 2012.

[157] Fix, D. 2012. eBird observation at "Arcata Bay" hotspot: 40.8548512,-124.1050386.

[158] Kelley, J., J. Evens, R. Stallcup, and D. Wimpfheiner. 1996. Effects of aquaculture on habitat use by wintering shorebirds in Tomales Bay, California. California Fish and Game 82(4): 160-174.

[159] Kelly, J. 2016. Personal communication.

[160] State of the Birds Watchlist 2016.

[161] RDEIR at 6.5-108.

[162] Connolly, L. M., and M. A. Colwell. 2005. Comparative use of longline oysterbeds and adjacent tidal flats by waterbirds. Bird Conservation International 15:237–255.

represents an important part of the genetic diversity in the world population of this vulnerable species.[163]

Long-billed curlew (*Numenius americanus*)

Long-billed curlew, classified as "highly imperiled" and declining,[164] is considered one of the highest priorities for monitoring and conservation among the shorebird species breeding in the temperate region.[165] This highlights the importance of protecting wintering habitats such as Humboldt Bay, which supports a winter population of approximately 609 curlews equaling 0.435 percent of the global population of 140,000. The RDEIR falsely presents far lower curlew numbers using the bay (300 individuals), and higher global population estimates (161,000 individuals) than in available data sets and literature that represent the best available information, as shown in the table above.[166]

Humboldt Bay was thoroughly surveyed for curlews from 1998-2002, which were distributed patchily with aggregations in certain areas (Figure 3). "Territoriality has been reported for approximately 25 percent of shorebird species, but few taxa defend food resources within territories as large and for as long as curlews… the patchy distribution of the curlew suggests that protection of high-quality foraging habitats (e.g., Elk River estuary) may be warranted, especially where areas of high human use are nearby"[167] The Project footprint overlaps with a number of documented curlew territories in the EBMA, on the west side of Bird Island, and around Sand Island. The impacts of existing and proposed aquaculture to these and other curlew territories is unknown.[168]

Curlews are likely to feed in patchy eelgrass and mudflat and, to a lesser extent, dense eelgrass. The Project footprint includes 184.4 acres of patchy eelgrass and, together with the existing footprint, may overlap with half or more of curlew territories in the Bay. Coast did not present an analysis of the number of curlew territories overlapping with its existing and proposed operations, which could be done with the raw data from the Mathis et al. 2006 study. Therefore, the RDEIR fails to adequately describe the impacts of the Project and existing operations on this species.

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[163] Gibson. D and B. Kessel. Geographic variation in the marbled godwit and description of an Alaskan subspecies. The Condor 91:436-443.

[164] U.S. Shorebird Conservation Plan. 2004. High priority shorebirds – 2004. U.S. Department of Interior, Fish and Wildlife Service, Arlington, Virginia.

[165] Fellows, S. D., and S. L. Jones. 2009. Status assessment and conservation action plan for the Long-billed Curlew (*Numenius americanus).* U.S. Department of Interior, Fish and Wildlife Service, Biological Technical Publication, FWS/BTP-R6012- 2009, Washington, D.C.

[166] RDEIR at 6.5-109.

[167] Mathis, R, M. Colwell, L. Leeman, and T. Leeman. 2006. Long-billed curlew distributions in intertidal habitats: scale-dependent patterns. Western Birds 37:156-168.

[168] Mathis et al 2006.

The RDEIR acknowledges that "[c]urlews maintain winter foraging territories in North Bay, particularly along channel edges, and it is possible that some curlews may be displaced from newly developed aquaculture areas… their territoriality on mudflats during low tide suggest those areas represent important foraging areas for meeting their energetic needs for migration and reproduction."[169] Yet the RDEIR finds no significant impact to curlews based on Conservation Measures BIO-10 and -12. This finding is unsubstantiated and contradicted by the best available information discussed above. Conservation Measure BIO-10 pertains to marine mammals and is irrelevant. It is unclear why this measure is offered for curlews. Conservation Measure BIO-12 — "Coast will not intentionally approach or harass migratory birds that are actively feeding or resting" — does not require measures to actively avoid birds.

Impacts of Climate Change on Shorebirds in Humboldt Bay

The RDEIR fails to evaluate the impacts of its Project on shorebirds relative to sea level rise and underlying geological processes in Humboldt Bay. This information is readily available: the California State Coastal Conservancy found that Humboldt Bay will be more impacted by sea level rise than other areas on the west coast, due to underlying geological processes[170]:

> The higher relative sea level rise rates observed in Humboldt Bay … indicate that a global rise in sea levels will affect Humboldt Bay faster than other parts of U.S. west coast; and within the bay the southern end will be affected sooner than the northern portions of the bay. Humboldt Bay water levels have increased approximately 0.5 m over the last 100 years due to a high [relative sea level] rise rate.

The report recommends "[c]onduct[ing] a detailed assessment of tidal wetland [sea level rise] vulnerability." Climate change is impacting shorebirds in predicted as well as unanticipated ways. Sea level rise is predicted to inundate 23-40 percent of shorebird intertidal habitats in the East Asian-Australasian Flyway.[171] At least one shorebird, the red knot (*Calidris canutus canutus*) has experienced reductions in body size linked to Arctic warming. Reduced body size has reduced individual fitness in this subspecies and may be a driver for recent steep population declines. Reduced body size and other morphological changes due to climate change may be impacting other Arctic shorebird migrants.[172]

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[169] RDEIR at 6.5-109.

[170] Humboldt Bay: Sea Level Rise, Hydrodynamic Modeling, and Inundation Vulnerability Mapping. 2015. Prepared for State Coastal Conservancy, and Coastal Ecosystems Institute of Northern California. Northern Hydrology and Engineering.

[171] Iwamura T, Possingham HP, Chade`s I, Minton C, Murray NJ, Rogers DI, Treml EA, Fuller RA. 2013. Migratory connectivity magnifies the consequences of habitat loss from sea-level rise for shorebird populations. Proc R Soc B 280: 20130325. http://dx.doi.org/10.1098/rspb.2013.0325

[172] Gils, J. S. Lisovski, T. Lok, W. Meissner, A. Ozarkowska, J. de Fouw, E. Rakhimberdiev, M. Soloviev, T. Piersma, and M. Klaassen. 2016. Body shrinkage due to Arctic warming reduced erd know fitness in tropical wintering range. Science 352:6287.

Shorebirds are likely to experience significant reductions in the availability and quality of intertidal and other coastal habitats as a result of sea-level rise, and this loss of quality habitat will likely result in smaller shorebird populations. For example:

> Shorebird risk factors include lengthy, energetically expensive migrations where they may be vulnerable to changes in wind patterns, dependence upon coastal migration stopover sites that are vulnerable to sea level rise, and dependence upon ecological synchronicities that may disrupted by a changing climate. … assessments of vulnerability to climate change often ignore problems associated with a migratory life history, causing them to underestimate vulnerabilities. Shorebirds are already in a vulnerable condition and climate change may exacerbate this. Reductions have been seen in virtually all shorebird flyways…[173]

Habitat loss from sea level rise at migratory bottleneck sites such as Humboldt Bay could disproportionally impact population persistence. In the East Asian-Australasian Flyway, models predicted that ~~–s~~ea level rise will inundate 23.4 percent of [shorebirds] intertidal habitat, and cause a reduction in population flow up to 72 percent across taxa."[174] There has been no comprehensive analysis of shorebird habitat loss to sea level rise along the Pacific Flyway, yet this is an identified need.

Impacts of Aquaculture Infrastructure on Shorebirds

The 2003 Southern Pacific Shorebird Conservation Plan sets forth priority conservation actions for Humboldt Bay that include prohibiting ~~–f~~urther alteration of tidal flats for oyster culture."[175] Shorebird species that forage in Humboldt Bay eelgrass beds include black-bellied plover, semipalmated plover, marbled godwit, black turnstone, long-billed curlew, dunlin whimbrel, willet, long-billed and short-billed dowitchers, sanderling, and lesser and greater yellowlegs.

The RDEIR points to a Humboldt Bay study showing that certain shorebird species have demonstrated preference for feeding in aquaculture plots in Humboldt Bay, while other species avoid these plots, with a greater overall abundance of shorebirds in longline plots vs. control plots.[176] However, this study does not demonstrate that the project would not have significant adverse impacts on some species, nor that its overall effects would be beneficial for any species. Marbled godwit and dowitchers correlate positively with eelgrass cover, and black-bellied plover avoids aquaculture plots.[177] The study's authors note that ~~–t~~emporary benefits to birds may be

[173] Galbraith H, DesRochers DW, Brown S, Reed JM (2014) Predicting Vulnerabilities of North American Shorebirds to Climate Change. PLoS ONE 9(9): e108899. doi:10.1371/journal.pone.0108899

[174] Iwamura et al. 2016.

