

Richardson Bay Eelgrass Protection & Management Plan (EPMP)

Implementation Update:

Eelgrass and Waterbird Monitoring

Presented to: Richardson Bay Regional Agency (RBRA) Board of Directors

Presented by: Rebecca Schwartz Lesberg, Coastal Policy Solutions

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Contact: rebecca@coastalpolicysolutions.com

Outline

- About the Eelgrass Protection and Management Plan (EPMP)
- 2022 Sidescan Sonar Survey
- Damage surveys:
 - 2022
 - 2023
- 2022/2023 Waterbird Monitoring
- Major takeaways
- Q & A



About the EPMP

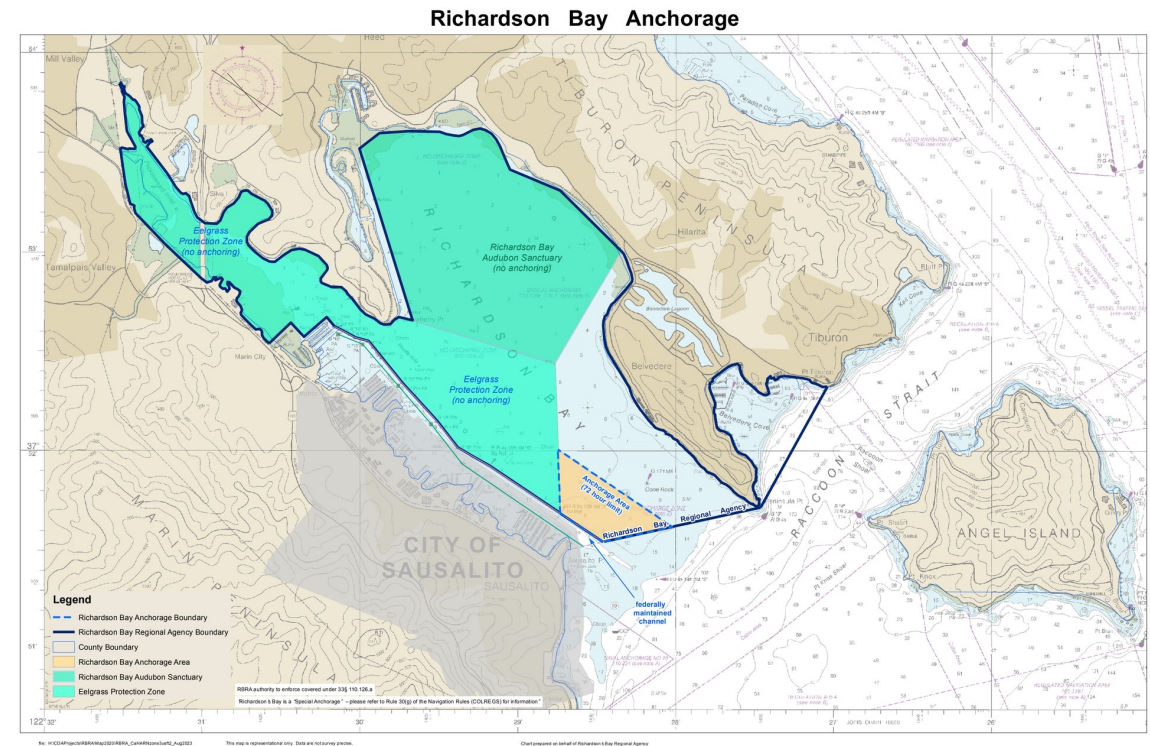


Main Goal:

Establish boundaries for where anchoring can or cannot occur in Richardson Bay in order to protect eelgrass resources and prevent further damage to the bed from anchor scour.

