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STATE CLEARINGHOUSE

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HUMBOLDT BAY MARICULTURE INTERTIDAL PRE-PERMITTING PROJECT AND YEUNG OYSTER FARM (PROJECT) DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR) SCH# 2017032068

Dear Mr. Wagschal:

The California Department of Fish and Wildlife (Department) received a Draft Environmental Impact Report (DEIR) from the Humboldt Bay Harbor, Recreation and Conservation District for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹ The Department previously submitted comments in response to the Notice of Preparation (NOP) for the Project, as well as in response to the NOP, Draft Mitigated Negative Declaration (DMND), and DEIR for previous iterations of the Project.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife resources. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that the Department, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

DEPARTMENT ROLE

The Department is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the state [Fish & G. Code, Section 711.7, subd. (a) & 1802; Pub. Resources Code, Section 21070; CEQA Guidelines Section 15386, subd. (a).]. The Department, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, Section 1802.). Similarly, for purposes of CEQA, the Department is charged by law

¹ CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources. The Department is also responsible for marine biodiversity protection under the Marine Life Protection Act in coastal marine waters of California, and ensuring fisheries are sustainably managed under the Marine Life Management Act. Pursuant to our jurisdiction, the Department has the following comments and recommendations regarding the Project.

The Department has the additional role of working toward the objectives of state policy declared in Fish & G. Code Section 1700, which includes, among others, the development of commercial aquaculture

PROJECT DESCRIPTION SUMMARY

Proponent: Humboldt Bay Harbor, Recreation and Conservation District (HBHD)

Objective: The objective of the Project is to “pre-permit” new intertidal leases for the culture of Kumamoto oysters (*Crassostrea sikamea*) and Pacific oysters (*C. gigas*) in north Humboldt Bay. The Project consists of four sites; three sites are part of the Humboldt Bay Mariculture Intertidal Pre-Permitting Project and the fourth site is the Yeung Oyster Farm. The HBHD proposes to grant tideland leases to private shellfish growers (“Lessees”) for discrete portions of the Project’s pre-permitted sites, while the Yeung Oyster Farm will be farmed by Mr. Yeung and also potentially leased out to another private entity. Methods proposed for oyster aquaculture include rack-and-bag, cultch-on-longline, and basket-on-longline. In total, the Project would cover 136 acres of intertidal habitat, which is approximately 1.4% of the intertidal habitat in north Humboldt Bay, and result in 16,030 square feet of impacts to benthic habitat. The Project is separate from the Humboldt Bay Mariculture Subtidal Pre-Permitting Project, which “pre-permits” subtidal leases for shellfish and macroalgae aquaculture operations in Humboldt Bay off the Samoa Peninsula.

Location: north Humboldt Bay

MARINE BIOLOGICAL SIGNIFICANCE

Humboldt Bay is California’s second largest Bay, and the largest estuary on the Pacific coast between San Francisco Bay and Oregon’s Coos Bay. The marine and estuarine habitats of Humboldt Bay provide refuge and nursery habitat for more than 300 fish and invertebrate species, many with important commercial and recreational fisheries, and aquaculture value. Humboldt Bay and its wetlands and dunes are habitat for at least 20 State- and federally-listed species and numerous California Species of Special Concern (SSC).

COMMENTS AND RECOMMENDATIONS

After careful review, the Department finds that the analyses provided in the DEIR do not support the conclusion that Project activities will result in impacts that are “less than significant” under CEQA. The Department is concerned the Project will result in significant impacts to Public Trust resources, including eelgrass and mudflat habitats, and species such as Pacific herring, shorebirds, and waterfowl (black brant and widgeon). Pursuant to our jurisdiction, the Department offers the following comments and recommendations below to assist the HBHD in adequately identifying and/or mitigating the Project’s significant, or potentially significant, direct and indirect impacts on fish and wildlife resources.

