



Pacific Fishery Management Council

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

Dear Mr. Wagschall:

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

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

Because Coast Seafoods’ shellfish aquaculture expansion project proposed for Humboldt Bay intends to occupy a substantial amount (>17%) of eelgrass habitat in the bay, the Council remains concerned that the project may have significant adverse effects on the EFH of several Council-managed species, including salmon, herring, and groundfish. Of particular concern to the Council

is the project size, spatial extent and layout, structural spacing, location, operational best management practices, the differential survival rate of herring spawning on aquaculture gear as opposed to eelgrass, out-of-kind mitigation proposals, monitoring plans, and other essential components of the DEIR.

Key Concerns:

1. No Net Loss

The DEIR describes significance criteria for eelgrass that result in a change in areal extent of eelgrass and/or a greater than 25% change in eelgrass density. The DEIR bases these criteria on the NMFS California Eelgrass Mitigation Policy and Implementing Guidelines (CEMP). The Council disagrees with Coast Seafoods' interpretation of the CEMP recommendation as if the recommendation were designed only as a guideline and not as significance criteria under the California Environmental Quality Act. The DEIR uses criteria outlined in the CEMP that are intended for small footprint projects, and that likely do not apply to the proposed project due to its scale. The Council again recommends the threshold of significance be changed to "*no net loss of eelgrass extent and function*" as recommended in the CEMP and by the state of California. Furthermore, the Council supports the NMFS CEMP and recommends full in-kind mitigation for loss of both eelgrass density and the spatial extent of eelgrass beds.

2. Eelgrass Avoidance Alternative

The Council has reviewed the alternatives within the DEIR. The Eelgrass Avoidance Alternative was removed from further analysis as it would have reduced the amount of area in which Coast could expand operations. In concert with the No Net Loss recommendation of the CEMP, the Council disagrees with the removal of the Eelgrass Avoidance Alternative from the suite of alternatives analyzed in the DEIR. This alternative could have resulted in a project with reduced impacts to EFH. The Council recommends including this alternative and an analysis of its impacts in the Final Environmental Impact Report (FEIR). If this alternative is not considered, the Council recommends the Existing Footprint Alternative be approved by the Harbor District.

3. Cumulative Impacts

The Council is concerned that the cumulative impacts analysis within the DEIR does not fully consider the potential cumulative impacts of the combined Coast Seafoods Project and the Humboldt Bay Harbor District's Pre-permitting Project on EFH. Should the Pre-permitting Project move forward, there would be a combined 756-acre increase of aquaculture within eelgrass, equating to approximately 26.8% of total eelgrass in the North Bay. The cumulative impact analysis must analyze the combined effects of all projects in Humboldt Bay independent of potential mitigation efforts in other projects. The Council does not agree that the cumulative impacts can be determined "less than significant" for the Humboldt Bay Harbor District Pre-permitting Project; mitigation that may be required to restore net ecological functions cannot be used in the analysis of cumulative impacts.

4. Buffers

The Council's Pacific Coast Salmon Fishery Management Plan specifically recommends that new or expanded aquaculture farms implement 25-30 foot buffers from existing native eelgrass beds to avoid and minimize impacts to eelgrass (Appendix A, Pacific Coast Salmon Fishery Management Plan 2014, page 61). Based on the current buffer proposals in the DEIR of 10 feet, the Council's buffer recommendations will not be met. To protect and enhance EFH for salmon in Humboldt Bay, the Council recommends integrating the recommended buffer distances into the alternatives for the FEIR.

5. Existing Mitigation Areas

Coast Seafood's operational footprint in Humboldt Bay was reduced from 500 to 300 acres in 2007. This reduction in acreage was required as mitigation for the environmental impacts of their existing 300-acre operational footprint during the last California Environmental Quality Act (CEQA) regulatory process. The current proposal expands operations into areas previously designated for mitigation. The Council believes this is a negligent action and should not be permitted. In the event that expansion into the 2007 mitigation area is permitted, additional mitigation requirements are needed to account for this 200-acre loss.

6. Mitigation Activities

The DEIR describes four potential in-kind mitigation activities to address loss of eelgrass density and spatial extent. Of these four potential activities, only two attempt to provide in-kind mitigation for loss of eelgrass habitat and function that is recommended in the NMFS CEMP. The Council does not agree with mitigation measures that do not include "in-kind" on an acre-for-acre basis, or do not directly address the loss of eelgrass habitat and function (including shoot density). That is, the Council does not support Option 3 Elk River Estuary Enhancement and Option 4 Hoff Parcels, Eureka, California, which propose to modify the Elk River brackish water habitat and undeveloped pasture land to restore the former tidally influenced channels. These efforts do not contribute to eelgrass mitigation.

The two proposed mitigation options that address eelgrass coverage and function are insufficient to offset loss of eelgrass habitat and function:

(a) "*Option 1: Buoy-Deployed Seeding (BuDS) System*" is based on the concept that there may be areas within Humboldt Bay that might support eelgrass, but that natural seed dispersal is limited due to circulation and water quality parameters. On the contrary, there is no evidence that natural seed dispersal is limited in Humboldt Bay. Furthermore, this mitigation approach is experimental and does not have established or accepted success criteria. The Council does not agree with using an experimental mitigation approach that is not likely to have measurable outcomes and does not have scientifically-verified performance criteria. This method requires additional testing to prove viability.

(b) "*Option 2: Parcel 4 Restoration*" primarily addresses upland habitats, freshwater marsh, and removal of debris and contaminants. While removal of debris and pilings may open up some habitat for eelgrass, the scale of potential eelgrass impacts from Coast

Seafoods' 600-plus acre expansion is not comparable to the small amount of eelgrass habitat that may be restored.