[175] Hickey, C., W.D. Shuford, G.W. Page, and S. Warnock. 2003. Version 1.1. The Southern Pacific Shorebird Conservation Plan: A strategy for supporting California's Central Valley and coastal shorebird populations. PRBO Conservation Science, Stinson Beach, CA.

[176] RDEIR at 6.5-107 to 6.5-108.

[177] Connolly, L. M., and M. A. Colwell. 2005. Comparative use of longline oysterbeds and adjacent tidal flats by waterbirds. Bird Conservation International 15:237–255.

compromised by long term habitat impacts, such as increased sedimentation or loss of native mudflat fauna." Further, one author, Mark Colwell, a Humboldt State University shorebird ecologist with 25 years of experience in the North Bay notes in a 2015 comment letter to the Harbor District that:

> To claim that loss and degradation of tidal flats (of whatever amount of area) would have less than significant' impact on shorebirds and other waterbirds that rely on this habitat is, at best, premature and, at worst, a misrepresentation of current knowledge on the subject. 7 percent of the bay is already in aquaculture production with unknown impacts on shorebirds. Mounting evidence indicates that, worldwide, populations of most shorebirds are in decline. Reasons for the decline are many but principal among them is the loss and degradation of habitats[178]

The RDEIR fails to cite a key study from Tomales Bay, which also found some shorebirds fed preferentially within aquaculture areas in Tomales Bay, yet the net effect was "a net decrease in overall shorebird use of open tidal flats developed for aquaculture" driven in large part by the avoidance of these areas by western sandpiper and dunlin, the two most abundant shorebirds in the bay.[179] The authors cite other studies showing that small losses in the extent or quality of available feeding habitat for shorebirds could result in proportionally greater decreases in wintering shorebird populations. Other studies have found that, during migration, turnover times in shorebirds are often rapid and there is little time for habituation during a phase of heightened energy demand for the migrants.[180]

The RDEIR fails to evaluate the impacts of disturbance to shorebirds other than long-billed curlew and black-bellied plover, particularly in the 184.4 acres of patchy eelgrass that provides essential intertidal foraging habitat for shorebirds. The Project Operation and Maintenance section fails to include a description of current vessel activity in the bay. According to the previous DEIR, the existing project includes 57 trips amounting to 218 hours/week.[181] The proposed Project would add 18 trips amounting to 74 hours/week. The total vessel activity would be 75 trips at 292 hours/week. This level of activity in the North Bay would clearly have a significant impact on shorebirds, a statement supported by the literature. In one study on the effects of human activity on shorebirds and waterbirds at a coastal refuge, birds were absent or disturbed 80 percent of the time in the presence of "men working."[182] When winter weather is

[178] Colwell, M. 2015. Letter to the Humboldt Bay Harbor, Recreation and Conservation District.

[179] Kelley, J., J. Evens, R. Stallcup, and D. Wimpfheiner. 1996. Effects of aquaculture on habitat use by wintering shorebirds in Tomales Bay, California. California Fish and Game 82(4): 160-174.

[180] Myers, J.P. et al. 1987. Conservation Strategy for Migratory Species. American Scientist 75:19-26.

[181] RDEIR at 4-17.

[182] Burger, J. 1981. The effect of human activity on birds at a coastal bay. Biol. Conserv. 21:231-241

severe and feeding conditions are poor, frequent disturbance of feeding birds can lead to starvation and death.[183]

Overall, the high rate of disturbance caused by workers attending the mariculture areas would negatively impact birds and other wildlife through the energetic costs of flushing, loss of key foraging habitats, and loss of time in key foraging habitat. The RDEIR utterly fails to adequately evaluate the impact of these disturbances to shorebirds. The RDEIR's evaluation of the impacts of disturbance on long-billed curlew are entirely inadequate. The EIR must be revised again to include full and accurate information about the Project's effects on Humboldt Bay's shorebirds and recirculated for further public comment.

The Proposed Project Would Have Significant Adverse Impacts on Salmonids

The RDEIR's assertion that the Project would have no significant impact on salmonids lacks any sound scientific basis. The RDEIR asserts that "ecological functions provided by oyster longline (e.g. prey resources) show similarities to those of eelgrass…."[184] However, as the Pacific Fishery Management Council has noted, "[t]he Project may significantly impact salmonid populations by reducing and altering EFH eelgrass habitat that provides foraging and refugia."[185] Humboldt Bay and its tributaries support coho salmon, Chinook salmon, steelhead trout and sea-run coastal cutthroat trout, a fact reflected in its designation as Essential Fish Habitat for salmonids under the federal Pacific salmon fishery management plan. The population of coho salmon protected under the federal and state Endangered Species Acts within the Humboldt Bay area is considered a "core" population for the Southern Oregon/Northern California Evolutionarily Significant Unit. These populations have also been declining, making further impacts to their health and productivity all the more significant.[186] Juvenile salmon and steelhead use eelgrass as a refuge from predators and to feed on epibenthic and epiphytic zooplankton, including copepods and amphipods that in turn feed on the bacteria from decaying eelgrass. Eelgrass also provides habitat for sand lance, surf smelt, and Pacific herring, all of which are important food items for juvenile and adult salmon.[187] The proposed project may significantly impact the salmon and trout populations of Humboldt Bay by potentially reducing and altering eelgrass habitat that provides foraging and refuge areas. Changes in habitat structure caused by the addition of aquaculture gear may alter fish community assemblages which could increase direct predation on outmigrating smolts.[188]

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[183] Goss-Custart, J.D., P. Triplett, F. Sueur, and A.D. West. 2006. Critical thresholds of disturbance by people and raptors in foraging wading birds. Biological Conservation 127:88-94.

[184] RDEIR at 6.5-83.

[185] PFMC 2015.

[186] NOAA Fisheries, West Coast Region. 2014. Southern Oregon/Northern California Coho Salmon Recovery Plan.

[187] PFMC. 2015.

[188] Department of Fish and Wildlife. 2015. Letter to the Humboldt Bayh Harbor, Recreation and Conservation District.

The Project Would Have Significant Adverse Impacts on Dungeness Crab

The RDEIR asserts that the Project will not have a significant adverse effect on Dungeness crab based on two incorrect assumptions: (1) the Project will not cause a significant loss of eelgrass habitat, and (2) ―the project is not significantly affecting the mosaic of habitats present in North Bay. Oyster longlines can provide similar prey resources as eelgrass….‖ [189] As explained above, the Project would in fact cause serious reductions in eelgrass habitat.

This substantial loss of eelgrass function and structure would have a significant impact on Dungeness crab. Furthermore, aquaculture gear does not provide equivalent habitat function. Dungeness crabs have a complex life history that includes movement to and from estuaries and coastal areas. Vegetated, intertidal estuaries are important nursery habitats for young crabs.137 Bare habitats are infrequently used by juveniles, most likely due to a lack of refuge from predation and decreased food abundance. After molting, ―juvenile crabs are found in shallow coastal waters and estuaries, and large numbers live in beds of eelgrass or other aquatic vegetation that provide protection and substrate and harbor food organisms for early instars.‖[190] Estuarine areas such as Humboldt Bay are important nursery areas for young Dungeness crabs.[191]

The Proposed Project Would Likely Have Significant Effects on Planktonic Food Sources

The RDEIR acknowledges that the proposed Project and the Harbor District‘s Pre-Permitting Project would add substantially to the biomass of filter feeding organisms relying on planktonic food in Humboldt Bay. Many other species in Humboldt Bay also rely on plankton for survival, including herring and Dungeness crab. While the DEIR admits that ―the existing and proposed culture would have some cumulative effect on Humboldt Bay food resources,‖ it fails to look further at how significant that cumulative effect might be.[192] Instead, the RDEIR dismisses the effect, stating that ―there is an abundance of food available and cultured species will not significantly affect the food resources in the bay. Therefore, impacts to food resources for other filter feeding organisms are considered less than significant under CEQA.‖[193] This circular reasoning does not justify its conclusion. If current and proposed operations cumulatively result in a significant reduction of a once-abundant abundant planktonic food source, that reduction could significantly and adversely affect other planktivores in Humboldt Bay. Moreover, the RDEIR does not present any evidence that these planktonic food sources, however abundant, are not already being fully utilized. We agree with the concerns regarding the carrying capacity analysis that DFW expressed in its Feb. 27, 2015 letter regarding Coast‘s Initial Study. The letter noted that the analysis used by Coast shows greater than 10 percent of the available daily average phytoplankton is already being consumed by current aquaculture activities. The level of consumption could be even higher if the model is re-run as the Department recommended,

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[189] RDEIR at 6.5-73.

[190] U.S. Fish and Wildlife Service. 1989. Species Profiles: Life Histories and Environmental Requirements of Coastal Fishes and Invertebrates (Pacific Southwest). Biological Report 82(11.121). December.

[191] California‘s Living Marine Resources: Dungeness Crab. 2001. California Department of Fish and Game.