I. Species Listed Under the California Endangered Species Act (CESA), Endangered Species Act (ESA), and Species of Special Concern (SSC)

Numerous sensitive species, including some listed as threatened or endangered pursuant to the California Endangered Species Act (CESA) or the Federal Endangered Species Act (ESA), or are listed as California Species of Special Concern (SSC), occur in the Project area. The Department designates certain species as SSC due to declining population levels, limited ranges, and/or continuing threats that have made them vulnerable to extinction. Species that occur in the Project area and protected under the CESA, ESA, or designated as SSC include:

- Coho salmon, *Oncorhynchus kisutch*, State and federally-threatened (Southern Oregon/ Northern California (SONCC) Evolutionarily Significant Unit (ESU));
- Chinook salmon, *Onchorhynchus tshawytscha*, federally-threatened (California Coastal ESU);
- Coastal cutthroat trout, *Oncorhynchus clarki clarki*, State SSC;
- Steelhead, *Oncorhynchus mykiss*, federally-threatened (Northern California ESU);
- Longfin smelt, *Spirinchus thaleichthys*, State-threatened;
- Eulachon, *Thaleichthys pacificus*, federally-threatened (southern Distinct Population Segment (DPS));
- Green sturgeon, *Acipenser medirostris*, federally-threatened (southern DPS), State SCC (northern and southern DPS);
- Pacific lamprey, *Entosphenus tridentatus*, State SSC; and
- Black brant, *Branta bernicla nigricans*, State SSC.

II. Project Impacts

Native Eelgrass

Comments: Native eelgrass beds, *Zostera marina*, are an important part of the Humboldt Bay ecosystem and are recognized by state and federal statutes as both highly valuable and sensitive habitats. Humboldt Bay holds approximately 37% of the

known mapped eelgrass in the state (Department Marine Bios). Eelgrass provides primary production and nutrients to the ecosystem along with spawning, foraging, and nursery habitat for fish and other species. Pursuant to the federal Magnuson-Stevens Fishery Conservation and Management Act (MSA), eelgrass is designated as Essential Fish Habitat (EFH) for various federally managed fish species within the Pacific Coast Groundfish and Pacific Coast Salmon Fisheries Management Plans (FMP). Eelgrass is also considered a habitat area of particular concern (HAPC) for various species within the Pacific Coast Groundfish FMP. Eelgrass habitats are further protected under state and federal “no-net-loss” policies for wetland habitats. Additionally, the importance of eelgrass protection and restoration, as well as the ecological benefits of eelgrass, is identified in the California Public Resources Code (PRC Section 35630).

The Department recognizes the DEIR has substantially reduced the potential impact to eelgrass habitat since previous iterations of the Project. Project sites were shifted higher in the intertidal zone to largely avoid dense eelgrass habitat with greater than 84 percent coverage. In addition, the DEIR proposes to further reduce impacts to eelgrass by requiring Lessees to implement the following mitigation measures: BIO-3 - prepare site descriptions to avoid eelgrass impacts from boat traffic; BIO-4 - map eelgrass beds prior to installation of culture equipment and create a 30-foot buffer around all eelgrass plants; and BIO-5 - minimize deposition of shells. However, the Department is concerned that successful implementation of the eelgrass avoidance measures will be difficult, and in some cases impossible, given the highly dispersed distribution of eelgrass within some of the sites. The DEIR does not provide sufficient detail regarding how the HBHD plans to enforce these mitigation measures. In addition, the DEIR states that even with the mitigation measures described, impacts to eelgrass density and distribution will occur from trampling, boat hull and propellers, and changes in circulation patterns and sedimentation. The DEIR does not propose any eelgrass mitigation or monitoring for these impacts.

The DEIR states that patchy eelgrass habitat, 11-84 percent coverage is present within three of the proposed sites: HBHD-1 (9.45 acres), HBHD-2 (0.59 acres) and Yeung Oyster Farm (3.94 acres), and 0.06 acres of dense eelgrass habitat exists within HBHD-1, resulting in a total of 13.98 acres of patchy eelgrass and 0.06 acres of dense eelgrass within the entire Project area (Table 3.5-1 – DEIR). However, the acreage of eelgrass habitat within each site presented in the DEIR (Table 3.5-1) and Appendix D (Table 1) do not match, and the map within the DEIR of patchy and dense eelgrass habitat in north Humboldt Bay is outdated (2009). Since the DEIR does not include an updated map of eelgrass habitat along with proposed placement of equipment or access routes for each site, it is difficult to fully analyze the impacts to eelgrass that might occur from Project activities.

