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Prepared June 6, 2017 for June 7, 2017 hearing

TO: Coastal Commissioners and Interested Parties

FROM: Alison Dettmer, Deputy Director
Mark Delaplaine, Manager
Cassidy Teufel, Senior Environmental Scientist

SUBJECT: Addendum to Staff Report for Coastal Development Permit Application 9-15-1931, Coast Seafoods Company

This addendum provides additions, replacements, and revisions to the May 25, 2017 staff report on Coast Seafoods Company's proposal to continue 234 acres of existing oyster aquaculture operations and 30 existing floating clam cultivation rafts and expand by 256 acres of oyster aquaculture operations (a total of 490 acres and 30 rafts).

EXHIBITS
The attached Exhibit 12 is to be included with the Staff Report and Recommendation.

EX PARTE COMMUNICATIONS
The Commission staff did not receive any Ex Parte Communication Forms through June 5, 2017.

REVISIONS
The following are revisions to the text of the staff report and recommendation. Proposed deletions are marked with ~~strikethrough~~ text and short additions are marked with **bold underlined** text. Longer text additions are marked with underlined text.

Special Conditions

In response to comments on the staff report, Commission staff is proposing some revisions to the Special Conditions and additions to text. For ease of reading, Commission staff is providing below Special Conditions 1-19 although we are not recommending revisions to all of them. At this time, we are not aware of any concerns regarding Special Conditions 20 through 26. As such, no revisions or additions to these conditions are being recommended and they are not

included below. Commission staff is recommending the addition of Special Conditions 28, 29, and 30 and are adapted from similar conditions adopted by the Commission as part of CDP No. 9-16-0204 to address concerns about potential adverse impacts to marine biological resources associated with floating, subtidal shellfish cultivation operations in Humboldt Bay.

1. **Permit Term Limit.** This coastal development permit shall expire on September 7, 2025. If the term of Coast's submerged lands lease from the Humboldt Bay Harbor, Recreation, and Conservation District - currently also set to expire on September 7, 2025 - is amended or a new submerged lands lease is issued by the Humboldt Bay Harbor, Recreation, and Conservation District, Coast may submit an application for a permit amendment requesting an extension of the permit term.

2. **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 411 acres. This total shall be made up of approximately 245 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.

3. **Consolidation of Operations.** DURING OR BEFORE THE INSTALLATION OF CULTIVATION GEAR OR OYSTERS WITHIN ANY OF THE 17 AREAS SHOWN IN Exhibit 2b that are proposed for expansion with new cultivation gear in Phase I, Coast shall stop using and remove all cultivation gear from at least 34 acres of existing oyster cultivation beds. This shall be done in addition to the removal of cultivation bed EB 7-2 required through Special Condition 17. The cultivation beds shall be removed at or before the time of their next harvest and shall be removed in the following order **(subject to oyster growth rate and harvest conditions)** until the required 34 acres is achieved: cultivation bed SI 2-1, SI 2-2, SI 1-2A, SI-Nk, SI 1-2, SI 1-1. Removal activities shall be carried out consistent with the requirements of Special Condition 13. In addition, the consolidation of Coast's operational footprint shall be carried out by eliminating the proposed installation of cultivation gear within cultivation bed MR 2-3 shown in Exhibit 2b and instead, relocating the approximately ten acres of proposed expansion proposed for cultivation bed MR 2-3 to within a portion of the roughly 25 acres proposed to be installed during Phase II within the Bird Island cultivation area south of proposed cultivation bed BI 2-1 - as shown by the striped area on Exhibit 5.

4. **~~Phased~~ Implementation Schedule**. Between the collection of baseline eelgrass monitoring data in 2017 and the submittal and review of the second year of "post-installation" and "post-removal" eelgrass monitoring data in 2019, Coast shall carry out an incremental installation of the first 114 acres of the 165 acres of expansion areas allowed consistent with Special Condition 2. The first stage of this incremental installation shall be carried out during or after the removal activities required in Special Condition 3 and shall include no more than 82.64 acres of new oyster cultivation equipment prior to the issuance of written confirmation by the Executive Director that it may proceed with additional expansion. These 82.64 acres shall not include more than 14 total acres of baskets on longlines **(unless the Executive Director determines that Coast has adequately addressed the design and performance concerns associated with baskets on longlines described below, in which case 21 acres of baskets on longlines may be allowed)** and shall be made up of:

   A. ~~Two~~**2.4** acres within and immediately surrounding each of the individual 0.6 acre plots to be used for monitoring the expansion cultivation beds (which shall be selected to be representative of the bed in which they are located); and
   B. Expansion cultivation beds **located** ~~relocated~~, to the maximum extent feasible, **outside of** ~~from Coast's proposed expansion areas in~~ undisturbed, high density eelgrass beds **and** ~~to~~ within areas of Coast's historic operations in the Bird Island and Mad River growing areas that retain visual evidence of impacts from historic dredge harvesting of oysters. Examples of the types of areas Coast's expansion should ~~be relocated *out of*~~**avoid** are outlined in ~~white~~ **red** in Exhibit 10 and examples of the types of areas Coast's expansion should be ~~re~~located ~~*into*~~ **in** are outlined in ~~red~~ **white** in Exhibit 10.

      PRIOR TO THE COLLECTION OF BASELINE EELGRASS MONITORING DATA, Coast shall develop and submit, for Executive Director review and written approval, a ~~relocation~~ plan that includes ~~relocation of~~ **placing** at least half of its 82.64 acres of expansion cultivation beds ~~from~~ **outside of** undisturbed, high density eelgrass beds **and**~~to~~ within areas of Coast's historic operations in the Bird Island and Mad River growing areas that retain visual evidence of impacts from dredge harvesting.

   C. The Executive Director's written confirmation that further expansion **beyond the initial 82.64 acres** may occur shall be based on all of the following information: (A) a review of condition compliance; (B) ~~assessments carried out by academic researchers and resource management agencies~~**results** of **the** brant monitoring ~~results~~**required by Special Condition 7**; (C) eelgrass monitoring results that include baseline data and one ~~additional~~ year of "post-installation" and "post removal" data; (D) a review of design and performance information (durability, susceptibility to breakage and loss, etc.) on basket on longline cultivation gear; and (e) a review of data on debris type and quantity collected during baywide cleanup events. The Executive Director shall consider this information and

determine if Coast shall carry out additional expansion **beyond the initial 82.64 acres**, halt expansion until another year of monitoring data is available, or **implement additional adaptive management measures**~~remove cultivation equipment~~, as described in Appendix A.

D. Upon issuance of the Executive Director's written confirmation that it may proceed with its second round of expansion, Coast may install cultivation equipment and oysters within the approximately 31.64 remaining acres of the approximately 114.54 total acres of expansion cultivation beds Coast is authorized to install via this permit prior to the submittal and review of the second year of "post-installation" and "post-removal" eelgrass monitoring data in 2019.

In addition to the requirements laid out in Special Condition 8, to ensure that Coast's total footprint of intertidal cultivation beds does not exceed 411 acres, its expansion into the remaining approximately 50.6 acres of the 165 acres of expansion areas allowed consistent with Special Condition 2 shall be carried out at the same time or after Coast completely removes all cultivation gear from the 8 remaining acres of the 42 acres of its existing operation proposed to be removed from use. Removal activities within these 8 acres shall be carried out consistent with the requirements of Special Condition 13**.**

5. Access Channels. Coast shall not install cultivation equipment (including longlines, posts, anchors, or baskets) or otherwise block the area within 15 feet of the edges of the three tidal channels shown on Exhibit 6 between expansion beds EB 1-3 & EB 1-4, EB 2-2 & EB 2-4, and EB 2-4 & EB 6-4.

6. 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 within newly installed expansion cultivation beds. Upon approval, the Eelgrass Plan shall be implemented by a qualified, independent, third party **that shall be** approved by **and report to** 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 **distribution and areal** extent.

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 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~~**100**% and achieve a minimum accuracy rate of 90% 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;

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);

b. Any percent vegetated cover of eelgrass (measured as the percent of the bed physically occupied by aboveground eelgrass **as measured using UAV observations confirmed with ground sampling**); or

c. Any eelgrass spatial **distribution or areal** extent.

ii. *Performance success*, measurable recovery and expansion of eelgrass density and/or percent vegetated cover 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 **areas**~~sites~~. 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 year shall be interpreted as having been the same as for the current year. If in the year such revisions are implemented the ~~analyses~~ **analysis** of a particular ~~cultivation bed(s) or~~ area(s) continue**s** to prove inconclusive, then ~~those~~ **such** area**(s)** 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.

7. 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 determining **how that level of foraging activity compares with** ~~if any such foraging is occurring at the same level as~~ foraging occurring **on eelgrass growing** 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. **Upon approval, the revised brant monitoring plan shall be implemented by a qualified, independent, third party that shall be approved by and report to by the Executive Director.**

8. Adaptive Management. Subsequent to the phased implementation 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 **eelgrass monitoring results from an "expansion" area show** any loss of eelgrass percent vegetated cover ~~or~~**,** spatial **distribution, or areal** extent or a loss of eelgrass **turion** 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, **that**~~those expansion beds or~~ area~~s~~ will be considered to have exceeded the maximum anticipated impacts and Coast **shall, within 30 days, submit a plan for the Executive Director's review and written approval that includes removal of** ~~remove~~ all cultivation gear within ~~those expansion beds or~~ **the** area **in which impacts exceeded specified thresholds or removal of a sufficient area of additional "existing" cultivation beds (those from within the footprint of operations authorized by the Commission in 2006) to compensate for the amount of impacts that exceeded the threshold (for example, if ten acres of expansion cultivation beds are shown to have a loss of eelgrass percent vegetated cover, spatial distribution or areal extent, ten additional acres of existing cultivation beds would be removed; if ten acres of expansion cultivation beds are shown to have a loss of eelgrass turion density of 50%, 2.5 acres of existing cultivation beds would be removed in addition to the 2.5 acres that were already removed to mitigate for the assumed 25% loss in eelgrass density. If removal activities are not carried out prior to the beginning of the next eelgrass growing season (May through October), Coast shall remove additional cultivation equipment to make up for the temporal lag between when the impact occurred and when the mitigation is provided. The amount of additional acreage shall be calculated by the Executive Director based on the "Delay Multiplier" provided in Attachment 7 of the October 2014 California Eelgrass Mitigation Policy and Implementing Guidelines**;

B. If, when compared to appropriate reference sites, measurable recovery and expansion of eelgrass density and/or percent vegetative cover has not occurred within any area from which longlines were removed, that area will be considered to have failed as mitigation and Coast shall, **within 30 days, submit a plan for the Executive Director's review and written approval that includes removal of** ~~remove~~ cultivation equipment from within expansion cultivation beds at a ratio of 4:1 (area of removal:area of failed mitigation) **or from within existing cultivation beds at a ratio of 1:1 (area of additional removal: area of failed mitigation)**. Once recovery or expansion **meets or** exceeds 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 do not show brant "bed-feeding" on eelgrass occurring within **expansion** cultivation beds at **75% (or more) of** the ~~same~~ level ~~as~~ **of bed feeding** ~~foraging~~ occurring outside cultivation beds, **Coast shall, within 30 days, submit a plan for the Executive Director's review and written approval that includes removal of** those **expansion** 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 basket on longline cultivation beds to ten foot spaced longline beds (adjacent paired longlines separated by 10 feet from the next pair).