About the EPMP – Eelgrass Protection Zone (EPZ)

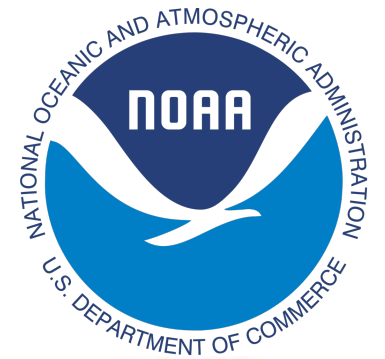
- EPMP adopted August 2021, established the EPZ (light teal)
- Anchoring prohibited within EPZ (RBRA Code §3.04.010)
- Only applies to anchoring; all other activities (kayaking, sailing, motoring, fishing, marinas, recreation, etc.) unaffected
- No change to shore access





EPMP Implementation

1. Codify EPZ into regulations
2. Wildlife and habitat monitoring
3. Outreach and education



Wildlife and Habitat Monitoring

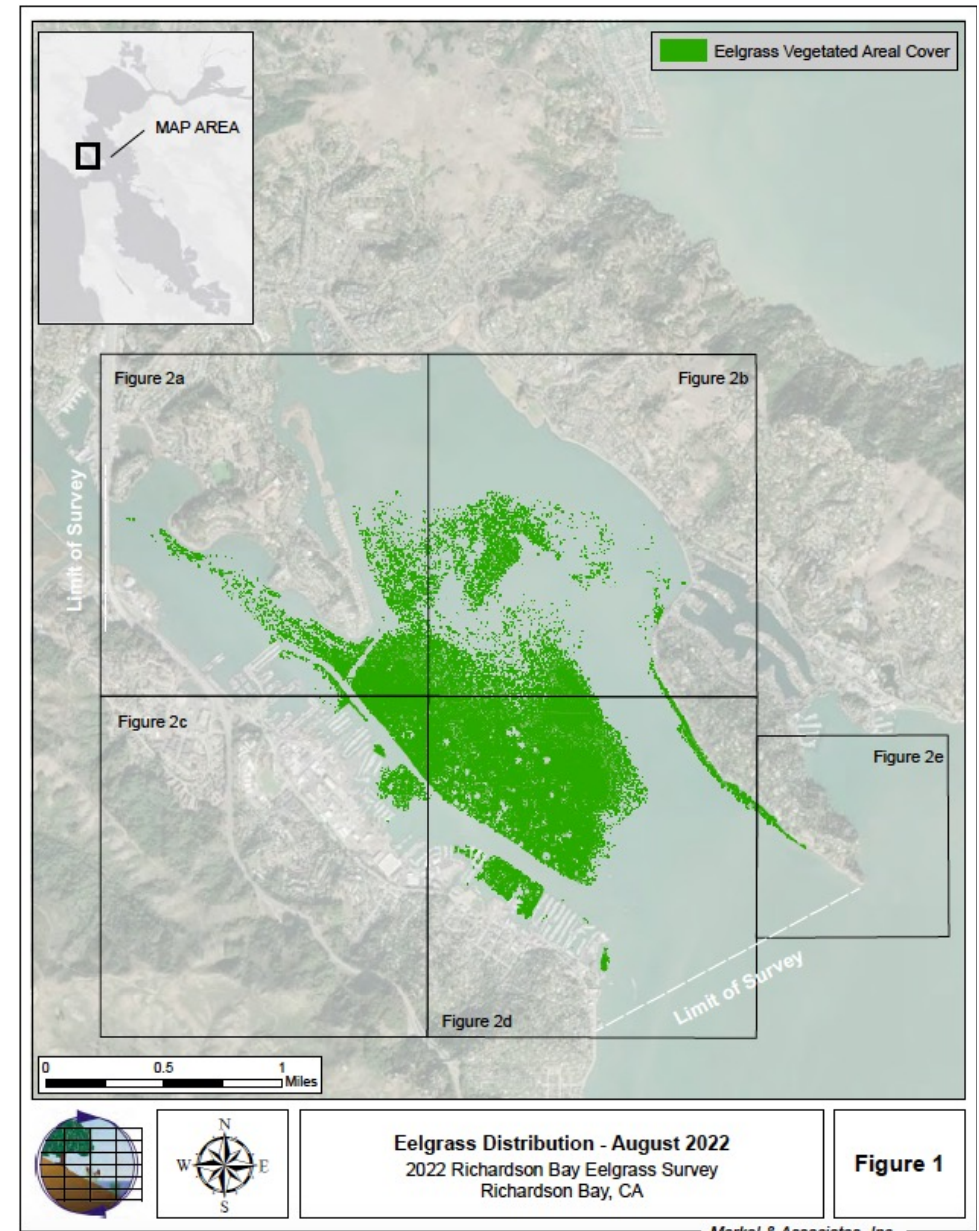
1. 2022 Sidescan Sonar Survey

2. 2022 & 2023 Damage Assessment

3. 2022/2023 Waterbird Monitoring

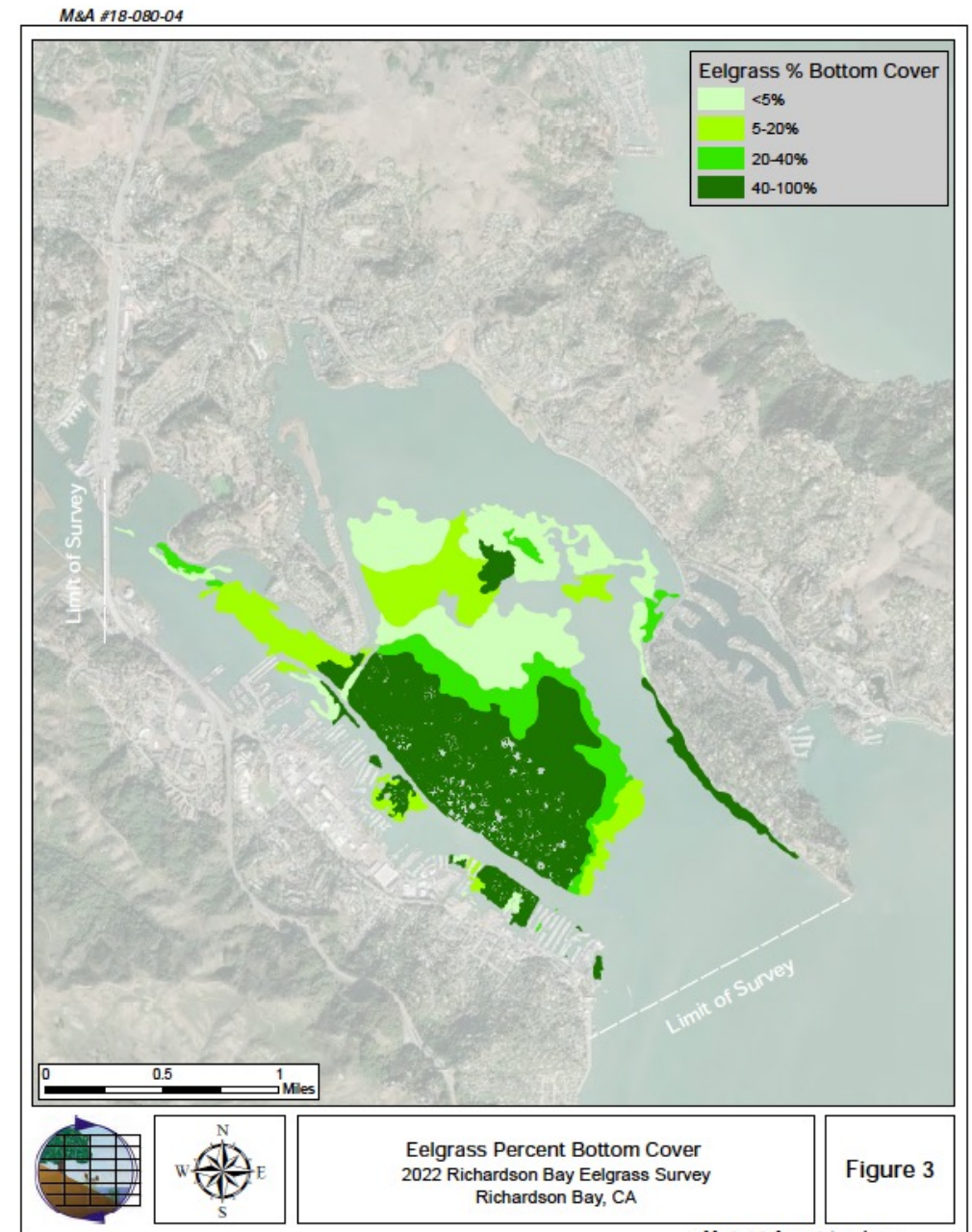
2022 Sidescan Sonar Survey: Report highlights