The DEIR acknowledges eelgrass distribution fluctuates over time, and in some years, beds may extend closer to aquaculture equipment or higher in the intertidal zone than other years. The Department is concerned that only requiring Lessees to conduct an

initial mapping of eelgrass habitat prior to installation of equipment (mitigation measure BIO-4) will fail to capture the spatial and temporal fluctuations of eelgrass in Humboldt Bay and could potentially produce an inaccurate representation of eelgrass distribution within Project sites. In addition, recent modeling efforts in Humboldt Bay predict a substantial shoreward expansion of eelgrass onto intertidal mudflat habitat over the next 100 years in response to sea level rise inundation, particularly in the North Bay (Shaughnessy et al. 2012; Gilkerson 2013; and Stillman et al. 2015). The Department is concerned that aquaculture development and operations in the intertidal zone could limit eelgrass from expanding higher onto intertidal mudflats in response to sea level rise.

Recommendations: The Department recommends the proposed Project avoid and minimize impacts to eelgrass and fully mitigate for any remaining impacts. The Department makes the following recommendations for the Final Environmental Impact Report (FEIR):

- A comprehensive analysis of impacts to eelgrass habitat. The Department recommends the HBHD include updated maps and acreage of patchy and dense eelgrass habitat within each proposed site and fully analyze the impact to eelgrass habitat from direct and indirect activities such as: trampling, boat propellers, changes in circulation, and sedimentation. The Department recommends multiple years of eelgrass survey data be included in the impact analysis and planning of gear placement and access routes to account for temporal and spatial variability in eelgrass distribution. The Department recommends this analysis be used to inform the placement of the 30-foot buffer around the outermost extent of potential eelgrass habitat.
- A comprehensive eelgrass mitigation and monitoring plan. To ensure no net loss, the Department recommends the FEIR include additional avoidance and minimization measures as well as require the development of a comprehensive monitoring and mitigation plan, as defined in the California Eelgrass Mitigation Policy (CEMP) (NMFS, 2014). This plan should include mitigation for any impacts to eelgrass including, but not limited to, impacts from trampling; boat propellers; changes in circulation; and sedimentation. The Department recommends baseline eelgrass habitat surveys and mapping the installation of Lessee equipment, five years of annual eelgrass monitoring to capture any changes in eelgrass density or percent vegetated cover within or adjacent to newly installed cultivation sites, and an adaptive management strategy that includes additional monitoring if deemed necessary. Aquaculture operations should be adaptively managed with resource and permitting agencies to avoid impacts to any new eelgrass habitat that may recruit to areas within the Project sites not actively used for cultivation.
- Consultation with respective agencies. The Department recommends that the HBHD consult with the resource and permitting agencies for review of all eelgrass monitoring, mitigation, and adaptive management efforts.

Non-Native Eelgrass

Comments: The non-native eelgrass, *Zostera japonica*, has been documented in several locations throughout Humboldt Bay, including the southwest end of Indian Island, near the HBHD-3 site (Schlosser et al. 2011). This species is known to grow higher in the intertidal than the native eelgrass, *Z. marina*, and thus may have more opportunities to interact with Project activities. This species has the potential to spread to additional areas due to trampling and boating activities that could break off intact turions for dispersal to new locations. Due to the ability of this species to rapidly colonize areas of unvegetated mudflat, the Department is concerned with the potential spread of this non-native species from Project activities. The DEIR does not provide any discussion regarding *Z. japonica*.

Recommendations: The Department recommends an updated map of *Z. japonica* locations in Humboldt Bay be provided in the FEIR detailing the locations where it currently exists. The eelgrass mitigation and monitoring plan mentioned above should also include a comprehensive training and monitoring program to educate Lessees and staff on how to identify, avoid, and monitor the non-native eelgrass species *Z. japonica*. The Department also recommends the eelgrass monitoring plan include best management practices that could reduce the potential spreading of this plant to new locations. For instance, avoiding boating and traversing routes to aquaculture gear through areas with *Z. japonica* may reduce the spread. If *Z. japonica* is detected within Project sites, the HBHD should immediately notify the Department and other resource and permitting agencies.