7. Impacts to fish resources

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

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

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

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

The California Department of Fish and Wildlife (September 23, 2015) notes that herring have been documented spawning in eelgrass beds in the vicinity of the East Bay Management Unit every time surveys have been conducted. While there is available eelgrass outside of this area, herring do not use it the majority of the time. The reasons for herring spawning site fidelity are not known; however, it is assumed that long term use of a site reflects selection of highly suitable environmental criteria. Given the lack of substantive information provided by Coast Seafoods regarding possible long-term impacts to herring in the core spawning areas of Humboldt Bay, the Council recommends this area be avoided by the project.

The Council disagrees with the assessment of the DEIR regarding desiccation and recommends a more comprehensive study regarding the potential of desiccation. The Council is concerned that a large-scale shift in the type of spawning substrate available to herring in the core eelgrass spawning areas of Humboldt Bay could have impacts on spawning success and negatively impact the population. The DEIR references an ‘exposure elevation analysis of aquaculture gear’ citing Wagschall, pers. Comm., 2015; however, no supporting information was provided. As such, it is not possible for the Council to determine the validity of the results. Based on this analysis, air exposure of eggs deposited on aquaculture gear was estimated to increase by approximately 11%. However, without defining the tidal regimes under which the analysis was conducted, and without providing information on exposure times of herring eggs deposited on eelgrass at the same locations as the aquaculture gear, the results of the exposure analysis are not useful. Further, the DEIR states that “increased mortality due to desiccation is likely to be offset by reduced predation pressure from invertebrates and fish during high tide.” The Council acknowledges that mortality from invertebrates and fish can be an important source of mortality for herring eggs; however, with no information on desiccation mortality or invertebrate and fish predation of herring eggs in Humboldt Bay, this is an unsubstantiated assertion. Further, this statement does not take into consideration increased avian predation, which can be significant (Rooper and Haldorson, 2000), particularly by opportunistic species such as gulls. Coast Seafoods has not provided sufficient information to reasonably conclude increased desiccation of herring eggs on oyster gear will not result in increased mortality.

8. Monitoring Plan

The DEIR includes Appendix H, Eelgrass Monitoring Plan but does not include monitoring plans for other species associated with eelgrass. The Council recommends that the FEIR include a monitoring plans for fish species associated with eelgrass, particularly salmon, groundfish, and herring.

9. Lack of Scientific Information

In response to Coast’s Initial Study in February 2015, scientists at Humboldt State University described the ecosystem functions provided by eelgrass and the risks of aquaculture expansion (trampling, shading, etc.) to these functions. Also noted are the important nuances in environmental parameters between the north and south bay that affect eelgrass growth. To better understand the degree to which eelgrass would be negatively affected by oyster mariculture, Humboldt State University scientists recommended new studies that characterize and quantify the natural variability in eelgrass beds and the ecological effects of the oyster mariculture operations. The earlier meso-scale field experiments conducted by Rumrill and Poulton (2004) were limited in scope in that they were designed only to document the effects of different oyster long-line spacing (i.e., 1.5 ft, 2.5 ft, 5 ft, 10 ft in non-replicated 30 m X 30 m plots) on eelgrass percent cover and plant density, and to document any differences in the composition of infaunal invertebrate communities within the eelgrass beds and oyster mariculture plots. The new investigation proposed by scientists at Humboldt State University would provide much needed answers to key questions on the effects of shellfish mariculture on the eelgrass community of Humboldt Bay. These studies should also characterize the role of eelgrass as fish habitat and how impacts to eelgrass affect fish.

To ensure objectivity and transparency and avoid conflicts of interest, impact studies and monitoring efforts should be conducted by independent scientists who are not affiliated with the shellfish mariculture industry or the Humboldt Bay Harbor District.

In summary, the DEIR does not adequately address impacts to eelgrass. The DEIR must first determine how to minimize the operational footprint to avoid eelgrass beds, conduct a more comprehensive study to characterize and quantify impacts to eelgrass and associated fish species, and provide mitigation measures that effectively offset impacts.

The Council believes the DEIR lacks robust mitigation and monitoring plans, and reduced-impact alternatives. Without the inclusion of reduced-impact alternatives, the Council supports only the Existing Footprint Alternative.

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

Sincerely,

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

Attachments: July 14, 2015 letter to Humboldt Bay Harbor District re: Comment on Humboldt Bay Harbor District Mariculture Project and Coast Seafoods Expansion Project; and the September 21, 2015 letter to Humboldt Bay Harbor District re: Notice of Preparation of Coast Seafoods Shellfish Aquaculture Draft Environmental Impact Statement

References

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Semmens, B.X. 2008. Acoustically derived fine-scale behaviors of juvenile Chinook salmon (*Oncorhynchus tshawytscha*) associated with intertidal benthic habitats in an estuary. Canadian Journal of Fisheries and Aquatic Sciences Vol. 65.

Palsson, W. 1984. Egg mortality upon natural and artificial substrata within Washington state spawning grounds of Pacific herring (*Clupea harengus pallasii*). MS thesis, University of Washington, Seattle, WA.

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

Rooper C., Haldorson L. and T. Quinn. 1999. Habitat factors controlling Pacific herring (*Clupea pallasii*) egg loss in Prince William Sound, Alaska. *Canadian Journal of Fisheries and Aquatic Sciences*. 56: 1133–1142.

Rumrill, S. and V. Poulton. 2004. Ecological Role and Potential Impacts of Molluscan Shellfish Culture in the Estuarine Environment of Humboldt Bay, CA. Western Regional Aquaculture Center Annual Report November 2004. 79 pp.