[192] RDEIR at 6.5-43.

[193] RDEIR at 6.5-63 to 6.5-64.

utilizing a value of phytoplankton abundance calculated by taking the ―7 day average" of phytoplankton minima over a 10-year period in Humboldt Bay. Neither the RDEIR nor the October 2015 Carrying Capacity analysis provided as Appendix G appears to address these concerns. Furthermore, the Appendix G analysis indicates that the cumulative impact of the proposed culture operations could filter as much as 77 percent of available water in Humboldt Bay, thus approaching the flushing rate of the entire bay. The report attempts to dismiss the effects on planktonic resources by instead relying on alternative methods that contain untested assumptions that show less impact.[194] Coast dismisses the unfavorable results of its own modeling, which indicate that the Project could indeed deplete planktonic food sources, by suggesting that the model has shortcomings that render its results unreliable. Yet given that the RDEIR fails to provide any sound data or scientific evidence to affirmatively dispel these concerns, it cannot simply dismiss the significance of the Project's effects on plankton.

The Proposed Project Would Have Significant Adverse Impacts on Recreational Activities

The RDEIR entirely fails to address impacts to birdwatching, a very important recreational use in Humboldt Bay. For example, the Godwit Days festival is hosted twice a year and each event attracts 400-600 birders from all over the country. Such impacts would likely result from disturbance of godwits, brant and other birds, and reductions in numbers of some bird species due to degradation of habitat and food sources. In addition, dozens of commenters on the 2015 DEIR and the RDEIR have raised concerns regarding the Project's impacts on hunting, particularly with respect to brant.[195] While the RDEIR introduces Conservation Measure REC-1 to minimize disturbance due to active aquaculture activities on days open to brant hunting, it does not address impacts to the overall brant population (discussed above). These impacts to recreational uses must be fully analyzed in any revised EIR.

In addition, the RDEIR does not adequately address impacts to recreational watercraft use. As the RDEIR acknowledges, many people use small watercraft for recreational use of the bay for paddling, hunting, clamming, and other purposes.[196] Coast's existing operations are spread throughout the North Bay. The presence of aquaculture gear in this area already increases the difficulty of navigating safely, especially in poor weather or low lighting. At least nine individual comment letters on the 2015 DEIR, and two agency comment letters (County of Humboldt Planning Agency and Department of Fish and Wildlife), noted the hazards presented by the existing oyster farming gear. Figures 4a and 4b show these hazards to small watercraft. Any increase in the areal extent of operations could increase these hazards. As Figure 5 shows, Coast has failed to remove at least some of its discontinued apparatus, despite existing requirements to do so, per Special Condition No. 9 in the 2006 Coastal Development Permit requiring Coast to remove such apparatus within 30 days.[197] While the Project includes an intent to remove such

[194] RDEIR, App. G at 13.

[195] *See, e.g.*, Mark Hennelley, California Waterfowl, 2016, pers. comm. (―The only other significant brant hunting area (Morro Bay) has lost almost all of its eelgrass habitat in recent years despite restoration efforts. Thus Humboldt Bay is by far the most significant area left to hunt brant in California. If we lose Humboldt, we really lose the brant hunting culture itself.").

[196] RDEIR at 6.11-1.

[197] California Coastal Commission. 2006. Final Adopted Findings on CDP Application E-06-003.

apparatus (Mitigation Measures HAZ 2-4), the failure of Coast to adequately comply with this 2006 permit requirement calls into question the company's ability to do so for the Project.

Due to the importance of Humboldt Bay for brant hunting, Coast received numerous comments on the 2015 DEIR opposing proposed continued and expanded aquaculture in the North Bay. Comments from the FWS, DFW, the Coastal Commission, California Waterfowl Association, and numerous residents who enjoy hunting in the Bay describe the essential need to protect eelgrass beds and gritting areas from degradation and disturbance. The traditional skull boat (Figure 6) was developed in the area and is an important part of the hunting culture of the Bay. The Project described in the RDEIR does little to meaningfully address those uses or concerns or provide adequate mitigation for impacts to brant feeding, resting, and gritting.

The DEIR Fails to Analyze a Reasonable Range of Alternatives

The RDEIR fails to satisfy CEQA's core requirement to analyze a range of alternatives that would avoid or substantially lessen the proposed project's impacts on the environment. The RDEIR does not consider any alternatives that might offer some environmental improvement over the project proposal—for example, smaller expansions, consolidating operations in less sensitive areas or in smaller gaps in currently operated parcels, and altering the location and/or configuration of currently operated acreage. The RDEIR improperly rejects two environmentally superior alternatives, the Eelgrass Avoidance and Avoidance of East Bay Management Area alternatives, as infeasible. Coast provides no evidence to support the contention that these alternatives are actually infeasible. While these alternatives may reduce the profitability of operations, that is not a sufficient basis to reject them as infeasible. Moreover, an alternative that would substantially reduce a significant adverse impact cannot be excluded on the basis of alleged economic infeasibility without "meaningful comparative data" in the EIR and evidence supporting any claim of economic infeasibility. *Ctr. for Biological Diversity v. Cnty. of San Bernardino* (2010) 185 Cal.App.4th 866, 884. The revised DEIR should include a thorough analysis of both of these alternatives, which are viable alternatives for CEQA analysis and may be necessary to comply with California Coastal Zone Management Act permitting requirements.

The RDEIR also fails to identify a valid Environmentally Superior Alternative. The RDEIR's statement that "[b]ecause no significant unavoidable adverse impact has been identified for the Project or any of the proposed Alternatives, there is no alternative that is 'environmentally superior,' as defined by CEQA" is based on a false premise.[198] With the exception of the "No Project" alternative, all of the alternatives presented in the DEIR are likely to have significant adverse impacts on fish, wildlife, and their habitats. The "Alternative 1: 10-Foot Spacing Alternative" that the RDEIR asserts is the Environmentally Superior Alternative does not, in fact, reduce the footprint of aquaculture within eelgrass habitat or any other habitat type. To the contrary, this alternative would *increase* the footprint and the substantial negative impacts associated with these operations.

An adequate revised DEIR must include an alternative that both avoids eelgrass in new expansion areas and removes oyster farming operations from the East Bay Management Area

[198] RDEIR at 5-16.

that is critical for Pacific herring spawning, black brant, other waterfowl, and shorebirds. We specifically recommend that mariculture activities cease in the EBMA, provide a 1000-ft. buffer for brant gritting areas, and avoid areas with high densities of long-billed curlew territories. We encourage Coast to work collaboratively with the relevant agencies and key stakeholders in a marine spatial planning framework to evaluate a revised project configuration that would meet project objectives while satisfying the CEMP, other applicable policies, and federal and state law.

The RDEIR Fails to Analyze Cumulative Impacts Adequately

The RDEIR correctly notes the existing project, proposed Project, and Harbor District project would occupy 27.3 percent of eelgrass in North Bay, and 16.3 percent of intertidal habitat in North Bay overall. The DEIR's analysis of cumulative impacts suffers from similar flaws as its analysis of the impacts of the proposed project expansion. The DEIR's gross underestimate of the proposed expansion's impacts to eelgrass habitat and fish and wildlife species and the resulting erroneous "less than significant effect" conclusions fundamentally undermine the cumulative impacts analysis. The RDEIR similarly underestimates the overall impact of the proposed project, other existing aquaculture operations, and the Harbor District's pre-permitting aquaculture project. As discussed above, a rational, science-based examination of current and likely future impacts from aquaculture operations readily demonstrates that the proposed project would have individually and cumulatively significant adverse impacts on multiple biological and ecological resources.

The RDEIR Fails to Acknowledge Impacts to Other Important Uses

The "Economic Impact Analysis" provided in Appendix J of the RDEIR addresses factors that are not relevant under CEQA. Specifically, the alleged economic benefit of a proposed project is not a factor that the lead agency may weigh in determining whether the project has a significant effect on the environment or otherwise complies with CEQA. Economic changes in and of themselves are not considered significant effects on the environment; an economic change that stems from a project's physical changes to the environment may only be considered in determining whether the physical change itself is significant.[199] Predicted economic benefits may not be weighed against a proposed project's impacts to the environment.

At the same time that it touts the purported economic benefits of the Project, Coast fails to acknowledge the many negative economic impacts that would result from the adverse physical changes the Project would have on habitats crucial for valuable uses such as ecotourism, birdwatching, paddling, commercial and recreational fisheries for Dungeness crab, salmon, and groundfish, hunting, and clamming. The annual Godwit Days festival generates at least $170,000 per year for local businesses. Dungeness crab alone has generated $45 million in ex-vessel revenue alone for North Coast ports, primarily Eureka. While the RDEIR need not analyze economic impacts under CEQA, to the extent it does so, it should identify the negative economic impacts that would result from the extensive physical changes that the Project would cause in Humboldt Bay.

[199] CEQA Guidelines, § 15382.