Intertidal Mudflats

Comments: Intertidal mudflats provide habitat and foraging opportunities for fish such as longfin smelt, sturgeon, elasmobranchs, shorebirds and waterfowl. Several species with important commercial and recreational fisheries value also exist within and adjacent to intertidal mudflat habitat in the proposed Project area, and could potentially be impacted by the proposed Project, including Dungeness crab, rockfish, Pacific herring, and California halibut. The presence of intertidal aquaculture gear has been shown to cause increased sedimentation beneath culture racks, changes to sediment particle size, and shifts in species composition towards a more disturbed assemblage (Forrest and Creese 2006). Changes to benthic infauna species composition can also occur from disturbance to mudflats from trampling, vessel movements, and through direct trophic competition of cultured oysters with native filter feeders (Forrest et al. 2009). These changes in species composition are likely to impact the species that utilize these habitats for feeding.

The DEIR estimates that 16,030 square feet (0.37 acres) of intertidal mudflat habitat will be impacted from placement of aquaculture gear. The DEIR states that impacts to

intertidal mudflat habitat are considered less than significant and no mitigation is proposed. However, intertidal mudflats are protected under the State's 'no-net-loss' for wetlands policy and all impacts should be avoided, minimized, and mitigated, with mitigation occurring prior to the implementation of the Project.

Recommendations: The Department recommends the FEIR include the following:

- A comprehensive analysis of impacts to intertidal mudflat habitat. The Department recommends the FEIR include a comprehensive analysis of Project impacts to benthic habitat that includes: 1) an evaluation of the potential impacts to mudflat habitat from changes in elevation caused by altered erosion and deposition processes; 2) an assessment of potential changes to infauna composition and the subsequent impacts to shorebird and fish food resources; and 3) an analysis of the reduction in foraging areas for shorebirds, waterfowl and fish species, such as black brant, salmonids, bat rays, green and white sturgeon, leopard sharks and longfin smelt.

Black brant

Comments: Black brant occur in Humboldt Bay as spring and fall migrant and winter visitors. Humboldt Bay is the fourth most utilized staging area in the Pacific Flyway for the species, and has historically been the most important area in California for this species, due in part to the health and size of eelgrass habitats found in the Bay. The DEIR inaccurately states that the southern portion of Humboldt Bay supports the majority of brant using the Bay during spring migration. While this was true historically, recent observations by the US Fish and Wildlife Service (USFWS) demonstrate a major shift in brant usage of the North Bay compared to the South Bay, especially during the hunting season (Brendan Leigh, USFWS, per. comm, 2020).

The DEIR does not list black brant as a SSC in section 3.5.3, and states that impacts to brant from this Project will be less than significant. The DEIR also does not propose any avoidance, minimization, or mitigation measures for impacts to black brant. The DEIR states that aquaculture "will occur in areas without eelgrass, which represents low-quality habitat for black brant." However, the proposed sites in the East Bay (HBHD-2, Yeung Oyster Farm) occur in an area that transitions across elevations from mudflats to patchy eelgrass habitat. The high utilization of these areas in the East Bay for shorebird and waterfowl grazing is evidenced in the long-term SeagrassNet data (2007-2011 & 2014-2016). Placing aquaculture in this area may disproportionately impact brant, other waterfowl, and shorebirds that feed on eelgrass and mudflat resources, and are limited by tidal cycles. While the Project proposes a 30-foot buffer of culture equipment from eelgrass habitat, persistent human disturbance that occurs during aquaculture operations is likely to reduce the amount of time black brant utilize Humboldt Bay, and prevent populations from returning to historical levels.

The proposed site along the western shore of Indian Island (HBHD-3) is one of two well-known grit sites for black brant in north Humboldt Bay. Grit sites are rare and a critical resource for brant during the feeding process. Given the rarity and limited access to grit sites, anthropogenic disturbance and development of these sites have been cited as further limiting factors for black brant populations, with grit sites recognized as important areas for protection. The DEIR does not provide any analysis of Project impacts to the grit site.

