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EELGRASS REPORT
FOR THE
HUMBOLDT BAY ROWING ASSOCIATION
NON-SEASONAL DOCK AND GANGWAY
EUREKA, CA

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I. EXECUTIVE SUMMARY

Winzler & Kelly performed an eelgrass survey to determine the extent and density of eelgrass (*Zostera marina*) in areas where the Humboldt Bay Rowing Association (HBRA) proposes to convert the use of an existing floating dock and gangway from temporary/seasonal to non-seasonal/year-round structures. This project is located at 1535 Waterfront Drive in the City of Eureka, California (Figure 1, Appendix A). No additional structures or improvements are proposed, but the existing structures would simply remain in place throughout the year and would not be subject to seasonal removal. The HBRA is a membership-based, non-profit organization dedicated to promoting the sport of rowing and boating safety for community members of all ages and abilities.

This eelgrass report, which incorporates a detailed 2010 survey and additional reconnaissance-level 2009 eelgrass survey data, will be used to evaluate the areal extent of adverse impacts to the eelgrass that occurred as a result of the shading from the HBRA gangway. This report also provides information on suitable on-site eelgrass mitigation areas which will guide the proposed compensatory eelgrass revegetation program. The report additionally establishes a baseline eelgrass density within the survey area which will guide mitigation planting density requirements.

II. PROJECT BACKGROUND

A. Project Description

The HBRA is seeking regulatory approval to convert the use of the existing floating dock and gangway from temporary/seasonal to non-seasonal/year-round structures. No additional structures or improvements are proposed, but the existing structures would simply remain in place throughout the year and would not be subject to seasonal removal. Structures would remain in place until the HBRA (as lessee) or the City of Eureka (as lessor) terminates the lease of the site. Upon such termination, the HBRA will be required to remove all portions of the floating dock and gangway from Humboldt Bay, pursuant to permit conditions.

The HBRA project was originally constructed within the vicinity of occupied eelgrass (*Zostera marina*) habitat. Although no eelgrass mapping was conducted, the 2002 Initial Study for temporary/seasonal installation of the dock and gangway included eelgrass photos and described a “narrow band of eelgrass that parallels the shore.” The placement of structures that shade eelgrass is known to cause adverse impacts. The HBRA gangway was, therefore, required to be constructed of grating material to allow filtration of light to the eelgrass beds below and was to be removed during the peak growing season. Currently, the gangway portion of the HBRA

facility crosses over a disrupted band of eelgrass that parallels the shoreline. The gangway shading, therefore, appears to have had an adverse impact on the underlying eelgrass.

B. Project Location

The HBRA facility is located within and adjacent to Humboldt Bay at 1535 Waterfront Drive in Eureka, CA; APN 002-241-013, -006 (Figure 1, Appendix A). The project is located within split local/appeal and primary state Coastal Zone jurisdiction. The seaward portion of the project is within COE Section 10 jurisdiction.

The landward portion of the site has areas of compacted gravel, historic mill building foundations, and maintained field. The HBRA boathouse is the only structure on the site. The existing HBRA gangway extends from the rip rapped shore approximately 50 feet into Humboldt Bay to an approximately 100 foot long floating dock. The narrow band of eelgrass runs parallel to and midway between the top of bank of the shore and the floating dock

III. METHODS

Eelgrass mapping was conducted pursuant to the National Marine Fisheries Service (NMFS) Southern California Eelgrass Mitigation Policy (1991). Reconnaissance level fieldwork and measurement-based mapping was conducted in January of 2009. The 2010 fieldwork to evaluate the distribution and density of eelgrass at the project site was conducted on October 6th, 2010, starting at 5:42 pm during a -0.02 foot tide. Eelgrass beds in the project area were mapped using a Trimble Global Positioning System (GPS) (sub-meter accuracy) data collection unit with Arcmap software.

Distribution
The 2010 eelgrass distribution was evaluated and mapped in areas landward of the floating dock using the Trimble GPS. Mapped areas included occupied eelgrass beds, unoccupied potential eelgrass habitat, and shaded eelgrass impact area under the gangway.

Density
Four one meter square (10.76 ft^2) quadrats were placed within occupied eelgrass habitat to sample the existing eelgrass density. Turions (shoots) were counted in each of the quadrats at low tide.

IV. RESULTS

A disrupted narrow band of native eelgrass occurs between the shoreline and the floating HBRA dock, adjacent to the toe-of-slope of the rip rap shore armoring. In 2009 and 2010 this band of eelgrass occurred on both sides of the gangway but was found to be absent under the gangway.

Within the 2010 survey area there is a total of approximately 510 ft^2 of occupied eelgrass habitat and approximately 309 ft^2 of unoccupied eelgrass habitat. The unoccupied habitat includes an approximately 156 ft^2 area under the gangway (shaded impact area) and two other unoccupied

areas totaling approximately 200 ft^2 which are not shaded by the gangway and appear to be natural voids in suitable eelgrass habitat. (Appendix A - Figure 2).

The average 2010 turion density within occupied eelgrass habitat was approximately 1.56 turions/ft^2. Sampled densities within each quadrat were: 1.39 turions/ft^2 (quadrat 1); 1.95 turions/ft^2 (quadrat 2); 0.93 turions/ft^2 (quadrat 3); and 1.95 turions/ft^2 (quadrat 4).

In January 2009, a reconnaissance-level eelgrass survey found a similar pattern of occupied habitat, but the approximate mean density was only 0.37 turions/ft^2. This variation in density was likely due to seasonal variation.

V. CONCLUSION

The placement of the HBRA gangway has likely caused shade-related adverse impacts to eelgrass beds. Prior to the construction of the HBRA dock and gangway, the 2002 Initial Study for the proposed temporary/seasonal installation of the structures described a "narrow band of eelgrass that parallels the shore." Because eelgrass surveys were not conducted at the site in 2002 and photographic documentation is not sufficient to determine extent of eelgrass coverage, eelgrass is assumed to have been present under the gangway within the "narrow band" prior to placement of the gangway.

Although the gangway was constructed of grating which allows some light to penetrate to the water below, there is now a gap in eelgrass beds below the gangway where shading has occurred. This gap was measured to be approximately 156 ft^2 in October 2010, near the end of the growing season. The gangway shading impact on the eelgrass was likely exacerbated by the fact that, contrary to the 2002 conditions of project approval, the dock and gangway remained in place throughout the year from 2003 until the present. This allowed the shading to occur through the peak of the growing season, when, according to permit conditions, the structure should have been removed.

NMFS Southern California Eelgrass Mitigation Policy requires mitigation of impacts to eelgrass beds at a ratio of 1.2:1. The 156 ft^2 impact would, therefore, require approximately 188 ft^2 of mitigation to be completed pursuant to NMFS protocol for eelgrass mitigation. The 2010 eelgrass survey identified two regions of suitable, but unoccupied eelgrass habitat in immediate vicinity of the HBRA facility (Appendix A - Figure 2). These areas total approximately 200 ft^2 and appear to have favorable conditions for completing on-site eelgrass mitigation under NMFS protocol.

The average eelgrass turion density within undisturbed portions of the "narrow eelgrass band" in 2010 was determined to be approximately 1.56 turions/$ft^{2.}$ This density appears to represent a healthy eelgrass population density in the immediate vicinity of the project and should be used as a target density for mitigation purposes. An Eelgrass Mitigation and Monitoring Plan will be prepared for the project pursuant to NMFs protocol.

Appendix A
Figures