9. **Vessel Management Plan.** PRIOR TO PERMIT ISSUANCE, Coast shall submit, for Executive Director review and written approval, a vessel management plan that includes: (1) a map showing the travel routes and landing or cultivation bed access sites that the Coast's vessels shall use to access the cultivation areas; ~~(2) use of an active AIS or GPS system on all vessels during operations in Arcata Bay to document consistency of actual travel patterns with mapped routes; (3) submittal of GPS or AIS data with annual report described in Special Condition 12;~~ and (**2**) procedures to limit herding or flushing of black brant or shorebirds within Arcata Bay.

10. **Intake System Design.** All intake systems used by Coast to supply water from Arcata Bay for maintenance cleaning and clam tray washing shall be designed with a screened intake with: (a) round or square openings of no more than 3/32 inches or slotted/wedge wire openings of no more than 1.75 millimeters, a screen area of at least 5 square feet per cubic foot per second water volume intake, a minimum open area of 27%, and a maximum intake water approach velocity of 0.2 feet per second if a self-cleaning device is installed that clears the entire screen face at least once every five minutes; or (b) round or square openings of no more than 3/32 inches or slotted/wedge wire openings of no more than 1.75 millimeters, a screen area of at least 20 square feet per cubic foot per second water volume intake, minimum open area of 27%, and a maximum intake water approach velocity of 0.05 feet per second if a self-cleaning device is not installed.

11. **Herring Spawn**. During 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. Visual inspections shall be conducted in accordance with the survey protocols developed by the California Department of Fish and Wildlife (CDFW). In addition, at the beginning of the three month herring spawning period, Coast shall provide staff of the CDFW Eureka Marine Region office a schedule of planting and/or harvesting activities anticipated to occur during the period. Further, Coast shall inform CDFW Eureka office staff with the proposed location of planned planting and/or harvesting activities no less than 48 hours prior to the activities.

    If herring spawning has been recently observed by Coast or CDFW staff on or in the immediate vicinity of planned planting and/or harvesting activities, Coast shall: 1) postpone planting and/or harvesting activities on any culture beds in those areas for two weeks, or until CDFW staff confirm herring eggs have hatched, and 2) notify the CDFW Eureka Marine Region office of the spawn within 24 hours. Coast shall keep records of when CDFW was notified of the spawning event, and those records shall be included with the annual report described in Special Condition 12.

12. **Annual Report.** By December 31 of each year, Coast shall submit to the Executive Director an annual report describing the status of each bed (including harvest date and planting date) within the operation footprint. The annual report shall

also include information regarding the results of quarterly cleanup events carried out as described in Special Condition 13.

13. **Plot Abandonment or Fallow.** Within 30 days of harvest on any cultivation bed or plot that is being discontinued, abandoned, removed, fallowed, or taken out of production for six months or more, Coast shall notify the Executive Director and **propose a schedule to** remove all piles of oysters and oyster shells, and all culture apparatus from that plot, including but not limited to stakes, racks, baskets, floats, rope, ties, wires, tags and pallets **as soon as feasible and in any event within no more than an additional 60 days. This deadline may be extended if Coast can establish, to the Executive Director's satisfaction, that it cannot meet this removal deadline due to tides or other weather conditions.** In addition, Coast shall commission an independent third party, reviewed and approved by the Executive Director, to inspect the cultivation bed or plot and report directly to the Executive Director within 14 days on the status and completeness of the removal work.

14. **Marine Debris Reduction and Management.** Coast shall carry out operations consistent with the following marine debris reduction and management practices:

    A. **Storm Damage and Debris**. As soon as safely possible following storm or severe wind or weather events, Coast shall patrol all active mariculture areas for escaped or damaged mariculture equipment. All equipment that cannot be repaired and placed back into service shall be properly recycled or disposed of at an appropriate onshore facility. In addition, Coast shall retrieve or repair any escaped or damaged mariculture equipment that it encounters while conducting routine daily and/or monthly maintenance activities associated with shellfish culture (e.g. bed inspections, shellfish grading and sorting). If the escaped gear cannot be repaired and replaced on the shellfish bed, it shall be properly recycled or disposed of on land.

    B. **Gear Marking.** Coast shall mark shellfish culture bags, baskets, and basket label tags in an easily identifiable manner with its company name or other identification information. Markings shall be securely attached and robust enough to remain attached and legible after an extended period in the marine environment (e.g. heat transfer, hot stamp, etching, etc.). Existing culture bags, baskets, and basket label tags currently in use in culture beds shall be marked or replaced with marked versions when replanted and all unmarked gear shall be replaced in this way within 24 months. In the event that shellfish culture gear or equipment becomes dislodged from culture beds, it shall be Coast's responsibility to retrieve the material from the shoreline, eelgrass beds, mudflat, or submerged bottom with minimal damage to the resources affected. Such material shall be removed and properly disposed of, recycled, or returned to use.

    C. **Marine Debris Reduction Training.** WITHIN 30 DAYS OF THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, Coast shall implement an employee training regarding marine debris issues, how to identify loose culture

gear, proper gear repair methods and how to completely remove gear from out-of-production or fallow cultivation beds. Particular focus shall be placed on management and maintenance practices to reduce the loss of any gear type consistently found during bay cleanup and inspection activities. During trainings, Coast's employees shall be encouraged to consider and implement field and management practices that reduce the amount of small plastic gear (such as zip-ties, tags and fasteners) and non-biodegradable material (such as PVC stakes and nylon or polypropylene rope) used in its operations.

D. **Cleanup Events.** Coast shall conduct quarterly baywide cleanups in coordination with other interested parties or organizations, which shall include walking different 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 and type of shellfish gear collected and the cleanup location (marked on a map) and duration of cleanup activity shall be recorded and documented in the annual report submitted to the Executive Director of the Commission. If consistent discoveries of certain gear types are made during cleanup events by Coast or the public, Coast shall evaluate (and if feasible, implement use of) alternative gear types or practices that would reduce these consistent sources of debris.

E. **Ongoing Operations.** Coast shall not leave or temporarily store tools, loose gear, or construction materials on its owned or leased tidelands or surrounding areas. All aquaculture gear installed in active culture beds shall be kept neat and secure and maintained in functional condition. Coast shall carry out regular bed inspections and maintenance activities to help ensure that broken, collapsed, fallen, or buried gear is fixed or removed in a timely manner.

F. **Bed Cleaning at Harvest.** At the time of harvest of each cultivation bed, Coast shall carry out a thorough inspection to locate and remove loose or abandoned equipment, tools, and accumulations of oysters from the surrounding substrate.

15. **Cultivation Area Mapping and Marking.** WITHIN 30 DAYS OF THE ISSUANCE OF THE COASTAL DEVELOPMENT PERMIT, Coast shall submit for Executive Director review and written approval, an updated version of the Cultivation Bed Mapping and Marking Plan (Cultivation Area Plan) submitted to Commission staff on April 5, 2017. This Cultivation Area Plan shall be revised to include all growing areas and cultivation beds approved by the Commission and include a consistent, standardized method of marking the location of Coast's growing areas and culture beds in a manner that is obvious, identifiable, and understandable by boaters and recreational users not familiar with Coast's operation. Unless a more effective approach can be developed by Coast and approved in writing by the Executive Director, the Cultivation Area Plan shall include the removal of all existing marking stakes and the use of uniform marking stakes or posts that (1) remain visible and above water during maximum tidal heights; (2) are topped with reflective material; (3) identify the side of the stake on which the culture bed is located; and (4) are placed every 200-feet along the outer sides and at each corner of each of Coast's active culture beds. In addition, the Cultivation Area Plan shall include a method for Coast to develop, consistently update, and distribute digital and hard copy maps of Arcata

Bay showing the location of its rafts and culture beds. Upon approval of the Cultivation Area Plan by the Executive Director, Coast shall implement the Cultivation Area Plan and complete the removal, replacement, and installation of marking stakes or posts within 90 days from the date of the Cultivation Area Plan's approval by the Executive Director.

16. **Brant Hunting.** Except for emergency situations, activities to ensure the safety of its operations or operations required for regulatory compliance, such as marine debris cleanup response after storm events, Coast shall avoid on-water operations within its leased and owned areas depicted on Exhibit 1 from one hour before sunrise until sunset on days ~~between November 15 and December 15~~ that are designated by the California Department of Fish and Wildlife as brant hunting days on Arcata Bay, including season opening and closing days (typically brant hunting is limited to Wednesdays, Saturdays, and Sundays **between early November and mid-December**).

17. **East Bay Bed Removal.** ~~Cultivation bed EB 7-2 B, the currently unplanted portion of the culture bed referred to in the December 23, 2016 "Annual Report for CDP E-06-003" submitted to the Executive Director as EB 7-2, shall remain unplanted and all cultivation gear and equipment, including all stakes, posts, lines, ropes, tags, wires, and fasteners, shall be permanently removed. This removal work shall be carried out within 30 days of permit issuance and shall be carried out consistent with the requirements of Special Condition 13.~~ Once the growth cycle for oysters is complete on the ~~remainder this~~ culture bed~~,~~ referred to **in the December 23, 2016 "Annual Report for CDP E-06-003" submitted to the Executive Director** as EB 7-2~~-A~~, that area shall be harvested, not replanted, and all cultivation gear and equipment, including all stakes, posts, lines, ropes, tags, wires, and fasteners, shall be permanently removed. This removal work shall also be carried out consistent with the requirements of Special Condition 13. **If a portion of the cultivation bed (for example, the half referred to as EB 7-2A) is ready for harvest prior to another portion, all cultivation gear from within the portion that is ready for harvest shall be removed and not replanted.** ~~and shall be completed no later than March of 2018~~.