To limit disturbance to brant and other wildlife, the DEIR states that a threshold on the number of visits per year to individual aquaculture units will be implemented through the lease. However, the DEIR does not discuss the anticipated total number of site visits per year, which is expected to far exceed the number of visits to individual units. The DEIR also does not disclose how the HBHD plans to oversee Lessee and staff activity or enforce activity thresholds. In north Humboldt Bay, small boats associated with oyster operations have been observed to disturb brant, with brant being flushed with the first boat in the early mornings and not returning to feed until late evening (Schmidt 1999). The DEIR states that an additional 10 small boats would be present in north Humboldt Bay due to the new leases. The Department is concerned this consistent increase in boat traffic could significantly impact the population of brant utilizing Humboldt Bay. Overall, the Department is concerned the proposed areas of oyster cultivation will have impacts to brant that are both significant and cumulatively considerable due to impacts on foraging habitat (grit site, eelgrass, mudflats) and from disturbance (CEQA Guidelines §15065(a)(1 & 3).

Recommendations: The Department recommends the FEIR include the following:

- A comprehensive analysis of impacts to black brant. The Department recommends the FEIR include a map of the gritting, feeding and loafing locations used by brant in the North Bay along with an analysis of impacts to these locations. The Department also recommends the FEIR include a quantitative analysis of both the loss of foraging opportunity and the increase in disturbance along with the cumulative impacts to black brant when both stressors occur simultaneously. The Department recommends the FEIR disclose the anticipated number of site visits per year, rather than visits to each unit, and a threshold regarding the number of site visits per year should be included within each lease; along with a discussion on how the HBHD plans to enforce these thresholds.
- Black brant avoidance and minimization measures. The Department recommends the HBHD provide an analysis of removing sites HBHD-2, HBHD-3, and Yeung Oyster Farm within the FEIR due to the ecological importance of these sites to brant, other waterfowl species, and shorebirds (see Alternatives section). The Department also recommends longline spacing should occur at 10-foot intervals for cultch-on-longline and alternating 9-foot and 16-foot intervals for basket-on-longline culture plots to increase the potential for brant to forage between the lines when the longline gear is exposed at low tides.

Shorebirds

Comments: Humboldt Bay is an internationally important site for overwintering and seasonally migrating shorebirds. Recent surveys (2018-2019) estimate that over one million shorebirds from 52 recorded species utilize the Bay throughout the year (Colwell et al., in press). Many species rely on mudflat habitats for feeding, resting and/or roosting. Approximately two thirds of the shorebirds that utilize the Bay are listed as shorebirds of concern, or are on the U.S. Fish and Wildlife Service's Birds of Conservation Concern list (USFWS 2008; U.S. Shorebird Conservation Plan Partnership 2015). Human disturbance and habitat destruction have been noted to impact shorebird populations. Restricting further alteration of mudflats for oyster culture has been identified as a priority shorebird conservation goal for Humboldt Bay (Hickey et al. 2003).

Sites HBHD-2, HBHD-3, and Yeung Oyster Farm are high-quality foraging habitats that are heavily used by shorebirds and waterfowl. Multiple unavoidable significant impacts to shorebirds are likely to occur due to the proposed expansion of aquaculture activities into currently undisturbed intertidal wetland habitat and are not adequately analyzed within the DEIR. These impacts include alteration of food sources, loss of foraging habitat, and disturbance from oyster culture activity. Specifically, some bird species avoid aquaculture areas that would otherwise utilize bare mudflats, substantially reducing the habitat available for feeding and resting. Also, the alteration of bird foraging habitats by aquaculture structures and activities change the quality of the environment, favoring some species over others (Quintino 2012).

Recommendations: The Department recommends the FEIR include the following:

- A comprehensive analysis of impacts to shorebirds. The Department recommends the FEIR include a quantitative analysis of both the loss of foraging opportunity and the increase in disturbance, and the cumulative impacts to shorebirds when both stressors occur simultaneously.
- Shorebird avoidance and minimization measures. The impacts to shorebirds through increased disturbance and habitat modification and loss may be significant, and the Department recommends avoidance, minimization and mitigation measures be developed to reduce the impacts to less than significant. The Department recommends an analysis in the FEIR of removing sites HBHD-2, HBHD-3, and Yeung Oyster Farm from the FEIR due to the disproportionate importance of these sites to foraging, resting and/or roosting shorebirds (see Alternatives section).

