



State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
Marine Region  
1933 Cliff Drive, Suite 9  
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[www.wildlife.ca.gov](http://www.wildlife.ca.gov)

**GAVIN NEWSOM, Governor**  
**CHARLTON H. BONHAM, Director**



Governor's Office of Planning & Research

**Jul 20 2023**

**STATE CLEARINGHOUSE**

July 19, 2023

Doug Saucedo, Natural Resources Coordinator  
Humboldt Bay Harbor, Recreation and Conservation District  
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**SUBJECT: MAD RIVER SLOUGH SHELLFISH NURSERY PROJECT  
INITIAL STUDY/NEGATIVE DECLARATION  
SCH# 2023060574**

Dear Mr. Saucedo,

The California Department of Fish and Wildlife (CDFW) received the Initial Study/Negative Declaration (IS/ND) from the Humboldt Bay Harbor, Recreation and Conservation District for the Mad River Slough Shellfish Nursery Project (Project) pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.<sup>1</sup>

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 aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code (FGC).

## **CDFW ROLE**

CDFW 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 (FGC §711.7, subd. (a) and §1802; Pub. Resources Code §21070; CEQA Guidelines §15386, subd. (a)). CDFW, 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.*, §1802). Similarly, for purposes of CEQA, CDFW is charged by law 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. CDFW 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.

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

Additionally, CDFW oversees and manages aquaculture activities in the State under the authority provided by the FGC (§§15000-15703) and Title 14 of the California Code of Regulations (CCR). All facilities devoted to the propagation, cultivation, maintenance, and harvesting of fish, shellfish, and plants in marine, brackish, and freshwater are required to register annually with CDFW (CCR §235). State law also requires permits from CDFW for various activities related to aquaculture operations, such as an Importation Permit to import most live aquatic plants and animals, in all forms (CCR §236). Statutory authorities for aquaculture disease and aquatic animal health management are embodied in FGC (§15500 et seq.).

## **PROJECT DESCRIPTION SUMMARY**

**Proponents:** Humboldt Bay Harbor, Recreation and Conservation District (Harbor District; CEQA lead agency) and Kimberly and William Rich (Project sponsors)

**Objective:** The Mad River Slough Shellfish Nursery (MRSSN) proposes to set and mature oyster and clam seed that will be sold to farms for growing shellfish out to market size. The species proposed for culture include Pacific oysters (*Crassostrea gigas*), Kumamoto oysters, (*Crassostrea sikimea*), native Olympia oysters (*Ostrea lurida*) and Manila clams (*Venerupis philippinarum*). Existing equipment onsite includes an upland shellfish larvae setting facility and upwelling tanks. A new floating upwelling system (20ft x 24ft) and water intake raft (14ft x 16ft) would be attached to existing anchors in the Mad River Slough. The water intake raft would provide bay water through pipes to the upland larvae settling facility and upwelling tanks. The site would discharge bay water to an estuarine wetland that is connected to the Mad River Slough by a culvert with a tide gate. The intake and discharge rate would not exceed 600 gallons per minute (gpm).

**Location:** The Project site is located in the Mad River Slough, Arcata Bay.

## **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 associated commercial and recreational fisheries. 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). 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 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, *Oncorhynchus tshawytscha*, federally-threatened (California Coastal ESU);
- Coastal cutthroat trout, *Oncorhynchus clarki clarki*, State SSC;
- Steelhead trout, *Oncorhynchus mykiss*, federally-threatened (Northern California Distinct Population Segment (DPS)), State-endangered (Northern California Summer Steelhead);
- Longfin smelt, *Spirinchus thaleichthys*, State-threatened;
- Eulachon, *Thaleichthys pacificus*, federally-threatened (southern DPS);
- Green sturgeon, *Acipenser medirostris*, federally-threatened (southern DPS), State SCC (northern and southern DPS);
- Pacific lamprey, *Entosphenus tridentatus*, State SSC;
- Western river lamprey, *Lampetra ayresii*, State SSC; and
- Black brant, *Branta bernicla nigricans*, State SSC.