Coast Has Not Complied with Mitigation Conditions Placed on Current Operations

Recognizing that Coast's operations (the same operations proposed for renewal here) would have adverse effects on eelgrass that would not be fully mitigated, the Coastal Commission attached a number of Special Conditions to its 2006 Coastal Development Permit. As described below, Coast has failed to meet at least three of those conditions. Coast's failure to comply with permit conditions on its existing operations seriously undermines its contention that it will carry out future monitoring and mitigation.

Special Condition No. 2 requires that "a maximum of 11.5 acres of future plantings be sited in known or historic eelgrass habitat within Coast's EBMA. Future plantings in the EBMA shall be sited in the bed identified on Exhibit 2 as EB 7-2."[200] The majority of the proposed expansion is located mainly in the EBMA, directly violating the Special Condition. The RDEIR states: "[c]ertain comments received on the Draft IS and in response to the DEIR recommended avoiding planting in the EBMA ("East Bay Avoidance Alternative"), noting that the Coastal Commission had requested avoidance of the area as part of CDP No. E-06-003 issued for the existing footprint."[201] The DEIR dismisses this violation of a Special Condition by stating, "[t]he primary reason that the East Bay Avoidance Alternative was screened from further review is that it would not avoid or substantially reduce a significant impact identified in the RDEIR. The primary reason that the East Bay Avoidance Alternative was suggested is that the East Bay provides ground for herring spawn and is used by brant and other shorebirds. As further addressed in Section 6.0, the RDEIR has evaluated those impacts and determined that the Project, including the proposed footprint in the EBMA, would result in a less than significant impact to such species. Moreover, the East Bay has some of the best shellfish growing conditions in North Bay, with excellent water quality, lower wave exposure, and increased upwelling correlated with peaks in phytoplankton abundance. Expanding culture in this area will thus significantly further Project objectives without creating any significant environmental impacts. Therefore, this alternative was screened from further evaluation."[202] As should be abundantly clear from our comments above, the assertion that the project would have no significant impacts in the EBMA is wrong.

Special Condition No. 3 required that in the months of December, January, and February, "Coast shall visually inspect beds prior to planting and/or harvesting, to determine if Pacific herring (*Clupea pallasi*) has spawned on eelgrass, culture materials, or substrate. If herring spawning is observed, Coast shall: 1) postpone for two weeks planting and/or harvesting activities on those beds where spawning has occurred, and 2) notify the California Department of Fish and Game (DFG) Eureka Marine Region office of the spawn within 24 hours. Coast shall keep records of when DFG was notified of the spawning event, and those records shall be included with the annual report…" As described earlier in this letter, DFW and the Coastal Commission have noted that Coast *never* contacted DFW in regard to herring spawn, despite confirmation of spawn taking place in December-February in the area of aquaculture operations.

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[200] California Coastal Commission. 2006. Final Adopted Findings on CDP Application E-06-003.

[201] RDEIR at 5-9.

[202] *Id.*

Special Condition No. 7 required that ~~–~~within 30 days of harvest on any plot that is being abandoned, or taken out of production for one year or more, the applicant shall remove all oyster culture apparatus from that plot, including but not limited to stakes, racks, and pallets." As noted above, Coast's failure to undertake this required remediation has created navigational hazards and impediments to recreation and casts serious doubt on Coast's future compliance with Mitigation Measures related to these hazards, including: Mitigation Measure HAZ-2: Within 30 days of harvest on any area that is being discontinued or taken out of production for one year or more, Coast will remove all shellfish culture apparatus from the area, including but not limited to, stakes, racks, baskets, and pallets; Mitigation Measure HAZ-3: Coast will implement annual employee training regarding marine debris issues and how to identify loose culture gear and proper gear repair and removal methods; and Mitigation Measure HAZ-4: Coast will conduct quarterly bay cleanups in coordination with other interested parties or organizations, which will include walking portions of the bay and shorelines to pick up escaped shellfish gear and other trash (regardless of whether it is generated by the Project). The volume of shellfish gear collected shall be recorded.[203]

Conclusion

For the reasons explained above, the RDEIR fails in multiple ways to adequately analyze the effects of Coast's massive proposed expansion of oyster aquaculture operations in Humboldt Bay, as well as the effects of continued operations. A properly revised DEIR must correct these significant failures to observe CEQA's public informational requirements, including identifying alternatives that avoid any significant impact to eelgrass habitat and fish and wildlife species dependent on it. The public must then be given an opportunity to comment on the significant new information that new revised DEIR contains. We recommend that the new revised DEIR include an alternative that both avoids eelgrass in any expansion areas and removes oyster farming operations from the EBMA that is critical for Pacific herring spawning, black brant, other waterfowl, and shorebirds. We also recommend that mariculture activities cease in the East Bay Management Area, provide a 1000-ft. buffer for brant gritting areas, and avoid areas with high densities of long-billed curlew territories. We encourage Coast to work collaboratively with the relevant agencies and key stakeholders in a marine spatial planning framework to evaluate a revised project configuration that would meet project objectives while satisfying the CEMP, other applicable policies, and federal and state law.

Thank you for your consideration of our comments. Please do not hesitate to get in contact with us if you have any questions about any of the issues we raise.

Sincerely,

Andrea A. Treece
Staff Attorney, Oceans Program
Earthjustice

[203] RDEIR at 6.10-6.

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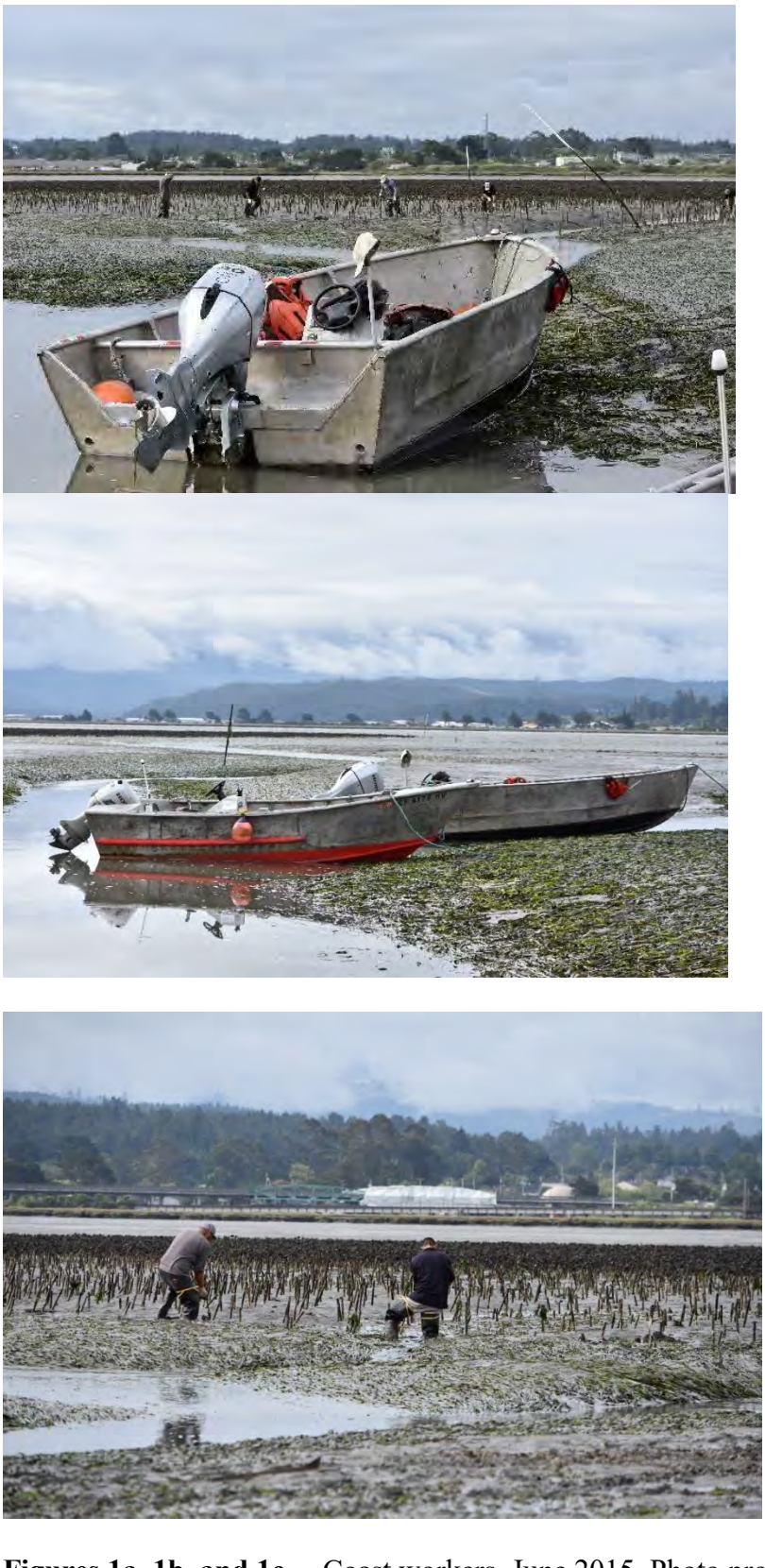

Figures 1a, 1b, and 1c. Coast workers, June 2015. Photo provided by CDFW.