Waterfowl Hunters and other Recreational Users

Comments: Humboldt Bay is an important location for waterfowl hunting, recreational fishing, wildlife observations, and boating opportunities. The Bay provides hunting opportunities for over 20 species of ducks and geese. The Department is concerned that the proposed HBHD-2, HBHD-3, and Yeung Oyster Farm sites may have

potentially significant impacts to recreational users. The eastern portion of the Bay, including the locations of HBHD-2 and Yeung Oyster Farm, are important to hunters and recreational users. As mentioned earlier, HBHD-3 is a critically important grit foraging site for brant and other waterfowl species that are hunted in the Bay.

Recommendations: The Department recommends the FEIR include the following:

- A comprehensive analysis of impacts to waterfowl and recreational users. The Department recommends the FEIR includes an analysis of Project impacts to waterfowl hunting, including: 1) decreases in waterfowl available for harvest; 2) the loss of hunting opportunities due to disturbance from boats and aquaculture personnel; 3) the loss of hunting opportunities due to physical obstruction of traditional hunting areas and scull boat tacks; and 4) increases in hazards to boaters, including scullers, and hunting dogs from aquaculture gear. The Department also recommends the FEIR include an analysis of Project impacts to recreational fishing, wildlife observing, and boating.
- The Department recommends an analysis in the FEIR of removing sites HBHD-2, HBHD-3, and Yeung Oyster Farm from the FEIR due to the disproportionate importance of these sites to waterfowl hunters and recreational users (see Alternatives section).

Pacific Herring

Comments: The California Pacific Herring Fishery Management Plan (2019) lists aquaculture practices and damage from vessel moorings as the primary threats to herring spawning habitats in Humboldt Bay. Herring are known to spawn in eelgrass beds within and adjacent to the HBHD-2 and Yeung Oyster Farm sites. By placing aquaculture infrastructure within herring spawning areas, potentially significant impacts to herring may occur due to loss of native eelgrass habitat, increased desiccation of eggs deposited on intertidal aquaculture gear, and differential survival of eggs deposited on aquaculture gear. The DEIR states that there has not been a study on survival rate of herring eggs on oyster equipment versus eelgrass. However, several studies have demonstrated that herring prefer to spawn on eelgrass habitat over artificial substrates (Rederer 2020; Watanabe et al. 2003). While few field studies have analyzed survival of herring eggs on artificial substrates, Palsson (1984) found herring survival and larval production was significantly lower on artificial substrates compared to natural eelgrass spawning substrate. The best available information suggests that herring eggs spawned on artificial substrate may have significantly decreased survival compared to natural substrates, and there is little basis for determining this risk does not apply to the proposed Project.

The DEIR states the HBHD will require shellfish farmers to inspect culture equipment from December through February to determine if herring has spawned. If spawning has occurred, all culture activities will be postponed for two weeks, mitigation measure BIO-6. However, the Department has developed a thorough herring egg monitoring and

consultation process from previous projects, such as the Coast Seafoods Expansion Project, that provides further protection than the proposed mitigation measure.

Recommendations: The Department recommends that the following measures are included within the FEIR:

- Herring egg monitoring and consultation with the Department. The Department recommends the HBHD ensure that all employees who supervise work on the tidelands are trained by a Department biologist to conduct pre-work herring spawn surveys. During the months of December through March, trained employees should perform a pre-work herring spawn survey at each location where work is scheduled to take place to determine whether herring have spawned on eelgrass, culture materials, or substrate. If herring spawn is observed, shellfish farmers should: (1) notify the Department's Eureka Marine Region office within 24 hours, and (2) postpone activities on those beds until all eggs have hatched. In addition, the Department recommends Lessees work with the Department during spawning surveys to sample and identify whether herring are spawning within culture gear.