## PROJECT IMPACTS

### Bay Water Intakes

**Comments:** The volume of water withdrawn from the bay intakes for the MRSSN will vary throughout the year. The Project proposes to withdraw 600 gpm between April – August, 300 gpm between September – October, and no pumping between November – March. The intake screen design specifications include positioning the intakes in the mid-water column, a maximum approach velocity of 0.33 feet per second, and screen mesh size of 1/8 inch (3.2mm). However, this screen design does not follow the CDFW Fish Screening Criteria that is intended to protect California Endangered Species Act (CESA) listed species from intake systems. Additionally, the IS/ND does not indicate whether the screens will be self-cleaned or manually cleaned.

### Recommendations:

To avoid impacts to CESA-listed species that occur in Humboldt Bay, including salmonids and longfin smelt (*Spirinchus thaleichthys*), all intakes utilized for the facility shall comply with the attached CDFW Fish Screening Criteria. Intakes in waters where longfin smelt may be present should include the following design specifications: 1) a pore size diameter between 1.75 – 2.38 mm depending on the configuration of pores, approach velocity of 0.2 feet per second for self-cleaning screens or 0.05 feet per second for non-self-cleaning screens, and screen porosity of at least 27%. Intakes should be kept in good repair and inspected periodically to ensure they are clean and free of settling invertebrates, accumulated algae, or other debris, which could block portions of the screen surface and increase approach velocities.

If intake screens are not designed following the CDFW Fish Screening Criteria, we recommend the Project proponents consult with CDFW to obtain an Incidental Take Permit (ITP) for juvenile and adult longfin smelt to address impacts of "take" pursuant to Fish and Game Code sections 2080.1 or 2081(b), and California Code of Regulations Title 14 (14

Doug Saucedo, Natural Resource Coordinator  
Humboldt Bay Harbor, Recreation and Conservation District  
July 19, 2023  
Page 4

CCR) § 783 et seq. Additionally, if the Project description changes to include pumping during the winter months (November – March), CDFW recommends the Project proponents consult with CDFW regarding potential impacts to longfin smelt larvae and the potential for a 2081(b) Incidental Take Permit.

## CONCLUSION

We appreciate the opportunity to comment on the Mad River Slough Shellfish Nursery Project to assist the Harbor District and Project sponsors in identifying and mitigating Project impacts on biological resources. 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](mailto:Corianna.Flannery@wildlife.ca.gov).

Sincerely,



Craig Shuman, D. Env.  
Marine Regional Manager

## ATTACHMENT 1: California Department of Fish and Wildlife Fish Screen Criteria

cc: Office of Planning and Research, State Clearinghouse  
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Doug Saucedo, Natural Resource Coordinator  
Humboldt Bay Harbor, Recreation and Conservation District  
July 19, 2023  
Page 5

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**EXHIBIT A**  
**DEPARTMENT OF FISH AND GAME**  
**FISH SCREENING CRITERIA**  
**June 19, 2000**

**1. STRUCTURE PLACEMENT**

**A. Streams And Rivers (flowing water):** The screen face shall be parallel to the flow and adjacent bankline (water's edge), with the screen face at or streamward of a line defined by the annual low-flow water's edge.

The upstream and downstream transitions to the screen structure shall be designed and constructed to match the bankline, minimizing eddies upstream of, in front of, and downstream of, the screen.

Where feasible, this "on-stream" fish screen structure placement is preferred by the California Department of Fish and Game.

**B. In Canals (flowing water):** The screen structure shall be located as close to the river source as practical, in an effort to minimize the approach channel length and the fish return bypass length. This "in canal" fish screen location shall only be used where an "on-stream" screen design is not feasible. This situation is most common at existing diversion dams with headgate structures.

The National Marine Fisheries Service - Southwest Region "Fish Screening Criteria for Anadromous Salmonids, January 1997" shall be used for these types of installations.

