

MEMO

Date: August 30, 2022

To: Richardson Bay Regional Agency (RBRA) Board of Directors and staff
From: Rebecca Schwartz Lesberg, Coastal Policy Solutions

Subject: Annual eelgrass and waterbird monitoring – 2021/2022 Report

Dear Chair Moulton-Peters and the RBRA Board and Staff,

It is my pleasure to submit the annual report for the 2021/2022 Richardson Bay eelgrass and waterbird monitoring efforts. The monitoring program is a partnership effort – implemented by biologists at Audubon California’s Richardson Bay Audubon Center and Sanctuary, funded by the California Ocean Protection Council and National Oceanic and Atmospheric Administration, and coordinated by Coastal Policy Solutions. The attached report was prepared by Audubon California.

Background

In 2021, the RBRA Board of Directors adopted the RBRA Eelgrass Protection and Management Plan (EPMP), which took a spatial planning approach to manage natural resource conflicts in Richardson Bay. During development of the EPMP, RBRA and its consultant Coastal Policy Solutions met with dozens of community members during five listening sessions aimed at gathering public input on how to best protect eelgrass in Richardson Bay while maintaining appropriate public use of the bay. Several key policy documents influenced the EPMP, including the California Eelgrass Mitigation Policy¹ and the Subtidal Habitat Goals Report². Additionally, spatially explicit mapping data were analyzed to document where eelgrass and herring were present in the bay over a 10-year period.

Based on this policy review, stakeholder outreach, and spatial analysis, a key outcome of the EPMP was the creation of a No Anchoring Area/ Eelgrass Protection Zone (EPZ) in Richardson Bay to protect the area’s eelgrass beds from anchor scour.

Implementation of the EPMP includes three major priorities:

1. Codifying the EPZ into RBRA regulations, the US Code of Federal Regulations, and the Coast Pilot
2. Wildlife and habitat monitoring to establish baseline conditions against which to analyze the impact of the EPZ
3. Outreach and education to communities on and off the water to support equitable public access to the bay and increase compliance with the updated regulations

¹ <https://www.fisheries.noaa.gov/resource/document/california-eelgrass-mitigation-policy-and-implementing-guidelines>

² <http://sfbaysubtidal.org/report.html>

Wildlife and Habitat Monitoring

Coastal Policy Solutions was contracted by RBRA to coordinate the wildlife and habitat monitoring associated with EPMP implementation according to the following protocols:

1. Conduct baseline and seasonal UAV (drone) waterbird monitoring using the following methods: Once per week for a minimum of six weeks during the winter migration season, an aerial drone will be used to take photographs from five pre-determined and overlapping locations in Richardson Bay. These photographs will then be analyzed for the presence and location of rafting waterbirds.
2. Complete annual aerial eelgrass surveys to document changes to anchor scour using methods consistent with Kelly *et al.* 2019³.
3. Carry out one eelgrass bathymetric survey in 2022 to track eelgrass density and distribution in Richardson Bay

The annual waterbird monitoring (Item 1) and eelgrass survey (Item 2) have been subcontracted to Audubon California, with the results documented in the attached 2021/2022 monitoring report. (Note: the bathymetric survey [Item 3] has been subcontracted to Merkel and Associates, with a report to come later this year.)

Monitoring results

The attached report, prepared by Audubon California, describes the 2021/2022 monitoring season, including the summer 2021 eelgrass survey and change analysis, as well as the winter waterbird drone surveys and analysis. For the eelgrass survey, the analysis method results in a “low” and “high” estimate of eelgrass damage, as reported below. For the waterbird survey, it’s important to note that the survey was designed to assess what areas in Richardson Bay the birds are using most frequently, not to assess populations trends.

Key takeaways from the monitoring report:

1. During the Winter 2021/2022 monitoring season, waterbird rafts (groups of up to 10,000 birds gathered to rest on the water’s surface) were most frequently observed near the northern and eastern shorelines of Richardson Bay. Very few waterbird rafts were observed resting or feeding Sausalito and Belvedere.
2. From 2017 to 2021, there was a likely increase in the acreage of eelgrass damaged by anchor scour in Richardson Bay: the low estimate of eelgrass damaged by anchor scour in Richardson Bay increased from 49.3 acres in 2017 to 52.6 acres in 2021, and the high damage estimate increased from 83.9 acres in 2017 to 106.6 acres in 2021.
3. The locations of damaged eelgrass have shifted from 2017 to 2021 and closely follows the current location of anchoring vessels.
4. There are a few instances where the removal of an anchored vessel resulted in the recolonization of eelgrass in a previous scar (Figure 3, page 10 in the monitoring report).
 - Revegetation of old scars appears to have occurred in areas where the adjacent eelgrass bed is densely vegetated. Scars where the surrounding eelgrass is sparse and patchy did not appear to revegetate as successfully.

³ Kelly, J. J., Orr, D., & Takekawa, J. Y. (2019). Quantification of damage to eelgrass (*Zostera marina*) beds and evidence-based management strategies for boats anchoring in San Francisco Bay. *Environmental management*, 64(1), 20-26.