18. **Sand Island Protection.** Until it is removed, between the months of June and August, Coast shall carry out the minimum possible operations on the culture bed referred to in the December 23, 2016 "Annual Report for CDP E-06-003" submitted to the Executive Director as SI N k, SI-N, or Sand Island-North.

19. **Protection of Brant Grit Sites.** Between the months of November and June, no vessel transit or cultivation activities shall be carried out within 384 meters of the black brant grit site~~s~~ **at Sand Island** shown in Exhibit 11. **Marine debris collection efforts and water quality sampling required by the California Department of Public Health shall be exempt from this requirement.**

…

28. Other Agency Review and Approval. PRIOR TO COMMENCEMENT OF PROJECT CONSTRUCTION AND/OR INSTALLATION ACTIVITES, Coast shall submit to the Executive Director written evidence that all necessary permits, permissions, approvals, and/or authorizations for the approved project have been granted, including those from the North Coast Regional Water Quality Control Board (RWQCB) and U.S. Army Corps of Engineers. Any changes to the approved project required by these agencies shall be reported to the Executive Director. No changes to the approved project shall occur without an amendment to this coastal development permit unless the Executive Director determines that no amendment is legally necessary.

29. Maintenance Cleaning. All maintenance cleaning operations of the raft hulls, raft floats, and well infrastructure (not including floating upwelling system bins) on Coast's cultivation rafts and floating upwelling systems shall be carried out onshore. All biofouling organisms and biological materials removed during these cleaning operations shall be collected and disposed of at an appropriate upland facility. Regular scraping of the floating upwelling system channels can occur on the rafts, provided that all biofouling organisms and biological materials are contained using tarps and/or screens. No discharge of untreated wash water or biofouling materials into Humboldt Bay shall occur during maintenance cleaning operations.

30. Marine Wildlife. If any marine mammals or more than ten pelicans and/or cormorants at any one time are observed on one of Coast's nursery rafts, cultivation rafts or FLUPSYs for more than two weeks, the Coast shall within 10 days notify the Executive Director and within 30 days of such notification to the Executive Director submit, for review and approval, a plan to install passive deterrent devices (such as exclusionary fencing or netting) to prevent future use of the rafts or FLUPSYs by marine mammals or seabirds. Coast shall install the passive deterrent devices and maintain them as approved by the Executive Director.

Appendix A: Appendix A, referenced in Special Condition 4, establishes how the project would respond to various monitoring results during the first several years of implementation. The text of Appendix A would be modified as follows:

Appendix A – Adaptive Management Scenarios

Between the collection of baseline eelgrass data and the collection of year one post-installation and post-removal eelgrass monitoring data, Coast may install new cultivation equipment on up to 82.64 acres of expansion cultivation beds and, consistent with Special Conditions 3 and 13, shall remove existing cultivation equipment from within 34 acres of existing cultivation beds.

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 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 **areas**~~beds~~, no loss of eelgrass vegetated cover **or areal extent** and no more than 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 **expansion** cultivation beds occurred at a minimum of **75% of** the ~~same~~ level ~~as~~ **of** foraging **that** occurred outside **expansion** cultivation beds; (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 areas, no loss of eelgrass vegetated cover or ~~bed~~ **areal** extent occurred but reduction in eelgrass density of between **29**~~20~~% and **41**~~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; or (2) within the areas from which longlines were removed, no measurable recovery and expansion of eelgrass density and/or percent vegetative cover occurred, when compared to appropriate reference sites; or (3) brant "bed-foraging" on eelgrass inside **expansion** cultivation beds occurred but was lower than **75% of** the level of foraging that occurred outside **expansion** cultivation beds; 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~~ **areal** extent or a reduction in eelgrass density of greater than **41**~~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, Coast shall ~~remove all cultivation gear within those expansion beds or areas~~**, within 30 days, submit a plan for the Executive Director's review and written approval that includes removal of cultivation gear from the area in which impacts exceeded specified thresholds or removal of a sufficient area of additional "existing" cultivation beds (those from within the footprint of operations authorized by the Commission in 2006) to compensate for the amount of impacts that exceeded the threshold (for example, if ten acres of expansion cultivation beds are shown to have a loss of eelgrass percent vegetated cover, spatial distribution or areal extent, ten additional acres of existing cultivation beds would be removed; if ten acres of expansion cultivation beds are shown to have a loss of eelgrass density of 50%, 2.5 acres of existing cultivation beds would be removed in addition to the 2.5 acres that were already removed to mitigate for the assumed 25% loss in eelgrass density**; (3) In addition, Coast shall **within 30 days, submit a plan for the Executive Director's review and written approval that includes either removal of** ~~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~~. T~~ **(t**his 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**)**~~.~~ **or removal of cultivation equipment from within existing cultivation beds at a ratio of 1:1 (area of additional removal: area of failed mitigation).** ~~All removal activities described above shall be carried out consistent with Special Condition 13 and shall be completed within 30 days.~~ **If removal activities are not carried out prior to the beginning of the next eelgrass growing season (May through October), Coast shall remove additional cultivation equipment to make up for the temporal lag between when the impact occurred and when the mitigation is provided. The amount of additional acreage shall be calculated by the Executive Director based on the "Delay Multiplier" provided in Attachment 7 of the October 2014 California Eelgrass Mitigation Policy and Implementing Guidelines.**

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**, II** 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~~ **Based on the Executive Diretor's determination of which scenario is most relevant,** Coast may carry out additional expansion (up to the maximum of 165 acres of expansion allowed per Special Condition 2) or be required to remove cultivation equipment from expansion ~~beds or~~ areas **or existing cultivation beds**. 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.

Findings and Declarations

The Commission staff recommends the following text be added or modified to various elements of the staff report's Findings and Declarations section, including through the addition of a new subsection on cumulative impacts:

Background and Previous Permitting: Revised text in the second full paragraph under Section A on page 20 and the first full paragraph on page 21.

Page 20:
Coast has been carrying out oyster aquaculture in Arcata Bay since the 1950's and is currently owned by Pacific Seafood, one of the largest seafood companies in North America. Prior to 2006, Coast's intertidal oyster cultivation operations had occurred without benefit of a coastal development permit**.**~~, and Coast did not seek and obtain recognition of a vested right~~ **While Coast agreed to seek a CDP for its operations in 2006, it also submitted a claim for a vested right and reserved its right to pursue a vested right in the future.** In the late 1990s and early 2000s…

Page 21:
…In February of 2017, the Harbor District certified a Final EIR for the proposed project and found that this roughly 490 acre operation was the environmentally preferred alternative. Although certification of its Final EIR has been challenged through court filings by **two**~~three~~ organizations **represented by Earthjustice** (Audubon California, ~~Earthjustice,~~ and the California Waterfowl Association), the Harbor District also approved the issuance of a use permit for Coast's proposed expansion.

Fill of Open Coastal Waters: Revision to the text in the fourth full paragraph on page 28.

Page 28:
…In particular those measures that would reduce the project's potential to result in the release of marine debris (**Special Conditions 4, 8 and 14**); reduce the overall potential for the project to adversely affect the overall biological productivity of Arcata Bay by limiting the project scale (**Special Condition 2**); reduce the project's potential to disturb sensitive wildlife species and life stages throughout the bay by further consolidating Coast's operations (**Special Conditions 3 and 17~~19~~**); and require careful monitoring to assess assumptions about the magnitude and likelihood of the projects adverse impacts to eelgrass and black brant (**Special Conditions 6 and 7**).

Black Brant: The following text would be added into and below the first full paragraph on page 59 and into the last paragraph on page 61.

Page 59:
…In addition to allowing Coast to continue its existing operation, the expansion allowed by this condition would allow Coast to exceed its existing operation by over 100 acres – representing a significant expansion. However, **Special Condition 3 and Special Condition 17** require that the operation be more consolidated and focused than both Coast's proposed project and existing operation. As such, the activity footprint of Coast's operations in Arcata Bay would be significantly reduced and the likelihood and opportunity for field operations to flush and disturb brant would be reduced.

In particular, this would be accomplished through the removal of the cultivation bed in the far eastern portion of the East Bay Management Area referred to as EB 7-2. Although limited to only 11.5 acres, this cultivation bed effectively extends Coast's operational footprint in Arcata Bay by several hundred acres because it is isolated and located nearly a half- mile from any other cultivation area. Because the area around EB 7-2 supports extensive beds of dense eelgrass, it is an area capable of supporting a substantial amount of black brant foraging. Although Coast's personnel are unlikely to intentionally disturb or flush brant, brant are known to react in this way at distances of over 1,000 feet and may therefore be flushed from an area before Coast's personnel realize they were present there. As such, brant foraging in this area may be subject to flushing, herding and disturbance due to Coast's operations, which include periodic maintenance visits and inspections and multi-day planting and harvesting activities. Further, the presence of the cultivation equipment – at the spacing and configuration used in EB 7-2 – has been shown to significantly reduce brant foraging, essentially rendering the cultivation bed unusable as a forage area for brant. Therefore the removal of cultivation bed EB 7-2 required through Special Condition 17 would have the combined benefit of providing an additional 11.5 acres of foraging area as well as reducing disturbance potential within a large area (1000 feet or more) immediately surrounding the cultivation bed and along the vessel routes that Coast's personnel use to access the site.

…
The most critical requirements, however, are those included in **Special Conditions 4, 7 and 8**. These conditions would (1) require Coast to develop and implement a brant monitoring plan to evaluate the question raised above about brant use of cultivation beds for bed feeding (i.e.

foraging on eelgrass that is growing within that cultivation bed); (2) establish a limited maximum installation scale and schedule for the first two years of the project; (3) require Coast to relocate approximately 40 acres of its proposed expansion from areas of high density eelgrass to areas with more sparse eelgrass that retain visual evidence of impacts from Coast's historic dredge harvesting activities; (4) impose two check-in points for the Executive Director to evaluate the initial monitoring results so that additional expansion could be halted or removed if brant use was shown to suffer; and (5) establish an adaptive management process for the life of the project that incorporates the results of the brant monitoring and expert input on interpreting the results.