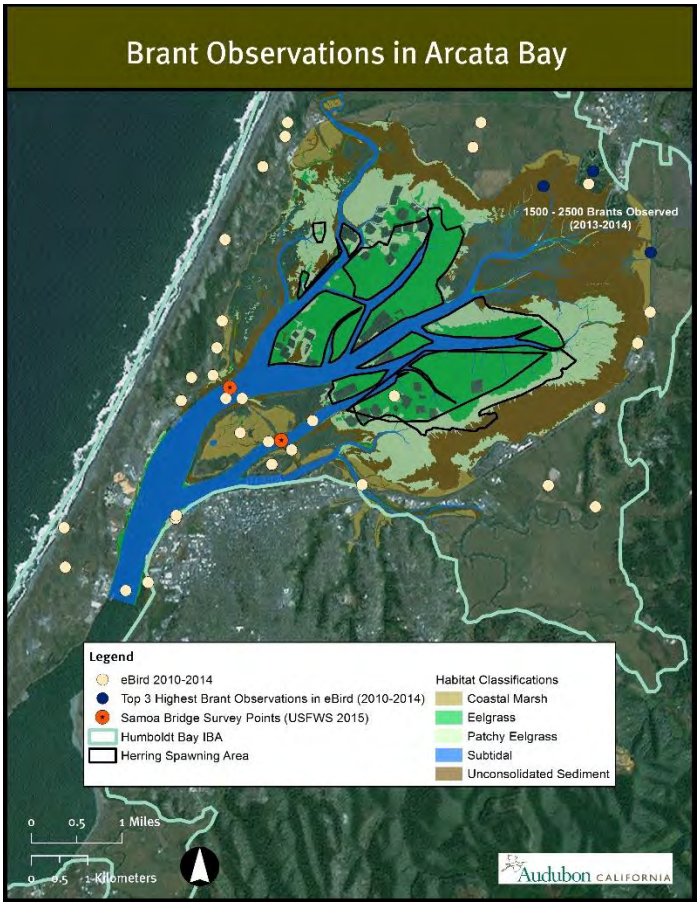

Figure 2. Brant observation points in Arcata Bay, 2010-2014. The FWS survey points at Samoa Bridge are in red. The top three highest observations of Brant in eBird, 2010-2014, are in blue.

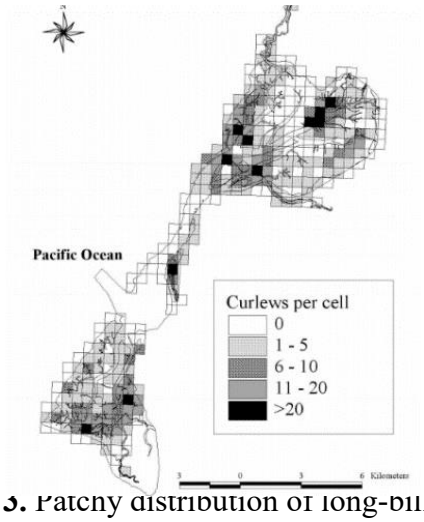

Figure 3. Patchy distribution of long-billed curlew territories in Humboldt Bay (from Mathis et al. 2006).

Figures 4a and 4b. Photos provided by Ted Romo, local hunter, illustrating hazards to navigation cited in two agency comment letters and nine letters from individuals on the 2015 DEIR.

Figure 5. An abandoned, unremediated Coast Seafood oyster culch on longline plot in the East Bay Management Area, 2015.

Figure 6. Steve Rosenberg in his brant hunting skull boat.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

West Coast Region
777 Sonoma Avenue, Room 325
Santa Rosa, California 95404

SEP 12 2016

In response refer to: WCR-2015-0055

Jack Crider
Executive Director
Humboldt Bay Harbor, Recreation, and Conservation District
601 Startare Drive
Eureka, California 95501

Dear Mr. Crider;

This letter constitutes NOAA's National Marine Fisheries Service's (NMFS) comments on the Humboldt Bay Harbor, Recreation, and Conservation District's (District) Re-Circulated Draft Environmental Impact Report (R-DEIR) for the proposed Coast Seafoods Company (Coast) Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project) in Humboldt County, California. Coast proposes to continue operations on 300 acres and expand shellfish aquaculture operations into 622 intertidal acres of Humboldt Bay in two phases.

The Project is located within the jurisdiction of the NMFS West Coast Region California Coastal Office, and requires a new U.S. Army Corps of Engineers (Corps) permit. As the lead federal action agency, the Corps must conduct an Endangered Species Act (ESA) Section 7 consultation and a Magnuson-Stevens Fishery Conservation and Management Act (MSA) - Essential Fish Habitat (EFH) consultation with NMFS. For each of these consultations, we will analyze the ongoing effects of Coast's current aquaculture operations as well as those effects anticipated from the proposed expansion. Therefore, we expect Coast will expand their effects analysis to include both the ongoing and future activities in their biological assessment and permit application to the Corps. The R-DEIR and subsequent final EIR are sources of information we will consider when completing consultation with the Corps.

NMFS is the lead federal agency responsible for the stewardship of the nation's offshore living marine resources and their habitats, and implements the ESA, the MSA, and the Marine Mammal Protection Act (MMPA) to fulfill its mission of promoting healthy ecosystems. Federally-managed living marine resources provide an important source of food and recreation for the nation, as well as thousands of jobs and a traditional way of life for many coastal communities, healthy ocean populations and ecosystems. NMFS also plays a central role in developing and implementing policies that enable marine aquaculture and works to ensure that aquaculture complies with existing federal laws and regulations that NOAA implements under its marine stewardship mission.

NOAA's aquaculture goals and objectives as outlined in both the Department of Commerce and NOAA's National Marine Aquaculture policies issued in June 2011, encourage and foster development of sustainable marine aquaculture in the context of NOAA's multiple stewardship missions, and social and economic goals. Also in June 2011, NOAA issued a National Shellfish Initiative to further the goal of increasing populations of bivalve shellfish in our nation's coastal waters through sustainable commercial production and native shellfish restoration activities. NOAA recognizes the broad suite of economic, social, and environmental benefits potentially provided by shellfish, including jobs and business opportunities; meeting the growing demand for seafood; habitat for important commercial, recreational, and endangered and threatened species; species recovery; cleaner water and nutrient removal; and shoreline protection.

We reviewed the sections of the R-DEIR that pertain to our trust resources and identified several fundamental issues that require further explanation or revision before we can support the District's conclusions.

Range of Alternatives

While we recognize Coast's primary objective is to increase aquaculture production within their lease area, and appreciate the new preferred alternative has made significant progress in avoiding areas of continuous eelgrass, the R-DEIR lacks alternatives that avoid eelgrass to the maximum extent practicable (with the exception of Alternative 4: the no project alternative). As per NMFS' California Eelgrass Mitigation Policy (CEMP), we recommend compensatory mitigation for the loss of existing eelgrass habitat function only after avoidance and minimization of effects to eelgrass are pursued to the maximum extent practicable. As such, we encourage the District to consider additional alternatives that further avoid and minimize impacts to eelgrass. We believe this is particularly important because the projected loss of eelgrass reported in the R-DEIR is likely a substantial underestimate, especially considering the R-DEIR did not consider the continued suppression of eelgrass from the existing 300-acres of culture.

Eelgrass Impact Analysis and Mitigation

Our most significant concerns pertain to the lack of proposed mitigation and the assumptions made in the eelgrass impact analysis. Overall, we found the analysis relied heavily on one study (Rumrill and Poulton 2004), which likely led to a substantial underestimate of the potential impact to eelgrass, as evidenced by personal communications with Dr. Rumrill (Rumrill, personal communication, 2015). NMFS believes that the continued presence and installation of several hundred acres of longlines within and adjacent to eelgrass habitat does not result in a neutral effect to eelgrass. Installing longlines within and adjacent to current eelgrass habitat will have an effect on the biomass, shoot density, and aerial extent of eelgrass. We strongly recommend Coast reevaluate their approach used for Phase 2 of the project that relies on a neutral effect to eelgrass during Phase 1 of the project, which NMFS believes is not possible. Other issues we found within the analysis include:

- The R-DEIR failed to analyze effects to eelgrass from Coast's current operations in Humboldt Bay. The eelgrass density reduction analysis relies on impact scenarios to predict the range of impacts to eelgrass density. The revised eelgrass impact analysis identifies a total maximum of 4.7 to 35.9 acres of eelgrass that would be impacted in the 210-acre Phase

1 expansion area; however, the analysis does not consider the current operations despite ongoing impacts to eelgrass from existing culture. Therefore, the eelgrass density reduction analysis should incorporate the 296-acres of existing shellfish culture to more accurately capture ongoing impacts in addition to anticipated future impacts.