**C. Small Pumped Diversions:** Small pumped diversions (less than 40 cubic-feet per second) which are screened using "manufactured, self-contained" screens shall conform to the National Marine Fisheries Service - Southwest Region "Fish Screening Criteria for Anadromous Salmonids, January 1997."

**D. Non-Flowing Waters (tidal areas, lakes and reservoirs):** The preferred location for the diversion intake structure shall be offshore, in deep water, to minimize fish contact with the diversion. Other configurations will be considered as exceptions to the screening criteria as described in Section 5.F. below.

**2. APPROACH VELOCITY (Local velocity component perpendicular to the screen face)**

**A. Flow Uniformity:** The design of the screen shall distribute the approach velocity uniformly across the face of the screen. Provisions shall be made in the design of the screen to allow for adjustment of flow patterns. The intent is to ensure uniform flow distribution through the entire face of the screen as it is constructed and operated.

**B. Self-Cleaning Screens:<sup>1</sup>**

The U.S. Fish and Wildlife Service has selected a 0.2 feet per second approach velocity for use in waters where the Delta smelt is found. Thus, fish screens in the Sacramento-San Joaquin Delta and San Francisco Estuary should use this criterion for design purposes. In addition:

1. Streams and Rivers (flowing waters) - exposure to the fish screen shall not exceed fifteen minutes.

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<sup>1</sup> Approach velocities in the June 19, 2000 Fish Screening Criteria that are inapplicable if delta smelt are present are omitted.

**EXHIBIT A**  
**DEPARTMENT OF FISH AND GAME**  
**FISH SCREENING CRITERIA**

**June 19, 2000**

2. In Canals (flowing waters) - a bypass entrance shall be located every one-minute of travel time along the screen face.

3. Non-Flowing Waters (tidal areas, lakes and reservoirs) - The specific screen approach velocity shall be determined for each installation, based on the delta smelt life stage being protected. Velocities which exceed those described above will require a variance to these criteria (see Section 5.F. below).

**C. Screens Which Are Not Self-Cleaning:** The screens shall be designed with an approach velocity one-fourth that outlined in Section B. above. The screen shall be cleaned before the approach velocity exceeds the criteria described in Section B.

**D. Frequency Of Cleaning:** Fish screens shall be cleaned as frequently as necessary to prevent flow impedance and violation of the approach velocity criteria. A cleaning cycle once every 5 minutes is deemed to meet this standard.

**E. Screen Area Calculation:** The required wetted screen area (square feet), excluding the area affected by structural components (i.e., pore space or open area), is calculated by dividing the maximum diverted flow (cubic-feet per second) by the allowable approach velocity (feet per second). Example:

**1.0 cubic-feet per second / 0.2 feet per second = 5.0 square feet of pore space**

Unless otherwise specifically agreed to, this calculation shall be done at the minimum stream stage.

**3. SWEEPING VELOCITY (Velocity component parallel to screen face)**

**A. In Streams And Rivers:** The sweeping velocity should be at least two times the allowable approach velocity.

**B. In Canals:** The sweeping velocity shall exceed the allowable approach velocity. Experience has shown that sweeping velocities of 2.0 feet per second (or greater) are preferable.

**C. Design Considerations:** Screen faces shall be designed flush with any adjacent screen bay piers or walls, to allow an unimpeded flow of water parallel to the screen face.

**4. SCREEN OPENINGS**

**A. Porosity:** The screen surface shall have a minimum open area of 27 percent. We recommend the maximum possible open area consistent with the availability of appropriate material, and structural design considerations.

The use of open areas less than 40 percent shall include consideration of increasing the screen surface area, to reduce slot velocities, assisting in both fish protection and screen cleaning.

**B. Round Openings:** Round openings in the screening shall not exceed 3.96mm (5/32in). In waters where steelhead rainbow trout fry are present, this dimension shall not exceed 2.38mm (3/32in).