Additional Concerns and Recommendations

- Naturalization of cultured species. The Department is concerned with the potential for cultured shellfish to naturalize outside of cultivation areas and impact native marine species. Contrary to what is stated within the DEIR, Pacific oysters have been detected in the North Bay outside of culture areas. The Department recommends the FEIR include updated information regarding detections of cultured species outside of cultured areas within the Bay, the potential for increased naturalization from this Project, and the potential ecological impacts naturalization could have on the natural community. The Department also recommends the FEIR include avoidance, minimization, and mitigation measures to reduce the potential for naturalization of cultured species.
- Marine Debris. The Department is concerned that additional aquaculture operations in the Bay could result in an increased presence of marine debris. The Department recommends the FEIR include avoidance, minimization, and mitigation measures to reduce the amount of marine debris resulting from aquaculture operations. Additionally, the Department recommends the development of a marine debris monitoring plan and annual report that will be provided to the resource and permitting agencies.
- Enforcement and Compliance. The DEIR does not provide sufficient detail regarding the tools and methods the HBHD plans to use to enforce lease requirements and enforce non-compliance issues. The Department recommends that HBHD work with the resource and permitting agencies prior to issuing the FEIR to develop an enforcement plan. The Department recommends the enforcement plan include alerting regulatory agencies of all non-compliance issues and providing regular reports, both quarterly and annually, regarding gear activities such as installation, inspection, clean-up and removal.

Alternatives

The Department is concerned that Project impacts to species and habitats within Humboldt Bay may be both significant and cumulatively considerable (CEQA Guidelines §15065(a)(1 & 3). To reduce Project level impacts to a level less than significant, the Department recommends the HBHD analyze an additional project alternative within the FEIR that includes removal or relocation of sites HBHD-2, HBHD-3, and Yeung Oyster Farm. The installation of fewer acres of cultivation beds within sensitive habitat areas, such as patchy eelgrass habitat; grit sites; and important foraging areas, may be less environmentally damaging than the proposed Project. Additionally, a more consolidated project would likely result in less displacement and disturbance to sensitive wildlife species and habitats such as black brant and eelgrass. Previous project sites within the East Bay have been removed and consolidated due to many of the same environmental concerns outlined by the Department. To optimize aquaculture activities and conservation needs, the Department recommends the HBHD conduct a marine spatial planning analysis, in coordination with resource and permitting agencies, to identify alternate oyster culture sites in Humboldt Bay.

III. Closely Related Past, Present, and Reasonably Foreseeable Probable Future Projects

There are approximately 301 acres of existing intertidal aquaculture in Humboldt Bay, an additional 39 acres of intertidal habitat being proposed by the Hog Island Oyster Company (HIOC) Project, and 136 acres of intertidal habitat proposed from this Project. Cumulatively, the proposed projects would increase the number of acres used for intertidal aquaculture purposes in Humboldt Bay by 58% to approximately 476 acres. The cumulative impacts from both proposed projects need to be more thoroughly evaluated in the FEIR and should include all current and foreseeable projects in Humboldt Bay, including projects such as the Nordic Aquafarms facility and associated water intake. As part of the cumulative impacts analysis, the Humboldt Bay Mariculture Carrying Capacity study should be updated to reflect all current and foreseeable projects.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDDB). The CNDDDB field survey form can be found at the following link: <https://wildlife.ca.gov/Data/CNDDDB/Submitting-Data#44524419-online-field-survey-form>. The completed form can be submitted electronically or mailed electronically to CNDDDB at the following email address: CNDDDB@wildlife.ca.gov. The types of information

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reported to CNDDDB can be found at the following link:
<https://wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

FILING FEES

The Project, as proposed, would have an impact on fish and wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by the Department. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

The Department appreciates the opportunity to comment on the Humboldt Bay Intertidal Mariculture Pre-Permitting Project and Yeung Oyster Farm DEIR to assist the HBHD in identifying and mitigating Project impacts on biological resources.

For further information regarding hunting and waterfowl, please contact Melanie Weaver, Senior Environmental Scientist at 916-373-8828 or Melanie.Weaver@wildlife.ca.gov; all other questions regarding this letter or further coordination should be directed to Corianna Flannery, Environmental Scientist at 707-499-0354 or Corianna.Flannery@wildlife.ca.gov.

Sincerely,



Craig Shuman, D. Env.
Marine Regional Manager

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