As required in Special Conditions 4 and 8, this adaptive management process for brant would make use of an impact threshold that is based on a comparison of brant foraging activity within and outside of expansion cultivation areas. These conditions establish a requirement that there can be no more than a 25% difference between "bed feeding" (foraging by brant on eelgrass actively growing at the site) within and outside expansion cultivation areas. Bed feeding is established as the appropriate activity to measure because it is the most productive and efficient type of feeding that brant engage in on Arcata Bay and requires brant to access eelgrass growing within an eelgrass bed. The 25% threshold level is based on Coast's proposal to remove 0.25 acres of existing cultivation equipment for every one acre of new cultivation gear it installs in expansion areas. Because brant foraging within Coast's existing cultivation beds has been shown to be virtually nonexistent when cultivation gear is exposed (for example, Appendix E to the project EIR, the "2015 Black Brandt Survey Memorandum" that discusses the results of surveys carried out within Coast's existing cultivation beds to document brant use, documented a mean density of 2.6 birds/acre outside of cultivation beds and a mean density of only 0.1 birds/acre inside existing cultivation beds when gear was exposed), the removal of existing cultivation gear from within eelgrass habitat is expected to allow brant to return to these areas for foraging. Therefore, as long as brant bed feeding in expansion cultivation beds occurs at a level that is not more than 25% less than bed feeding in areas outside of cultivation beds, lost foraging opportunities that result from installation of the new cultivation beds would be balanced by gained foraging opportunities from the removal of existing cultivation beds and brant foraging in Arcata Bay would not be expected to be substantially reduced from current levels.

Page 61:
Contrary to the Harbor District response, it is relevant to consider buffers established for on-foot disturbance since many of the maintenance, harvest, and planting activities carried out on a culture bed are done by personnel on-foot. Therefore, buffers established to protect brant grit sites should be based on either of the distances established through research - 250-meters or 384-meters. Given the protected status of brant and the importance of their limited known grit sites within Arcata Bay, the Commission is requiring in **Special Condition 19** that when brant are most likely to be present in Arcata Bay (November to June), a 384 meter buffer be established around **one of** the two primary grit sites within Arcata Bay that were identified during the CEQA review process[1] (shown with blue circles in **Exhibit 11**). **Special Condition 19** would prohibit

[1] Although Audubon California cites anecdotal evidence in its May 12, 2017, letter to Commission staff indicating the presence of an additional grit site near one of Coast's proposed expansion cultivation beds in East Bay (cultivation bed EB 1-3), Commission staff has been unable to confirm the use of this location as a grit site.

Coast from operating or transiting through these buffer areas. **The other grit site identified on Exhibit 11 – the one at Indian Island – is not included because it is in an area that supports higher levels of human use on a more constant basis – for example, both the Highway 255 bridge and the Arcata Channel are adjacent to the area and experience vessel and vehicle traffic on a regular basis. Implementation of a protective buffer that prevents activity within such an area is therefore infeasible.**

Eelgrass: Revised text in the first and second full paragraphs on page 73.

Page 73:
…To address this uncertainty, **Special Condition 4** also establishes a process that allows the Executive Director to review initial monitoring results – from both expansion and removal areas – and use those results to guide Coast into the appropriate adaptive management response. For example, if no recovery of eelgrass occurs within the removal areas in the first year, Coast would delay further expansion until an additional year of data was available. If this second year of data continued to show that recovery was not occurring or if either the first or second year of monitoring in any of the expansion areas showed reductions in eelgrass that exceeded the ~~25%~~ **relevant** loss in density limit**s**, the newly installed cultivation beds in those areas would be removed. The density loss thresholds – 41% in the first year, 29% in the second – are established based on the amount of mitigation area that Coast will have created by removing existing cultivation gear and the amount of expansion area (area of newly installed cultivation gear). Although both of these thresholds are substantially larger than the anticipated reduction in eelgrass density of between 1% and 19% shown in Coast's analysis, they are scaled to the amount of mitigation that Coast is required to provide in the initial year of the project through Special Condition 3. Front-loading the mitigation in this way allows for use of larger thresholds in the initial years when the complex eelgrass monitoring program is first being implemented and may be more susceptible to errors and limitations in analysis resulting from the highly variable marine environment that may exaggerate the true scale of impacts that may be occurring. For example, implementation of Coast's eelgrass monitoring plan may generate results with a high level of variance in the initial year (in other words, a large range between the highest and lowest sample values) if the number of replicate samples it includes is too small or other elements are deficient. If this occurs, the 41% threshold - over two times higher than the highest level of impact that Coast expects – is still very unlikely to be exceeded and Coast would be able to modify and refine its sampling program to achieve more accurate results in the second year.

Once these initial two years of the project pass, **Special Condition 8** provides a clear roadmap of the adaptive management triggers and actions that would come into play as a result of the data collected by the eelgrass management plan in subsequent years. As with the process used for the first two years, if greater than expected impacts to eelgrass begin to manifest, the priority action will be to focus on removing the sources of those impacts before the situation deteriorates further. The density loss thresholds applied for years 3 and later (25%) would be lower than those established in the initial two years. This reflects the large initial mitigation effort and more incremental expansion process oriented around an eventual target mitigation ratio of 0.25:1

(removal:expansion) in response to the anticipated maximum impact to eelgrass density of a 25% loss.

Importantly, both Special Conditions 4 and 8 require that all of the eelgrass density loss thresholds be evaluated in comparison to appropriate reference sites and measured using the upper limit of the confidence interval around the mean of replicate density measurements. This is an essential precautionary measure that helps the project remain consistent with the state and federal policies that prohibit a "net loss" of eelgrass from occurring as a result of development and one that also provides appropriate "special protection" as required by Section 30230 of the Coastal Act for an area of special biological significance, eelgrass habitat. This special protection is provided through the use of the upper confidence limit as the assessment metric because this approach ensures that all measured impacts to eelgrass are considered in determining when to apply adaptive management responses to the project and how to scale them. To use the mean of replicate measurements rather than the upper end of the confidence interval, a potentially large level of unmitigated impacts could occur. For example, if the mean was 25% + or – 20%, the greater than 25% loss threshold would not be exceeded even though a potentially large number of samples could have exceeded 25% and the largest measured impacts were as high as 45%. Although this is a very extreme case, it's an example of the potentially severe consequences to the resource that may be allowed to occur through the use of an assessment metric that is not appropriately conservative (i.e. 165 acres developed x 45% density lost on each acre including uncertainty = 74.25 acres of lost eelgrass habitat – 42 acres mitigated = 32.25 acres net eelgrass habitat lost without mitigation).

Technical staff at several state and federal resource agencies confirmed with Commission staff that use of the upper confidence limit is appropriate here and necessary given the scale of Coast's proposal and the extremely sensitive wildlife and habitats that are found within it. The North Coast Regional Water Quality Control Board states in its recent June 2, 2017, letter to the Commission:

> *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.*

Clam Rafts and Floating Cultivation Systems: The following text would be added below the first full paragraph on page 73.

Page 73:

Clam Rafts and Floating Cultivation Systems

Each of Coast's 30 nursery rafts would include multiple cultivation wells and its proposed FLUPSY would include a variety of upwelling bins that would extend below the rafts into the water column. While the bins housing the shellfish seed would be periodically removed and

dried out as well as pressure washed on a daily basis to prevent the growth of fouling organisms, the structures supporting the bins and the rafts themselves are likely to attract fouling organisms over time and would need to be periodically removed and cleaned. Some of these cleaning activities may involve the use of a pressure washer, hose, or scraping devices and would be carried out annually or every several years on the hulls and floats of the FLUPSYs and nursery rafts themselves, with wash water and removed fouling organisms discharged into the bay. Other types of cleaning would likely be carried out on the FLUPSY bins on a daily to weekly basis to remove biofilms from the bins that could restrict the flow rate of water and contribute to the colonization of fouling organisms. With regards to the FLUPSY/nursery raft structures, while the regular daily or weekly cleaning of the FLUPSY bins would not result in the removal or fragmentation of large amounts of viable biofouling material, the more substantial cleaning of the hulls, floats, and submerged infrastructure of the FLUPSYs and nursery rafts may result in the discharge and spread of invasive organisms. To address the potential risk that this latter cleaning activity would have with regard to the spread and dispersion of invasive marine species, the Commission is requiring in Special Condition 29 that the cleaning of the FLUPSYs, nursery rafts, longlines, and cultivation well infrastructure be carried out in a manner that prevents discharge of biofouling materials and organisms to Humboldt Bay, including requirements to carry out some cleaning activities onshore and the requirement to collect and dispose of all removed biological material and organisms at an upland facility.

Marine Mammal and Seabird Use

Coast's nursery rafts and FLUPSY structure may be colonized by seabirds and marine mammals for use as resting areas. Such use may result in harm, harassment, or injury to this marine wildlife. Such effects on marine wildlife may be unintentional consequences of these animals using the rafts (entanglement or injury on the structures), attempting to prey on cultured shellfish on the rafts, or necessary deterrence activities that may be carried out in order to prevent property loss or damage. The injury, disturbance, or mortality to marine wildlife species that may result from their colonization of the proposed nursery rafts and FLUPSY could result in adverse impacts to marine biological resources.

In addition to these direct effects, colonization of the proposed clam rafts by marine mammals or seabirds, both of which may prey on special status fish species such as longfin smelt and salmon that are known to be present in the project area, could result in adverse indirect effects by augmenting the local abundance of predators and thereby increasing salmon and smelt predation. Longfin smelt, in particular, are known to be eaten by a variety of predatory fishes, birds and marine mammals and are considered to be a major prey of harbor seals (*Phoca vitulina*) in the Columbia River (Emmett et al. 1991). In addition, numerous studies throughout North America and Europe have demonstrated that avian predators such as cormorants and pelicans can consume large numbers of juvenile salmonids when appropriate conditions occur. In recent years, the Sand Islands in Arcata Bay, located only several miles north of the project site, have been found to support the largest nesting colonies of double-crested cormorants in California (Capitolo et al 2004). The presence of these colonies near the project area and the propensity of this species to roost on man-made overwater structures suggest that colonization or development of roosts on new structures could occur, potentially increasing the amount of avian predation on juvenile salmon and longfin smelt in the project area. To a lesser extent, another piscivorous

seabird species known to establish roosts on man-made overwater structures, the brown pelican, also may increase predation on longfin smelt and juvenile salmon in the project area if it is also able to colonize the proposed rafts.