- The R-DEIR proposes to convert 100-acres of its existing footprint from 2.5-ft spaced, single-hung cultch on-longline to 10-ft spaced, double-hung cultch-on-longline to mitigate for impacts to eelgrass from the Phase 1 expansion. According to Coast's analysis, Phase 1 of the re-designed project is calculated to result in a net neutral or potentially beneficial overall impact to eelgrass density. For example, the mitigation lift is predicted to range from 6 to 36.8 acres of new eelgrass depending on the impact scenario. While the conversion of existing operations from 2.5-ft spacing to 10-ft spacing results in a calculated net neutral or potentially beneficial impact to eelgrass density for the Phase 1 expansion, the R-DEIR fails to consider or offer mitigation for the current operations on 296 acres. Therefore, NMFS believes that the continued suppression of eelgrass and effects associated with existing culture requires additional mitigation in order to be permitted in the future.

Effects to Federally Listed Species

The R-DEIR does not adequately address effects to federally listed species (green sturgeon, Chinook salmon, coho salmon, and steelhead) and their designated critical habitat and does not incorporate information provided by NMFS. More thorough analyses would likely reveal the need for further conservation measures to reduce the negative effects of the project to listed species.

Green Sturgeon

The District should evaluate potential harm, injuries, and stranding potential for individual green sturgeon caused by encounters or entanglement with suspended longlines and sharp oyster cultch adjacent to areas known to be frequently occupied by green sturgeon. Dense line spacing (2.5ft longline spacing) creates a high likelihood for harm, entanglement, and stranding as sturgeon are known to become stranded on mudflats even in the absence of longlines (Dumbauld *et al.* 2008). The statement in the R-DEIR that "*...green sturgeon do not typically frequent shallow habitat where shellfish aquaculture is located*" is not supported by the available scientific literature. Numerous publications and personal observations document green sturgeon use of shallow areas, as well as areas with shellfish aquaculture (Patten and Norelius 2016; Moser *et al. in press*; Pinnix, personal communication, 2016; Dumbauld *et al.* 2008; Kelly *et al.* 2007). NMFS designated critical habitat for green sturgeon in 2009 (74 FR 52300), which includes a primary constituent element, or physical biological feature (PBF), of estuary critical habitat to be 'water depth'. The 'water depth' PBF indicates that a diversity of depths is important to support different life stages and habitat uses for green sturgeon within estuarine areas. Subadult and adult green sturgeon occupy a diversity of depths within bays and estuaries for feeding and migration (74 FR 52300). Tagged adults and subadults within the San Francisco Bay estuary primarily occupy waters over shallow depths of less than 10m, either swimming near the surface or foraging along the bottom (Kelly *et al.* 2007).

The critical habitat designation for green sturgeon also identifies a PBF for 'migratory pathway', which indicates that: *"Within bays and estuaries outside of the Delta and the Suisun, San Pablo, and San Francisco bays, unimpeded passage is necessary for adult and subadult green sturgeon to access feeding areas, holding areas, and thermal refugia, and to ensure passage back out into the ocean."* The analyses

provided in the R-DEIR lacks detail on the implications of adding several hundred acres of longlines and structured area to the ability of green sturgeon to feed and access thermal refugia.

The R-DEIR suggests that green sturgeon will avoid structured habitat, but there is no analyses of habitat lost to green sturgeon resulting from structured habitat (shellfish aquaculture) in Humboldt Bay. The existing and expanded project (~900-acres) represent a significant loss of habitat for green sturgeon if the assertion made the R-DEIR is valid regarding sturgeon avoidance of structured habitat. The existing and expanded project either represents a significant loss of habitat for green sturgeon, or represents an increased likelihood of harm, injury, or mortality due to contact or entanglement with longline gear depending on whether sturgeon will avoid or utilize these areas.

Salmonids

Reductions in the biomass of eelgrass in the project area are likely to reduce the quantity, quality, and spatial extent of floating eelgrass cover available to salmonids as they outmigrate from Humboldt Bay and into the open ocean. Oyster longlines also create a sieve affect where floating eelgrass is detained on longlines in North Bay, rather than being allowed to drift freely throughout Humboldt Bay and into the open ocean where it provides both cover and prey resources for juvenile salmonids and many other species. Pinnix (2005, 2016) found most juvenile salmonids in Humboldt Bay were associated with floating eelgrass cover, likely relying on this cover to provide protection from predators while they transition into the marine environment. Reducing the biomass and spatial distribution of floating eelgrass throughout Humboldt Bay and the open ocean likely presents negative effects to many species, including all federally listed salmonids. The District should evaluate and mitigate for these effects. The R-DEIR did not adequately evaluate the presence of adult Chinook salmon in Humboldt Bay, despite recent communications with NMFS regarding the presence of Chinook salmon adults throughout the summer. Adult salmon also rely on the floating cover provided by eelgrass to access prey often found associated with this habitat feature.

Provided the concerns expressed in this letter are addressed, the Project has the potential to be responsive to NOAA's aquaculture policy and initiative goals and may further NOAA's efforts to maintain and protect healthy and productive marine ecosystems, while balancing competing uses of the marine environment. Please contact Mr. Matt Goldsworthy at (707) 825-1621, or via e-mail at Matt.Goldsworthy@noaa.gov if you have any questions concerning these comments.

Sincerely,

Alecia Van Atta
Assistant Regional Administrator
California Coastal Office

cc: Rebecca Garwood, California Department of Fish and Wildlife, Eureka
Cassidy Teufel, California Coastal Commission, San Francisco
L. Kasey Sirkin, Army Corps of Engineers, Eureka
Copy to file: AR150308WCR2015AR00055

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8 September 2016

Subject: Recirculated Draft EIR for the proposed Coast Seafoods Company Shellfish Culture Permit Renewal and Expansion Project Humboldt County, California

Dear Mr. Crider

We are concerned that the Recirculated Draft Environmental Impact Report (RDEIR) fails to adequately address the environmental impacts associated with Coast Seafood's proposed aquaculture expansion into North Bay of Humboldt Bay. Eelgrass populations are the foundation habitat structure for this bay, conferring substantial benefits to local and global communities, including support of invertebrates, fishes, waterfowl, and other marine wildlife. Besides providing habitat at various life stages for economically important species, eelgrass populations deliver other ecosystem services in the form of sequestering carbon in the underlying sediments (NOAA 2014). Seagrasses sequester 15 times as much carbon as tropical forests per hectare of area, and thus, play a critical role in the reduction of global carbon levels. For these and other reasons mentioned below we advise against the expansion for the following specific reasons:

1. The revised plan does little to reduce (1% reduction, 6 acres) the impact footprint on eelgrass habitat into North Bay proposed in the original aquaculture expansion. The revised plan will still impact 594 acres of eelgrass extent or about 30% of all eelgrass cover in Humboldt Bay. Keep in mind that the eelgrass in this bay also represents about 30% of the remaining eelgrass habitat in California and the largest remaining bed of intertidal eelgrass along the Pacific coast between Mexico and Washington. All other large bays in California have lost and degraded their intertidal eelgrass beds from human development and activities (Wyllie-Echeverria and Short 1996). Humboldt Bay's location in northern California, distant from other large embayments, and its unique combination of dense cover of intertidal and subtidal eelgrass populations creates a highly productive and species diverse ecosystem.

2. The original DEIR and the RDEIR has misapplied our assumptions published in the journal *Ecosphere* (i.e. Stillman et al. 2014); we were coauthors of this publication, providing information about the geese and eelgrass for the mathematical model described in the paper. The revised plan suggests that there will be insignificant impact to foraging black brant (Appendices E and F), but it is clear from the 2015 Brant Survey (Appendix E) that these geese avoid aquaculture plots during low tides, when brant do

most of their feeding and when most nutritious eelgrass is available. The survey showed use of the aquaculture plots during high tide when the longlines and eelgrass are underwater but it is not known whether brant are feeding successfully on the eelgrass in the plots. So how can the expansion have an insignificant impact on brant foraging? Using a project-specific model and some of the same input parameters as in Stillman et al 2014 (Appendix F), a conclusion was made that the reduction in bay-wide eelgrass biomass posed by the existing and proposed expansion would be low (3%) and have insignificant impact to brant foraging. Why is 3% deemed insignificant? This conclusion assumes that brant would forage on shoots taller than the longlines and other structures (when tide height allows) and aquaculture proposed in the October 2015 DEIR would have reduced overall eelgrass biomass by 5% within the project footprint. Both assumptions are untested assumptions. Furthermore, we presume the "low and insignificant" conclusion was based on a so called '10% threshold' for an impact on brant foraging based on Stillman et al (2014). It seems that the 10% threshold attributed to Stillman et al. (2014) has been applied inappropriately in the DEIR/RDEIR. This shortcoming was pointed out in our previous letters. As coauthors of the Stillman et al. (2014) paper, we were not commenting on whether 10% or any % was acceptable. We were merely describing which factors had the most impact on the bird's behavior over a 100-year period as sea levels changed. Here's the quote from our paper

"We assess the amount of change that occurs in stopover duration (days) and daily mass gain (g per day) after each model input parameter was increased and decreased sequentially by 10% relative to the originally assigned parameter value. We chose to vary each parameter value by a fixed amount, rather than by the amount by which the parameter varies in the real system, because the amount of variation has not been measured in all cases."