**C. Square Openings:** Square openings in screening shall not exceed 3.96mm (5/32in) measured diagonally. In waters where steelhead rainbow trout fry are present, this dimension shall not exceed 2.38mm (3/32in) measured diagonally.

**D. Slotted Openings:** Slotted openings shall not exceed 2.38mm (3/32in) in width. In waters where steelhead rainbow trout fry are present, this dimension shall not exceed 1.75mm (0.0689in).

**EXHIBIT A**  
**DEPARTMENT OF FISH AND GAME**  
**FISH SCREENING CRITERIA**

**June 19, 2000**

**5. SCREEN CONSTRUCTION**

**A. Material Selection:** Screens may be constructed of any rigid material, perforated, woven, or slotted that provides water passage while physically excluding fish. The largest possible screen open area which is consistent with other project requirements should be used. Reducing the screen slot velocity is desirable both to protect fish and to ease cleaning requirements. Care should be taken to avoid the use of materials with sharp edges or projections which could harm fish.

**B. Corrosion and Fouling Protection:** Stainless steel or other corrosion-resistant material is the screen material recommended to reduce clogging due to corrosion. The use of both active and passive corrosion protection systems should be considered. Consideration should be given to anti-fouling material choices, to reduce biological fouling problems. Care should be taken not to use materials deemed deleterious to fish and other wildlife.

**C. Project Review and Approval:** Plans and design calculations, which show that all the applicable screening criteria have been met, shall be provided to the Department before written approval can be granted by the Regional Manager, Bay Delta Region.

The approval shall be documented in writing to the project sponsor, with a copy to the Deputy Director, Resource Management and Policy Division. Such approval may include a requirement for post-construction evaluation, monitoring and reporting.

**D. Assurances:** All fish screens constructed after the effective date of these criteria shall be designed and constructed to satisfy the current criteria. Owners of existing screens, approved by the Department prior to the effective date of these criteria, shall not be required to upgrade their facilities to satisfy the current criteria unless:

1. The controlling screen components deteriorate and require replacement (i.e., change the opening size or opening orientation when the screen panels or rotary drum screen coverings need replacing),
2. Relocation, modification or reconstruction (i.e., a change of screen alignment or an increase in the intake size to satisfy diversion requirements) of the intake facilities, or
3. The owner proposes to increase the rate of diversion which would result in violation of the criteria without additional modifications.

**E. Supplemental Criteria:** Supplemental criteria may be issued by the Department for a project, to accommodate new fish screening technology or to address species-specific or site-specific circumstances.

**F. Variances:** Written variances to these criteria may be granted with the approval of the Regional Manager, Bay Delta Region and concurrence from the Deputy Director, Resource Management and Policy Division. At a minimum, the rationale for the variance must be described and justified in the request. Evaluation and monitoring may be required as a condition of any variance, to ensure that the requested variance does not result in a reduced level of protection for the aquatic resources.



**EXHIBIT A**  
**DEPARTMENT OF FISH AND GAME**  
**FISH SCREENING CRITERIA**

**June 19, 2000**

It is the responsibility of the project sponsor to obtain the most current version of the appropriate fish screen criteria. Project sponsors should contact the Department of Fish and Game and the U.S. Fish and Wildlife Service (for projects in anadromous and fresh waters) for guidance.

Copies of the current criteria are available from the Department of Fish and Game Bay Delta Region; 7329 Silverado Trail/P.O. Box 46, Yountville, CA 94599, (707) 944-5500.

Technical assistance can be obtained directly from the Habitat Conservation Branch; 1416 Ninth Street, Sacramento, CA 95814 - (916) 653-1070.

The National Marine Fisheries Service Southwest Region "Fish Screening Criteria for Anadromous Salmonids, January 1997" is available at: <http://swr.ucsd.edu/hcd/fishscrn.htm> and from their Southwest Region, 777 Sonoma Avenue, Room 325, Santa Rosa, CA 95402 - (707) 575-6050.