To address the potential adverse impacts associated with the direct and indirect effects of marine wildlife colonization of the rafts, the Commission is requiring Coast in Special Condition 30 to report to the Executive Director within ten days if marine mammals, cormorants, or pelicans begin establishing a haul-out or roost on its nursery rafts and FLUPSY for more than two weeks, and within 30 days submit for Executive Director review and approval a plan for the installation of passive marine mammal and/or seabird exclusion devices on the rafts. The Commission believes that implementation of Special Condition 30 will help to limit the potential for the project to increase predation on longfin smelt and juvenile salmon and reduce potential injury or disturbance of marine wildlife.

Coastal Access and Water Oriented Recreation: The following additions and modifications would be made to the first and second full paragraphs on page 85.

Page 85:
In addition, to address the concerns raised by the recreational hunting community about disturbance from Coast's on water operations and vessel use, a modified version of the requirement from Special Condition 11 of CDP No. E-06-003-A5 would be carried forward as **Special Condition 16** to limit Coast's operations within the bay during the days in which brant hunting is allowed **on Arcata Bay** (typically only Wednesdays, Saturdays and Sundays between **early** November ~~15~~ and **mid-**December ~~15~~; usually 14 total days). Although this limitation would severely restrict Coast's operations during this time of the year, the timing and duration of this restriction would be very limited.

As a final measure to ensure that Coast's 411 acres of expanded operations are carried out in a way that adequately protects the bay for water-oriented recreational activities, **Special Conditions 3 and 17** would require the removal of roughly 11 acres of existing cultivation beds from within the far eastern portion of Arcata Bay (the area circled in orange on the figure above) that is one of the highest priority use areas for recreational hunting on Arcata Bay. Based on correspondence submitted to Commission staff, the eastern portion of Arcata Bay from which these cultivation beds would be removed "is of critical importance to recreational hunting because it is where the majority of traditional, historic waterfowling occurs in North Humboldt Bay" and during the hunting season, it is estimated to support a minimum of 50 hunters per day. Although this level of use has not been documented, the point raised is that this section of Arcata Bay, located furthest from the majority of Coast's operations, is an important area for recreational uses that may conflict with Coast's on-water activities and development. While this area is difficult to easily reach, the wildlife and habitat resources it supports and relative absence of shellfish cultivation there appear to draw members of the public to seek it out. As such, existing and continued use of this area for Coast's operations – primarily through the use of its approximately 11 acre cultivation bed referred to as EB 7-2 – is limiting recreational opportunities there due to concerns about navigational safety (resulting from collissions between

vessels and aquaculture gear that may be submerged or partially exposed) and disturbance to recreational users from Coast's periodic maintenance vists, inspections, and more lengthy planting and harvest activities on EB 7-2. The removal of Coast's limited operations in this area would eliminate these sources of conflict and provide a large area of the bay free from shellfish cultivation activities and more fully available for wildlife, habitat, and recreational uses.

This approach to further consolidating Coast's operations by removing cultivation bed EB 7-2 would help address the concerns that have been raised by numerous interested parties and public agencies about the dedicating too much area in Arcata Bay to shellfish cultivation and the project's potential to limit or restrict other uses of the bay, particularly if cultivation beds continue to be located within all of the principal areas of the bay. Such concerns include those raised by the Humboldt County Planning Department, who noted in an August 16, 2016 letter to the Harbor District that "the layout of the proposed Project includes areas covered in aquaculture gear spread out over 4[9]1 acres that would otherwise be available as habitat and as areas for recreational uses such as waterfowl hunting, bird watching, kayaking, fishing, boating and sailing."

Cumulative Impacts: The following subsection would be inserted as subsection H of the report on page 85. The current subsections H and I would be re-lettered as subsections I and J but the text of these subsections would not be changed.

Page 85:

H. ~~ATTORNEYS COSTS AND FEES~~ CUMULATIVE IMPACTS

In addition to Coast's existing operations and proposed expansion to 490 total acres, a variety of other shellfish aquaculture operations have been recently authorized by the Commission in Humboldt Bay or are in advanced planning stages. Recently authorized operations include three onshore shellfish nurseries and associated in-water "grow-out" facilities (one each for Coast, Taylor Shellfish, and Hog Island Oyster Company; CDP Nos. 9-16-0033, E-11-029, and 9-13-0500, respectively) and approximately 21 acres of additional subtidal areas authorized to be used by the Humboldt Harbor District or its designees for floating shellfish cultivation systems and rafts (CDP No. 9-16-0204). Projects in advanced planning stages include a proposal by Mr. Jerry Yeung and another by the Humboldt Harbor District that would result in a combined total of approximately 329 acres of intertidal shellfish cultivation operations in Arcata Bay (as shown in Exhibit 12).

Although many of the potential coastal resource concerns raised by the recently permitted onshore and subtidal operations are different than the primary issues raised by the intertidal operations proposed by Coast, Mr. Yeung and the Harbor District, one issue they have in common is the bay's carrying capacity or ability to support extensive populations of cultivated non-native shellfish without adversely affecting native species that rely on similar sources of food.

This was briefly addressed by the Commission in its findings for the Harbor District's subtidal project (CDP No. 9-16-0204):

> *Based on an analysis carried out in the Project Description and Biological Analysis developed for the Harbor District for this project by its biological consultant, each day, the clam and oyster seed proposed to be cultivated on the nursery rafts and FLUPSYs would have a 14-day clearance efficiency of between 0.022 and 0.042. Clearance efficiency (CE) is a measure of how effectively shellfish can process bay water during feeding compared to the efficiency of tidal flushing. For reference, Gibbs (2007) states that "very low values of this indicator (<0.05) suggests that the culture will not be able to induce significant changes to the pelagic functioning" (i.e., connectivity between an embayment and nearby coastal areas). In contrast, CE values greater than 1.0 indicate that water in the bay is flushing slower than the water is being processed by cultured shellfish. Based on the calculations of CE carried out by the Harbor District's biological consultant, the shellfish that would be produced by the proposed project would filter a fractional amount of the total volume of water in Arcata Bay at high tide and the volume of water that leaves Arcata Bay at ebb tide each day.*
>
> *Calculations of several other carrying capacity or sustainability indicators carried out by the Harbor District's biological consultant provide similar indications that the filtration effect of the shellfish cultured from this project would remain well below the potential carrying capacity of the Humboldt Bay system. If the project is considered cumulatively along with other existing aquaculture operations in Humboldt Bay, the total filtration effect also appears to remain below a level that may adversely affect the biological productivity of non-cultured organisms within the Humboldt Bay ecosystem. However, as future large-scale expansion of shellfish aquaculture in Arcata Bay or Entrance Bay is considered, this combined filtration effect would need to be more closely considered.*

Using this same measure of carrying capacity – clearance efficiency (CE) – and reviewing the carrying capacity analysis included as Appendix G to the Harbor District's R-DEIR for Coast's project, the combined effect of all of the different shellfish cultivation projects is more notable. Specifically, the carrying capacity analysis estimates a CE of between 0.41 and 0.77. Although this is much closer to the 1.0 value that indicates cultured shellfish are filtering the bay's waters more quickly than they can be flushed and replaced with new water from tidal action, it needs to be given appropriate context. For one, the carrying capacity analysis included in the R-DEIR was completed in October of 2015 when both Coast and the Harbor District were proposing intertidal operations in Arcata Bay that were several times larger than their current proposals. Additionally, the CE values of 0.41 to 0.77 represent estimates that assume a replacement time of 14 days for the waters of Arcata Bay. This is acknowledged as a conservative estimate and a shorter replacement time may be more accurate. The effect of a shorter replacement time on the CE value would be significant – for example, a replacement time of seven days rather than 14 would halve the estimated CE value. The carrying capacity analysis also acknowledges several other caveats or sources of potential error or overestimation, including by not incorporating

nutrient deposition by cultured shellfish and the effect that this may have on promoting phytoplankton populations. In other words, to some degree, cultured shellfish provide nutrients that can trigger the growth of their food sources.

At the same time, however, the carrying capacity analysis may also be underestimating the effect of Humboldt Bay's shellfish aquaculture operations because it does not appear to include all of the existing operations – for example, the onshore nursery facilities that are run by Coast, Taylor Shellfish, and Hog Island Oyster Company, and rely on the removal of significant quantities of seawater from the bay. It also must be acknowledged that this type of carrying capacity analysis has rarely been done before and therefore its results should be used somewhat cautiously. While the work included in the appendix to the R-DEIR was reviewed and supported by a technical team of aquaculture specialists at NOAA, it is likely that this type of work will continue to be refined over the next several years as more powerful modeling tools are developed and more robust and accurate estimates of the key biological and oceanographic attributes upon which the model is built become available (for example, the replacement rate of water in Arcata Bay). This suggests that until greater information is available and given the relatively high clearance efficiency (CE) values for Coast's project in combination with other shellfish aquaculture operations in Arcata Bay, it would be appropriate to ensure that further aquaculture development in this area proceed at a measured pace and modest scale. The requirements in Special Conditions 2, 3, 4 and 17 would help ensure that this is accomplished by limiting the overall expansion of Coast's operations to no more than 111 acres (411 total), consolidating it into three primary subareas of the bay (both through the removal of existing cultivation bed EB 7-2 and the existing cultivation beds in the central portion of the bay near the Sand Island area), and scheduling it to be carried out incrementally and with required mitigation triggers at various points within the first five years if adverse impacts are greater than anticipated. Additionally, Special Condition 1 also limits the overall permit term to eight years, thus providing the Commission an opportunity to consider additional information regarding carrying capacity affects that may be available in the future.

In addition to the cumulative effect of Coast's project and other shellfish aquaculture projects in Arcata Bay on phytoplankton populations, these projects also have the potential to have cumulative or additive effects on other types of marine resources. For example, the approximately 329 acres of intertidal shellfish cultivation operations proposed by Mr. Yeung and the Harbor District would be expected to affect several of the same sensitive wildlife species, populations, and habitats that may be affected by Coast's proposed project. In particular, the proposed location for over half of these other projects is within the far east portion of the east bay, higher in the intertidal mudflats within an area known to support extensive populations of migratory shorebirds.

Coast's proposed project combined with these other two would result in approximately 819 total acres (490 acres + 329 acres) of intertidal shellfish cultivation within Arcata Bay, nearly tripling the amount of area currently being used. Although the proposals by Mr. Yeung and the Harbor District would largely be located in tidal flats that have higher elevations and do not support the high densities of eelgrass found within Coast's proposed footprint, these projects have raised a variety of concerns similar to those discussed above with Coast's project regarding disturbance

and lost or reduced foraging opportunities for migratory waterfowl (such as black brant) and shorebirds. As noted in its recent June 2, 2017, letter to Commission staff from the U.S. Fish and Wildlife Service, these impacts would be in addition to ongoing disturbance to wildlife resulting from the increasing use of Arcata Bay by the general public:

> *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.*

The Pacific Fisheries Management Council has raised similar concerns.