3. The expansion will affect 594 acres of eelgrass, most of which is continuous intertidal eelgrass (i.e., beds exposed at >-0.5 feet mean lower low water tides), a relatively rare eelgrass population along the Pacific coast from Washington to Mexico. The affected area represents about 25% of the mean spatial extent of all eelgrass in North Bay, but a majority of its intertidal eelgrass population (based on mean spatial estimates from 1997–2009 in Appendix D of draft EIR).

4. There is little evidence that current trends in eelgrass abundance (biomass) and distribution (spatial extent) are stable in Humboldt Bay. There have been few quantitative bay-wide surveys of trends for the distribution and abundance of eelgrass in this bay since 2009. A survey in 2015 associated with this RDIR showed a 20% decline from 2009 levels. We would argue that losses will likely continue as they have done in 5 of 6 major embayments with eelgrass in southern California and Baja California through degradation from human and environmental impacts. Significant declines have been reported at Morro Bay, CA where spatial extent has dropped by 96% from 139 ha in 2007 to 5 ha in 2015 (Merkel 2015) and at Mission Bay, where spatial extent has decreased by 25% since 1997 (Merkel 2013). The eelgrass distribution has remained relatively stable in San Diego Bay; however, estimates in 2014 are below levels in the

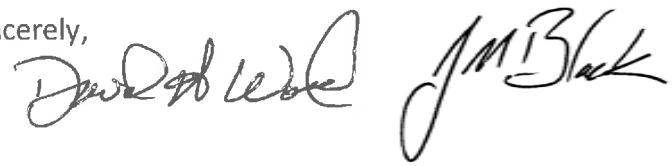
mid-2000s (Merkel 2014a). Negative trends in eelgrass spatial extent have also been reported in Baja California at San Ignacio Lagoon (37% decline since 2000; López-Calderón (2012), and San Quintin Bay (35% decline since 1987; Ward et al. 2003, Simancas 2013).

5. Humboldt Bay is considered a key spring staging location for black brant returning from north from Mexico, where the majority of the Pacific Flyway (PF) population winters. Brant stop here because of its high eelgrass abundance and its relative isolation from adjacent stopover locations (Moore et al. 2004). Stillman et al (2015) showed that only minor losses (10%) in eelgrass abundance and feeding time may affect the bird's duration of stay and mass gain for subsequent northward migration. This is important because delays in migration and reductions in body reserves can have negative consequences on the probability that these birds breed, and the success of their clutch and survival of offspring, if they do nest (Sedinger et al. 2011, Schamber et al. 2012). Currently, the PF population of black brant is in decline caused by reductions in juvenile survival and recruitment that is likely linked to reductions in eelgrass during winter and migration (Sedinger et al. 2011).

6. Recent eelgrass losses reported above have been greatest for intertidal populations, the eelgrass population that will be potentially most affected by the expansion. San Quintin Bay has lost 45% of its intertidal eelgrass (1046 ha in 2000 to 433 ha in 2014), including nearly all of its dense cover of intertidal eelgrass (604 ha in 2000 to 5 ha in 2014) over the last decade (Ward et al. 2003, Simancas 2013). Only sparse eelgrass remains. Similarly, Morro Bay has lost virtually all of its intertidal eelgrass beds. Humboldt Bay managers should guard against similar losses in Humboldt Bay.

Given the downward trends in eelgrass spatial extent at Humboldt and other embayments of California, we believe that it unwise for the Coast Foods oyster expansion to occur in Humboldt Bay because of the likely negative impacts to the intertidal eelgrass beds and the community it supports. Eelgrass populations along the Pacific coast are currently under stress and it would be imprudent to add additional stresses to this threatened and cherished biotype.

Sincerely,



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Established in 1938

September 16, 2016

File Ref: SCH # 2015082051

Jack Crider
Executive Director
Humboldt Bay Harbor, Recreation and Conservation District
601 Startare Drive
Eureka, CA 95501

Subject: Recirculated Draft Environmental Impact Report (EIR) for Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project, Humboldt County

Dear Mr. Crider:

The California State Lands Commission (CSLC) staff has reviewed the Recirculated Draft EIR for the Coast Seafoods Company Humboldt Bay Shellfish Aquaculture Permit Renewal and Expansion Project (Project), which is being prepared by the Humboldt Bay Harbor, Recreation and Conservation District (District). The District is the lead agency under the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.). The CSLC is a trustee agency for projects that could directly or indirectly affect sovereign lands and their accompanying Public Trust resources or uses.

CSLC Jurisdiction and Public Trust Lands

The CSLC staff has jurisdiction and management authority over all ungranted tidelands, submerged lands, and the beds of navigable lakes and waterways. The CSLC also has certain residual and review authority for tidelands and submerged lands legislatively granted in trust to local jurisdictions (Pub. Resources Code, §§ 6009, subd. (c), 6301, 6306). All tidelands and submerged lands, granted or ungranted, as well as navigable lakes and waterways, are subject to the protections of the common law Public Trust Doctrine.

As general background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable lakes and waterways upon its admission to the United States in 1850. These lands are held for the benefit of all people of the State for statewide Public Trust purposes, which include but are not limited to waterborne commerce, navigation, fisheries, water-related recreation, habitat

preservation, and open space. On tidal waterways, the State's sovereign fee ownership extends landward to the mean high tide line, except for areas of fill or artificial accretion or where the boundary has been fixed by agreement or a court. Such boundaries may not be readily apparent from present day site inspections.

It appears a portion of the proposed Project will involve lands that have been legislatively granted to the District, pursuant to Chapter 1283, Statutes of 1970, and as amended. The CSLC's authorization is not required for the Project, because day-to-day administration of these lands has been granted to the District. However, all activities involving lands granted to the District must be consistent with the Public Trust and the provisions of the applicable granting statutes. Please contact Reid Boggiano, Public Land Management Specialist (see contact information below) for more information.

Project Description

The Coast Seafoods Company (Coast) proposes to expand the Project area boundaries within Humboldt Bay to meet its objectives and needs (pages 4-20 of the Recirculated Draft EIR) as follows:

- Expand Coast's shellfish farm to increase future oyster production, meet increasing customer demand for raw and shucked oysters, and regain access to markets and customers lost after production decreases associated with the 2006 transition to sustainable, off-bottom culture practices on a reduced footprint;
- Conduct comprehensive eelgrass monitoring and develop sustainable oyster cultivation practices that can be adapted to documented site conditions;
- Use a varied and diverse culture plot design to evaluate and determine the best method(s) to sustainably grow oysters in eelgrass, including different spacing regimes and an adaptive management plan that is responsive to the results of eelgrass monitoring;
- Create additional job opportunities and sustainable economic development for Humboldt Bay and local jurisdictions;
- Enhance a source of local sustainable seafood and reduce Humboldt County's and California's reliance on imported seafood; and
- Provide comprehensive planning of Coast's owned and leased areas in Humboldt Bay to allow for adaptive operational and management needs, maintain undeveloped areas of the Bay, maximize optimal growing conditions, and limit the farm's spatial footprint.

Based on the Project Description, CSLC staff understands that the Project would include the following components:

- Extend regulatory approvals for Coast's approximate 300 acres of existing shellfish culture;
- Increase shellfish culture within an already permitted floating upwelling system by adding eight culture bins;

- Authorize culture of Pacific and Kumamoto oysters within the Project's existing clam rafts;
- Relocate approximately five acres of existing cultch-on-longline culture; and
- Permit an additional 622 acres of intertidal culture in two phases.

The Recirculated Draft EIR identifies Alternative 1 (10-Foot Spacing Alternative) as the Environmentally Superior Alternative, because it would achieve some Project objectives with no significant impacts to eelgrass and without any significant and unavoidable impacts to other resources (page 1-9 of the Recirculated Draft EIR).

Environmental Review

The CSLC staff requests that the District consider the following comments on the Project's Recirculated Draft EIR.