In light of these potentially additive cumulative effects from ongoing and proposed aquaculture projects and other activities in Arcata Bay, the Commission finds that it would be appropriate for Coast's proposed operations to be reduced, consolidated, and carried out incrementally with a close evaluation of impacts and the success of resource protection and mitigation measures. Therefore, Special Conditions 1, 2, 3, 4 and 17 are added to limit Coast's operations in the eastern portion of the bay (through the removal of existing cultivation bed EB 7-2); limiting the overall expansion of Coast's operations to no more than 411 acres; limiting the duration of Coast's permit to eight years (the term of Coast's primary leases); consolidating it into three primary subareas of the bay; and scheduling it to be carried out incrementally and with adaptive management triggers at various points within the first five years (as additionally required through the monitoring and adaptive management measures in Special Conditions 6, 7, and 8).

~~H.~~I. ATTORNEYS COSTS AND FEES

Coastal Act section 30620(c)(1) authorizes the Commission to require applicants to reimburse the Commission…

~~I.~~J. CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 13096 of the California Code of Regulations requires Commission approval of a coastal development permit application to be supported by a finding showing the application, as…

RESPONSE TO COMMENTS

June 2, 2017 Letter submitted by Peter Weiner, on behalf of Coast Seafoods Company

Coast proposes a number of changes to six of Commission staff's proposed special conditions. As shown in the revised special conditions included above, Commission staff has modified a number of special conditions in response to Coast and others' comments on the draft special conditions. In this section, Commission staff summarizes the arguments Coast makes in support of its proposed changes and responds to those arguments.

Eelgrass monitoring plan

Coast's Proposed Changes:

A. Remove the requirement that Coast monitor the percent vegetated cover of eelgrass;

B. Remove the requirement that impacts to eelgrass density be lower than 25%, measured as the upper limit of the confidence interval and instead require that impacts to eelgrass density be assessed based on the mean eelgrass density measured; and

C. *Remove identification of failure to meet the accuracy rate or statistical power required by Special Condition 6(D) as an inconclusive result*

Coast's Arguments in Support of Proposed Changes:

A. The mean is the appropriate measure to use to assess eelgrass density because it represents a likely result in terms of probability. The upper limit of the confidence interval represents a very unlikely result. Coast should not bear the risk of a worst case scenario if the monitoring results in a large confidence threshold.

B. Eelgrass shows high natural variability, making it particularly difficult to narrow the confidence interval for eelgrass density monitoring.

C. Eelgrass tends to recover rapidly once culture activities cease.

D. It would take a very large monitoring effort to obtain the sample sizes needed to detect changes in eelgrass at a level that would significantly reduce the confidence interval. Monitoring to this level could be infeasible and could cause significant adverse environmental effects due to trampling.

E. The condition should remove reference to percent vegetative cover and spatial extent (modifying "spatial" extent to "areal" extent) to be consistent with the CEMP.

Staff Response:

Regarding the use of the California Eelgrass Management Policy (CEMP) as guidance, the CEMP standards recommend that eelgrass monitoring include four attributes of eelgrass habitat that are intended to serve as proxies for a much wider range of physical and biological attributes. The four attributes of an eelgrass bed that CEMP recommends for all monitoring plans are spatial distribution, areal extent, percent vegetated cover, and turion density. Following this recommendation, Special Condition 6 (which establishes the required elements for Coast to include in its revised eelgrass monitoring plan) calls out the need for each of these attributes to be included in the monitoring effort. Although Coast suggests that these attributes be reduced to only turion density and areal extent, Commission staff recommends that the full suite of four attributes be included to provide a wider range of information about the response of eelgrass habitat to Coast's development and mitigation activities. In response to Coast's comments,

however, Commission staff recommends a change to clarify that both spatial distribution and areal extent be included in the monitoring plan. The initial version of the staff report referred to these attributes in a combined way that may result in confusion.

Regarding the integration of confidence interval in performance and impact assessments, there is a great deal of uncertainty as to whether Coast's proposed project will have as little impact to eelgrass as Coast's analyses suggest. If only the mean is used to assess the project's impacts on eelgrass, there is the potential that much larger adverse impacts to eelgrass could occur without triggering corrective action or a mitigation response. For example, if the monitoring results were to demonstrate a 25% reduction in eelgrass turion density but the confidence interval were + or – 20%, there could, in fact, be up to a 45% loss in eelgrass density, resulting in a significantly larger impact than predicted or for which mitigation was provided. This affect, multiplied over the 165 acres of Coast's operation would have significant, unmitigated, adverse environmental impacts and would be inconsistent with Coastal Act sections 30230 and 30231 (i.e. 165 acres developed x 45% density lost on each acre including uncertainty = 74.25 acres completely lost – 42 acres mitigated = 32.25 acres net eelgrass habitat lost without mitigation). Only by convincingly demonstrating that the project does not decrease eelgrass turion density by more than 25% inclusive of the confidence intervals and thus requiring that any statistical assumptions ensure no greater impacts than expected, can the Commission ensure that it is consistent with the Coastal Act and does not result in substantial unmitigated adverse environmental impacts.

Regarding the removal or modification of adaptive management mechanisms to address inadequate monitoring results, several of the changes proposed by Coast to subpart E of Special Condition 6 would have modified and weakened its intended effect. Subpart E was developed based on lessons learned from other past monitoring efforts and projects where the strength and resolution of the initial monitoring efforts were not sufficient to allow for definitive conclusions about the occurrence and magnitude of adverse impacts. Subpart E of the condition addresses this potential scenario by requiring corrective action to improve or increase the monitoring efforts when those monitoring efforts are directed at confirming assumptions the Commission is making that a project is indeed causing only limited adverse impacts when relevant scientific information indicates that adverse impacts may be more substantial. If, after those corrective measures have been taken, monitoring efforts continue to yield results that do not meet the minimum level of statistical rigor needed to form a conclusion – essentially meaning that the assumptions that the Commission and Coast are making about the project's limited impacts are not being adequately upheld by the monitoring – the next step would be to assume that impacts are occurring. Commission staff believes that this is an appropriately conservative approach given the significant uncertainty that has been expressed by technical experts, state and federal agencies, and interested parties about several of the assumptions the Commission and Coast are making about there being very limited potential adverse impacts that could result from its project

(for example, that installing and operating new cultivation beds in eelgrass would result in no changes to percent vegetated cover or areal extent and only a loss of density of 1-19%). To take a different approach and allow the project to continue to proceed without change if the monitoring results continued to be statistically deficient would have the potential effect of both allowing adverse impacts to continue without mitigation and to reward inadequate monitoring efforts. Further, establishing a clear process to apply to these situations would help limit future disagreements between Coast and Commission staff about how to interpret and respond to inconclusive monitoring results. This same approach has been supported and integrated into many of the more complex ecological monitoring programs required by the Commission (including the SONGS mitigation reef and the San Elijo Lagoon and Broad Beach restoration projects).

One of the concerns raised by Coast is that without an unrealistic level of effort, it may be unable to carry out sufficient monitoring efforts and sampling to detect small impacts from the project, overcome the expected natural variability of eelgrass growth in Arcata Bay, and meet the impact thresholds included in Special Conditions 8 and Appendix A if the upper end of the confidence interval is used. However, Commission staff have dedicated many hours over the past three months working internally with technical services staff, independent peer reviewers and with the staff of the North Coast Regional Water Quality Control Board, California Department of Fish and Wildlife, National Marine Fisheries Service, U.S. Army Corps of Engineers to provide guidance and input on Coast's eelgrass monitoring plan and feel strongly that it is capable of addressing these challenges and would provide adequate results to allow Coast's project to procced if its impacts are within the range that Coast is anticipating and mitigating for (a 1% to 19% reduction in eelgrass density). Further, by providing an amount of mitigation that slightly exceeds Coast's anticipated impacts and is set to a more substantial level – 25% rather than 10% or 19% - the impact threshold can be greater and some of the challenges that Coast describes in its letter about the difficulty of detecting small scale impacts in a variable environment have already been planned for and addressed. As Coast notes in its letter, by setting the threshold to 25% rather than 10%, past research on eelgrass sampling has shown that the level of sampling effort needed can be reduced by as much as a factor of seven. Therefore, the robust monitoring approach that Coast has developed in coordination with agency staff should be more than capable of detecting the modest impact level that has been mitigated for and used to establish the adaptive management threshold in Special Condition 8 and Appendix A – even if that threshold is not based on the mean of replicate samples, as Coast would prefer.

However, Commission staff also expects a process of refinement to occur within the first year or two that the complex monitoring plan that Coast has developed – including the modifications required through Special Condition 6 – is implemented. The results from the first year may reveal issues with the sampling design that limit the interpretation of the data – including by

having a wide confidence interval around the mean – and would need to be corrected. To provide an opportunity for this to happen and to plan for the monitoring efforts to be honed in or improved over time to more accurately assess the project's impacts - and in recognition of the fact that Coast is proposing (and Special Condition 3 requires) that the majority of its mitigation activities (removal of cultivation gear from 34 of the 42 acres designated as mitigation areas) be carried out within the first year – the adaptive management thresholds established in Special Condition 4 and described in Appendix A would be increased – as shown above in the revisions to Appendix A.

The amount of this increase (from 25% to 41%) is based on the amount of mitigation Coast is initially implementing and recognizes that for the first year of the project, Coast is essentially mitigating for a loss of eelgrass turion density of up to 41%. This is because Coast would remove existing cultivation gear from 34 acres at the same time it installs cultivation gear on 82 acres – a removal of 0.41 acres for every acre added. As such, allowing for the initial monitoring results to show an impact of up to 41% without triggering severe consequences such as additional mitigation or removal of cultivation gear would not be inappropriate because it would still ensure that no net loss of eelgrass was occurring. For example, if the concerns that Coast expresses in its letter about wide confidence intervals are validated and the initial results show a loss of eelgrass density of 10% ± 30% (an extremely unlikely situation based on the design of the monitoring program and improvements required through Special Condition 6), Coast would not be required to immediately carry out additional mitigation. Monitoring results from the first year that showed such a wide confidence interval and high impact would, however, be cause for some concern.

To address this, Appendix A includes an adaptive management scenario (Scenario II) that would be triggered if the impacts do not exceed the level of mitigation provided at that point but still greatly exceed expectations. Under this scenario, if the monitoring results show a decline in eelgrass density of between 29% and 41%, Coast would not carry out any additional expansion until a second year of data is available. This would help ensure that impacts would not exceed mitigation by preventing additional installation and the resulting reduction in the mitigation ratio (although 0.41:1 – removal: addition - in the first year, as additional expansion occurs, the ratio quickly approaches 0.25:1). Additionally, this would provide for an additional year of more refined monitoring to be carried out before corrective action is taken. This more measured approach would help prevent decisions from being made based on poor monitoring performance rather than poor project performance and, if needed, give Coast an opportunity to modify its monitoring program (for example by using more appropriate reference areas or additional sampling) to reduce a wider than expected confidence interval if the year one results indicate that such an issue is occurring.

Appendix A also provides two additional scenarios to address year one results that do not exceed the anticipated eelgrass impacts (Scenario I) and results that exceed even the elevated first year threshold of 41% (Scenario III). In the first scenario, Coast would be allowed to continue its expansion and achieve a total of roughly 114 acres of new cultivation areas by the time the year two eelgrass monitoring results are available. In the second scenario, the impacts would have exceeded the mitigation provided to that point and Coast would have to either provide additional mitigation through removal of cultivation equipment from existing cultivation areas or address the impact through removal of cultivation gear from the expansion area that is causing greater than expected impacts.

Commission staff coordinated closely with technical staff at several state and federal resource agencies throughout its review of Coast's project and the staff report integrates the results of those efforts. Many of the specific elements of the staff recommendation reflect resource management and protection approaches that are supported by these agencies as appropriately conservative and necessary given the scale of Coast's proposal and the extremely sensitive wildlife and habitats that are found within it. For example, in its recent June 2, 2017 letter to the Commission, the North Coast Regional Water Quality Control Board specifically calls out its support for the use of the upper confidence interval as the appropriate way to evaluate the project's success at meeting its performance thresholds:

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.

Brant Monitoring Plan and Brant Adaptive Management

Coast's Proposed Changes:

A. Remove requirement that the brant monitoring plan determine whether brant foraging is occurring at the same level inside the cultivation beds as it is outside of cultivation beds

B. Require adaptive management only if: (1) there is a statistically significant difference between brant foraging in cultivation beds as compared to reference sites when culture gear is not exposed; or (2) if there is a less than 50% increase in brant foraging in expansion areas when culture gear is exposed, as compared to brant foraging when culture gear is exposed in the culture beds with 2.5 foot spaced longlines.

Coast's arguments in support of proposed changes:

A. Brant avoid longlines at 2.5 foot spacing when culture gear is exposed, so the original special condition requiring the same amount of foraging within and outside culture areas will be impossible for Coast to meet.
B. Longlines will only be exposed approximately 13% of the time for the Phase I culture and 18% of the time for Phase II culture, so brant will be able to forage within the culture beds when gear is not exposed, which includes most tidal heights.
C. Coast's goal is for brant to achieve comparable feeding and fattening rates after culture is installed as compared to pre-installation. Even if brant avoid longlines but feed immediately outside of them, as long as there is adequate eelgrass on a baywide scale, the loss of a small amount of foraging area within the culture beds will not have an adverse impact on overall brant populations.
D. Even if brant typically forage at non-high tides, evidence gathered from the North Bay indicates that brant still forage significantly while longlines are not exposed and eelgrass is accessible.
E. Brant swim and forage near existing longlines when they are not exposed.
F. Eelgrass levels are high enough baywide that a small temporal restriction in the amount of time brant may forage will not adversely affect the population.
G. Hunting has an adverse impact on brant populations in Humboldt Bay.

Staff Response:

In recognition of the additional foraging areas that will be provided to brant through the removal of existing cultivation beds (as proposed by Coast and required in Special Condition 3, for every four acres in which new cultivation equipment is installed, existing cultivation equipment is to be removed from one acre) the adaptive management threshold for brant use of new cultivation areas established through Special Conditions 4 and 8 would allow for up to a 25% reduction in foraging within expansion cultivation areas compared to outside areas. Although Coast suggests use of a different threshold that is based on a 50% increase in foraging from what has been documented on existing 2.5-foot spaced longlines when those lines are exposed, this threshold would be essentially meaningless because brant foraging within existing cultivation areas has barely been documented when gear is exposed. Appendix E to the project EIR, the "2015 Black Brandt Survey Memorandum" that discusses the results of surveys carried out within Coast's existing cultivation beds to document brant use, documented a mean density only 0.1 birds/acre inside existing cultivation beds when gear was exposed and it is unclear is any of the birds contributing to that density were engaged in foraging. Even assuming that all of the observed birds were foraging, a 50% increase – from 0.1 birds/acre to 0.15 birds/acre - would mean that the level of brant use across all 165 acres of expansion that Coast would be allowed under Special Condition 2 would increase from 16 birds to 25 birds.

Considering that several thousand brant make use of Arcata Bay for foraging, establishing a threshold at such a low level of use would not be appropriate because it would essentially mean that it would be acceptable if the expansion areas were not available to brant for foraging at lower tidal heights when the gear is exposed. As discussed in the letter recently submitted to Commission staff from the U.S. Fish and Wildlife Service, lower tidal heights are likely the most important foraging times for brant in Humboldt Bay:

> *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). <u>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.</u> 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.* [emphasis added]

Therefore, it is not important if brant are present in cultivation areas at higher tidal heights when both the cultivation gear and eelgrass are well submerged because brant are unlikely to be able to bed feed on eelgrass submerged at such depths anyway. The critical period is when the tide drops enough for the eelgrass to be within reach and if cultivation gear is exposed at those times and prevents brant from accessing forage areas in cultivation beds, up to 411 acres (or 490 with Coast's Phase II expansion) of foraging habitat would be lost. However, if the increased spacing of cultivation gear that would be used for Coast's proposed expansion areas does not limit brant access to forage areas in cultivation beds to the extent that the more narrow spacing does, as both Coast and Commission staff expect, then these areas would be able to support brant foraging. While this foraging may be limited directly around cultivation lines, the ten foot wide lanes between these lines are expected to be accessed and used by brant for foraging. This assumption would be tested through implementation of the brant monitoring plan and if it is upheld and the ten foot spaced cultivation beds show only a moderate reduction in brant foraging (25% or less)

Coast would be able to proceed with its expanded operations. However, if foraging within the ten foot spaced cultivation beds is severely reduced or non-existent (as it is in the 2.5 foot spaced cultivation areas), corrective action should be taken to ensure that the project does not begin to have more serious impacts on black brant.

While Coast is correct in its letter that brant are a game species and the target of recreational hunting, it is not correct in implying that this hunting is unrestricted, unregulated, or not carefully managed. In fact, black brant are likely the most heavily regulated and managed waterfowl game species in California and hunting is only carried out under strict controls. As an example, the brant hunting season on Arcata Bay is limited to only three days per week for only four or five weeks in the winter. This limited hunting season was developed with careful consideration by wildlife management agencies such as the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) and their partner agencies in Oregon, Washington, Canada and Alaska and integrates frequent population monitoring to ensure that hunting activities do not reach an unsustainable level that would put the population at risk. In this way, the management of brant hunting is similar to the regulation and management of protected species fisheries such as salmon for which levels of sustainable yield are established and continually refined by the appropriate management agencies. Given the level of expertise and management responsibilities that these agencies have with a species like black brant, it is therefore notable when they come forward with significant concerns, as CDFW and USFWS have with Coast's proposed project.

Appendix A (Year 1 and 2 Adaptive Management)

Coast's Proposed Changes not discussed above:

A. Rather than requiring removal of cultivation gear if the adverse impacts of Coast's operation are greater than anticipated, require Coast to "implement appropriate corrective actions as approved by the Executive Director." This may include removal of cultivation gear.

B. Modify thresholds for when Coast is allowed to plant additional longlines: In year 1, mean impacts below 25% would allow continued planting, mean impacts between 29% and 41% would mean no new planting, and mean impacts greater than 41% would require corrective action.

C. In year 2, mean impacts below 25% would allow continued planting, mean impacts between 25 and 29% would mean no new planting, and mean impacts greater than 29% would require corrective action.

Coast's arguments in support of proposed changes

A. Adaptive management must be flexible to address the multitude of potential results from the monitoring plans.

B. The "one year of monitoring results" date is unclear because monitoring plans will start at different times and culture gear will be removed at different times. Thus, there must be a flexible approach.

C. The percentages triggering pause of expansion or corrective action are based on the variable mitigation ration in the first two years, as Coast will be removing more 34 acres of existing gear and only planting 82.64 acres of new gear in year one.
D. If the mean of eelgrass density is not used, then the conditions should use hypothesis tests to assess the success of the monitoring.

Staff Response:
The changes Coast is requesting to Special Conditions 4 and 8 would allow the Executive Director to require as-yet-unidentified mitigation measures if the impacts of the proposed project are greater than anticipated. Commission staff believes that if the adverse impacts of the project are greater than expected, it is the Commission, after a public hearing, that should modify the mitigation measures required by this permit, not the Executive Director. As drafted, the proposed special conditions identify the specific mitigation measures that the Executive Director must impose if the project has larger impacts than anticipated. Should the project have only the expected impacts, additional mitigation would not be required – it is only in the case of larger-than-anticipated impacts that the additional mitigation identified by the staff-recommended conditions would be required. In this circumstance, the applicant could also apply to the Commission for a permit amendment to propose mitigation measures other than those required by the proposed special conditions, thus allowing the Commission at the time of the amendment to determine if different mitigation is appropriate.

Regarding the use of higher allowable impact thresholds for eelgrass density during the initial two years of project implementation and monitoring, Commission staff agrees with Coast that this would be appropriate due to the requirement in Special Condition 3 that Coast implement the majority of its proposed mitigation activity within the first year of the project. This change is reflected in the revisions to the staff report and special conditions included at the beginning of this document.

East Bay Bed Removal
Coast's Proposed Changes
A. Delete Special Condition 17

Coast's arguments in support of proposed changes
A. The findings supporting the six month extension of Coast's existing CDP support a finding that bed EB 7-2 will not have significant impacts on herring or black brant.
B. EB 7-2 is now fully planted and the section planted in 2017 will not be harvested for 3-4 years.
C. There is new evidence of herring spawn on culture gear, so with this evidence and the requirements in Special Condition 11, bed EB 7-2 will not have an adverse impact on herring.