Biological Resources

1. Revised Project: The CSLC staff received correspondence from a number of interested stakeholders in February 2016 expressing concerns about the expansion proposed in the original Draft EIR, and requesting input from the CSLC regarding adverse impacts to Public Trust resources and values, particularly black brant and eelgrass habitat. These concerns were also articulated in comment letters from other relevant trustee and regulatory agencies including the California Department of Fish and Wildlife, California Coastal Commission, and NOAA Fisheries. The CSLC staff attended an agency meeting regarding the revised project proposal on May 5, 2016, at which eelgrass habitat avoidance, herring monitoring, in-kind mitigation, and adaptive management were discussed. In preparing a revised Project and recirculating the Draft EIR, the District explains its belief that the revised Project proposal addresses the concerns raised at the agency meeting and during public comment on the original Draft EIR, including the incorporation of a "no net loss" standard for eelgrass impacts, increased monitoring, and phased implementation. However, after further examination of the revised Project footprint, maps, and characterization of impacts, CSLC staff remains concerned that unacceptably high adverse impacts will still occur to locally and regionally important Public Trust resources and values, notably brant, shorebirds, and eelgrass.

   The CSLC staff is concerned that the revised proposed Project not only does not reduce the previously identified impacts, but in fact may increase those impacts by increasing the overall Project footprint by 100 acres. By increasing the spacing between clutch-on-longline lines to 10 feet, and basket-on-longline lines alternating between 9 feet and 16 feet, the Project will cover a greater total area of Humboldt Bay, including eelgrass beds. While the revised Project may reduce the level of significant impacts to eelgrass habitat in the existing aquaculture area, it does not reduce or mitigate the impacts resulting from the proposed expansion areas. For example, Table 2 of Exhibit 1 in Appendix D shows that while the increased spacing corresponds to an increase of eelgrass shoot density, there is still a significant

impact compared with control plots (eelgrass shoot density was 40-54% less under 10-foot spacing conditions than the control). The CSLC staff recommends additional mitigation measures for impacts to eelgrass that adequately account for the loss of continuous eelgrass beds.

Furthermore, by expanding the "envelope" of aquaculture operations, the revised Project will increase, rather than decrease, adverse impacts on black brant, a Species of Special Concern. Eelgrass is the most important food source that supports black brants on their annual migration along the Pacific Flyway. Black brants regularly avoid areas of human disturbance and artificial structures (as noted under Cumulative Impacts 7.2.1.2). The in-kind mitigation spacing increases the overall area of Humboldt Bay eelgrass habitat exposed to aquaculture activities and structures, and therefore the impact to black brant foraging behavior is likely to be significant. Mitigation Measure BIO-4 implies that there will be additional mitigation for eelgrass habitat if there are significant observed impacts during monitoring. The CSLC staff recommends that mitigation be required at the onset of the Project to compensate for significant impacts to black brant feeding resources that will result from Project implementation.

The proposed configuration in the revised Project also appears to increase, rather than decrease, impacts on shorebirds due to the expanded footprint of existing operations and expansion of the Project onto additional areas of shallow water habitat and mudflats, on which these species depend for loafing and foraging. The CSLC staff advises that the District consider avoiding intact eelgrass beds to the extent feasible and provide legitimate offsetting mitigation for unavoidable impacts in order to meet the no net loss standard.

Climate Change

2. Storm Events: Storm events are likely to increase in intensity and frequency due to climate change. Storm events can contribute significantly to greater total water levels, particularly in combination with rising sea levels and when they co-occur with extreme high tide (EHT) events, such as King Tides. For example, in 2003, storm surge co-occurred with an EHT event and overtopped the earthen dike at Mad River Slough (located adjacent to the Project area on the north side), flooding nearly 600 acres of adjacent agricultural lands (Humboldt Bay Shoreline Inventory, Mapping and Sea-Level Rise [SLR] Vulnerability Assessment, 2013, p.7). Since the revised and expanded Project area in Figure 1.1 on page 1-3 of the Recirculated Draft EIR overlaps with the predicted high wave exposure seen in Figure 6.5.5 on page 6.5-8 of the Recirculated Draft EIR, the CSLC staff requests the District include additional analysis of how storm events combined with turbidity rates (page 6.5-62 of Recirculated Draft EIR) will interact with aquaculture nutrients and effluents, and identify possible significant impacts to water quality from such events.

   The CSLC staff also recommends further discussion of the Project's preparedness and resiliency to the impacts of storm events, EHTs, and sea-level rise on fixed and floating features of the Project and its maintenance equipment. Conservation

Measure BIO-3, and Mitigation Measures Haz-1 and Haz-4 indicate that equipment will be inspected post-storm, as well as clean-up operations performed. However, there is no description of how the fixed and floating features are resilient or adaptable to storm and EHT activity, nor sea-level rise. This information should be included in the Project Description.

3. Sea-Level Rise: Rising sea levels, including State-owned lands and resources, will impact the Project area. As noted on page 7 of the 2013 Humboldt Bay Shoreline Inventory, Mapping and SLR Vulnerability Assessment, Humboldt Bay is experiencing the largest annual relative sea-level rise of any location on the California coast due to the combination of rising seas and land subsidence. The District, as the trustee and manager of legislatively granted Public Trust lands in the Bay, is subject to the requirements of Assembly Bill 691 (Muratsuchi), Chapter 592, Statutes of 2013. This law requires the State's trustees to assess the impacts of sea-level rise and propose how it will be addressed on granted Public Trust lands. The assessment should include existing and future development on tidal/submerged lands underlying the State's ports, harbors, and marinas. Assessments are due to the Commission no later than July 1, 2019. Thus, the District should consider discussing sea-level rise and its potential effects on the environmental conditions and setting of the Project area within the Project Description or other appropriate section. The CSLC staff also recommends the Recirculated Draft EIR describe any "resilient" designs that have been incorporated into the Project components to ensure structural designs are sufficient to ensure function, safety, and protection of the environment over the expected life of the structure (see previous comment).

   Please also note that the State of California released the final "Safeguarding California: Reducing Climate Risk, an Update to the 2009 California Climate Adaptation Strategy" (Safeguarding Plan) on July 31, 2014, to provide policy guidance for State decision-makers as part of continuing efforts to prepare for climate risks. The Safeguarding Plan sets forth "actions needed" to safeguard ocean and coastal ecosystems and resources as part of its policy recommendations.

Cultural Resources

4. Submerged Resources: Based on the discussion on page 6.4-1 of the Recirculated Draft EIR, please clarify if the CSLC maintained shipwrecks database was searched. The CSLC staff requests that the District contact Assistant Chief Counsel Pam Griggs (see contact information below) to obtain shipwrecks data from the database and CSLC records for the Project site. The database includes known and potential vessels located on the State's tide and submerged lands; however, the locations of many shipwrecks is unknown. Please note that any submerged archaeological site or submerged historic resource that has remained in State waters for more than 50 years is presumed to be significant.

5. Title to Resources: The Recirculated Draft EIR should mention that the title to all abandoned shipwrecks, archaeological sites, and historic or cultural resources on or in California's tide and submerged lands is vested in the State and under the CSLC's

jurisdiction (Pub. Resources Code, § 6313). The CSLC staff requests that the District consult with Assistant Chief Counsel Pam Griggs if cultural resources are discovered on tide and submerged lands during construction. Additionally, the CSLC staff requests that the following statement be added to Mitigation Measure CR-2 (starting on pages 1-11 and 6.4-6 of the Recirculated Draft EIR):

> "The final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the CSLC must be approved by the Commission."

Recreation

6. Notifications: The CSLC staff requests that maps (showing public access routes on the Project site) be posted at local kayak and boat launching sites or other known sites (see Figure 6.11.1 on page 6.11-3 of the Recirculated Draft EIR) for all public recreation. Page 6.11-4 of the Recirculated Draft EIR should include discussion for the signs to be clear and highly visible to help inform all sectors of the public, and to inform wildlife refuge managers and local jurisdictions.

Thank you for the opportunity to comment on the Recirculated Draft EIR for the Project. As a trustee agency, we request that you consider our comments prior to certifying the Final EIR. Please send copies of future Project-related documents, including electronic copies of the Final EIR, Mitigation Monitoring Program, Notice of Determination, CEQA Findings and, if applicable, Statement of Overriding Considerations when they become available, and refer questions concerning environmental review to Afifa Awan, Environmental Scientist, at (916) 574-1891 or via e-mail at Afifa.Awan@slc.ca.gov. For questions concerning archaeological or historic resources under CSLC jurisdiction, please contact Pam Griggs, Assistant Chief Counsel, at (916) 574-1854 or via e-mail at Pamela.Griggs@slc.ca.gov. For questions concerning CSLC jurisdiction, please contact Reid Boggiano, Public Land Management Specialist, at (916) 574-0450 or via e-mail at Reid.Boggiano@slc.ca.gov.

Sincerely,

Cy R. Oggins, Chief
Division of Environmental Planning
and Management

cc: Office of Planning and Research
Brian Heaton, City of Eureka
R. Boggiano, CSLC
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