D. There is sufficient area in the East Bay Management Are for herring to spawn, even with the existence of bed EB 7-2.
E. Even within culture beds, there is significant substrate available on which herring may spawn.
F. Bed EB 7-2 is fully mitigated, so removal of this bed would allow Coast to expand its operation by an additional 46 acres.
G. Bed EB 7-2 does not have an adverse impact on brant, hunting, or other recreational activities.
H. Removal of EB 7-2 is not needed to address any identified impact.

Staff Response:
The initial version of the staff report and recommendation and the revisions provided at the beginning of this document – in particular those sections on black brant and water oriented recreation – more fully describe the rationale and intended coastal resource benefits that would be provided through implementation of Special Condition 17 (removal of existing cultivation bed EB 7-2) and the adverse impacts to these resources that these benefits are intended to mitigate. This rationale and recommendation has received support from staff of both state and federal resource management agencies since the release of the staff report on May 25, including from the North Coast Regional Water Quality Control Board, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and California State Lands Commission. Relevant excerpts from the comment letters provided by these agencies are included below, for reference (in addition, the full letters are available in the correspondence packet for this project).

North Coast Regional Water Quality Control Board:
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.

California Department of Fish and Wildlife:
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.

U.S. Fish and Wildlife Service:
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.

California State Lands Commission:
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, Land 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.

Operational Footprint

Coast's proposed changes

A. Allow Phase II of the expansion with Executive Director approval.

Coast's argument

A. There will be sufficient information obtained through the extensive monitoring required for Phase I of the project for the Executive Director to assess the impacts of the project and to use the same criteria established for Phase I to allow Phase II to move forward.
B. Phase II of the project is necessary for Coast to meet its production goals and to finance the monitoring required by this permit.

Staff Response:
As discussed throughout the staff report sections on marine resources, coastal access and water oriented recreation, cultural resources, and cumulative impacts, the staff recommendation heavily relies on two primary approaches to addressing the wide range of adverse impacts to coastal resources that may result from the proposed project. These two approaches are to consolidate the project area (as required through Special Conditions 3 and 17) and reduce its scale (as required through Special Conditions 2 and 17). Although Special Condition 17 contributes 11 acres to the reduction in the scale of the project, the primary reduction is accomplished through Special Condition 2 which limits Coast's proposal to only Phase I.

Although the requirements of these two special conditions would reduce the size of Coast's proposed operation by only 16% (from 490 acres to 411 acres), they would much more substantially reduce the overall level and location of activity in Arcata Bay and therefore limit the project's potential to result in loss, injury, or disturbance to protected habitats and wildlife species – particularly black brant, a California Species of Special Concern, shorebirds, and eelgrass. Further, the limit to the scale of Coast's operations would also allow for the extensive proposed and required monitoring efforts (used to test those assumptions about the project's limited impacts) to be carried out with a more reduced scale project so that the consequences would be less severe if those assumptions are proven to be overly optimistic. If the assumptions 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. Through this process both Coast and the Commission would be able to make future decisions based on a more comprehensive suite of information about the project's effects than is currently available.

This approach has widespread support from state and federal resource agency staff, including staff of the North Coast Regional Water Quality Control Board who note the following in their recent June 2, 2017, letter to Commission staff:

> *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.

Further, as discussed in greater detail in the section of the staff report on marine debris, by reducing the overall scale of the proposed project through elimination of Phase II, the amount of plastic shellfish cultivation gear that would be installed in Arcata Bay would also be limited. This is particularly important given the recent challenges that Coast has had preventing the loss into the environment of its plastic cultivation baskets and carrying out timely and complete maintenance and removal activities on longline cultivation areas that are being taken out of use for long periods of time. Until these issues are adequately and conclusively addressed, authorization for Coast to install several hundred additional miles of plastic cultivation gear would be premature.

June 2, 2017 Letters submitted by: (a) Audubon California, California Waterfowl Association, and Earthjustice ("Audubon Letter"); and (b) Ocean Conservancy ("Conservancy Letter").
The organizations submitting these letters assert that the proposed development would likely result in significant harm to multiple species and uses in Humboldt Bay. The Audubon Letter requests all of the following changes to the staff recommendation, and the Conservancy Letter specifically requests each of the modifications described below, with the exception of (E):

A. that the aquaculture development be limited to 300 acres;
B. or, if any expansion is allowed, limit that expansion to the 45 acres needed to carry out scientific studies;
C. Require all monitoring and adaptive management plans be subject to outside peer review and public review and conditioned to ensure that they accurately detect effects and provide robust results;
D. Require monitoring and adaptive management plans for Pacific herring, shorebirds, and other resource potentially harmed by the project;
E. Require removal of aquaculture gear if the results of any of these plans demonstrate that performance criteria have not been met; and
F. Require removal of all existing operations from the East Bay Management Area and consolidate operations into the west side of the bay.

Staff Response:
Regarding the limitation of Coast's operation to only its existing 300 acre footprint, this would not allow for installation and assessment of the wider ten foot spaced longlines, thus resulting in a lost opportunity to test a potentially less environmentally damaging method of aquaculture cultivation. Although allowing only 45 acres of expansion would allow the studies of this method of aquaculture to go forward, it would not create a basis for requiring up-front removal of 34 acres of the existing operation, which is one method of ensuring that any unexpected impacts from the expansion operation are more than fully mitigated. Staff believes that as conditioned to require significant monitoring, and with clear mitigation in the form of removal of aquaculture gear required, the impacts of the full initial 82.46 acre expansion can be assessed and

fully mitigated, consistent with Coastal Act requirements. In addition, the larger initial expansion is also required to be combined (through Special Condition 4) with an assessment and adaptive management process that would be initiated as soon as monitoring results become available. Rather than implementing a smaller expansion and waiting for two years of results as several commenters have suggested, this approach would allow a larger initial expansion but also ensure that it is assessed as soon as possible. Based on those results, the Executive Director would be able to implement the adaptive management responses described in Appendix A to halt the expansion, reverse it, or allow it to continue. Further, Special Condition 3 would require that half of the larger initial expansion (approximately 40 acres) be re-oriented and directed away from areas of dense eelgrass that were initially proposed for new cultivation beds and instead directed into areas of Coast's historic operations that continue to show visible evidence of past impacts and cultivation/harvest activities. This would accomplish the dual goals of directing more of Coast's proposed expansion into areas that appear to support less robust eelgrass habitat – thus limiting the amount of eelgrass loss that may occur as a result of the project – and further consolidating Coast's operations away from areas of important recreational and wildlife uses.

Regarding the request for all monitoring plans to be reviewed by the public and outside peer reviewers, the special conditions proposed by staff require that the monitoring and adaptive management plans be prepared by independent, third party biologists that are approved by the Executive Director. Staff does not believe that an additional layer of peer review is required to ensure plans that will accurately detect effects. The special conditions require that Coast demonstrate that any adverse impacts are within expected levels, using the upper level of the confidence interval to measure those impacts. This will ensure robust results from the monitoring plans. In addition, staff's proposed conditions do require removal of aquaculture gear if performance criteria have not been met.

Regarding the lack of monitoring requirements or adaptive management response thresholds for wildlife species such as migratory shorebirds and Pacific herring, Commission staff developed the recommendation with a high priority on ensuring that impacts to coastal resources were first avoided and minimized rather than simply monitored. Monitoring was only recommended as an approach to allow assumptions about limited impacts to be tested and then only if it carried with it clear responses for situations when those assumptions were not confirmed. This approach was found to be appropriate for eelgrass and black brant given the information provided to support the impact assumptions. For migratory shorebirds and Pacific herring, on the other hand, a different approach was used that relied more heavily on impact avoidance. Specifically, limiting the scale of Coast's operation and further consolidating it were found to be preferred approaches for limiting the potential for impacts to shorebirds, as discussed in this excerpt from page 48 of the staff report:

> *On the other hand, the reduction in the overall footprint of Coast's operations from the proposed 490 acres to the to 411 acres allowed in **Special Condition 2** would significantly reduce the overall proposed level of habitat conversion and operational disturbance within the bay, maintain it more closely around the footprint of existing operations, and therefore provide for a clear reduction in the proposed project's potential to adversely affect shorebirds.*

A similar approach was taken with Pacific herring through the further reduction in shellfish cultivation operations in the East Bay Management Area established in Special Condition 17 – removal of existing cultivation bed EB 7-2. This measure would reduce the likelihood that impacts would occur in the first place by removing over 11 acres of existing cultivation gear from an area of high use by herring, thus obviating the need for additional monitoring and adaptive management.

Regarding the suggestions that all operations be removed from the East Bay Management Area and consolidated into the western side of Arcata Bay, this approach was not part of the staff recommendation because the proposed project already concentrates the majority of proposed expansion activities within the western side of the bay – the Mad River and Bird Island areas – and it is unclear how many additional cultivation beds could be located within these areas. While the area between Mad River and Bird Island has available space, development of this area would have significant adverse consequences for recreational users and would also entail relocating expansion areas from low density eelgrass habitat to areas with more productive high density eelgrass beds. As such, there would be a substantial trade-off involved with such a recommendation. Based on the analysis carried out by Commission staff and reflected in the staff report, this trade-off of some coastal resource impacts for others was not found to be warranted.

<u>June 2, 2017 Letter Submitted by the United States Department of the Interior, Fish and Wildlife Service ("USFWS Letter").</u>

While the USFWS Letter generally supports the Commission staff recommendation, it, too, urges the approval of only an initial 45 acre expansion of Coast's existing operation. USFWS recommends that if initial monitoring shows that brant are not bed-feeding at equal levels within and outside of cultivation areas, then no expansion should occur.

Staff Response:
As noted above, Commission staff believes that with the monitoring and adaptive management requirements included in the staff recommendation, along with the requirement to remove 34 acres of existing aquaculture, Coast may add 82.46 of new aquaculture beds without any expected significant adverse environmental impacts. Should monitoring reveal unanticipated adverse impacts, appropriate mitigation would be required.

In addition, Special Condition 8 has been modified to allow expansion operations to remain if brant feeding within culture beds is at 75% of the level of brant feeding outside of culture beds. This requirement takes into account the removal of 25% of the existing Coast operations, which includes much denser spacing of culture gear. This condition should therefore allow for no net reduction in areas available for brant bed-feeding.

Exhibit 12

N

0 0.225 0.45 0.9
Miles

- Existing Aquaculture- Not Coast
- Coast Phase I and II
- Harbor District Pre-Permitting- Proposed
- Yeung Oyster Farm- Proposed