- Method: boat-based sonar
- Survey completed by Merkel and Associates
- Same general pattern of eelgrass cover in RB as previous years
 - Core of bed in central bay
 - Present but less dense in shallows (warmer), some evidence of wasting disease
 - Absent from deeper parts of the bay (approx. 5 feet MLLW), consistent with light limits



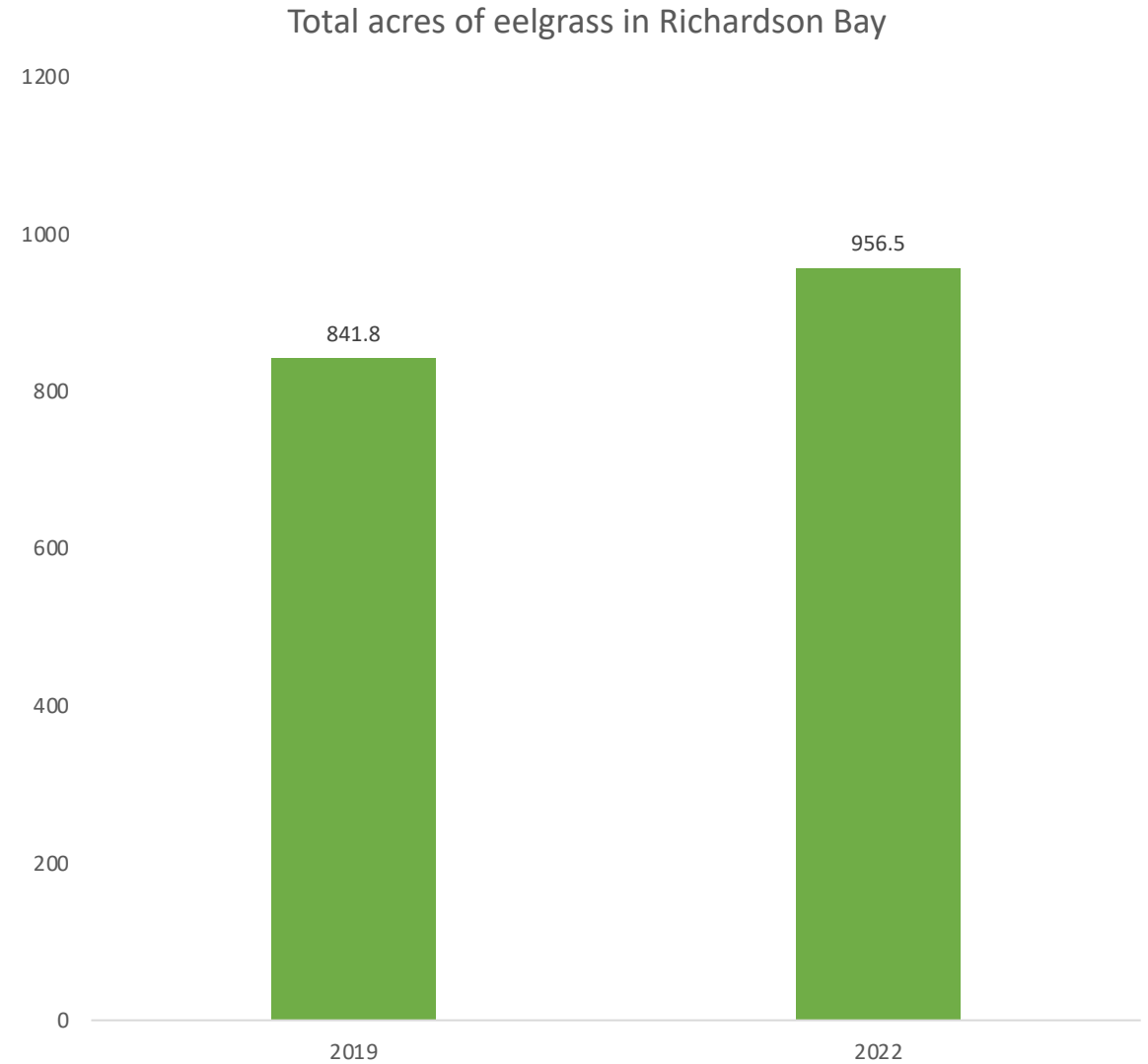
2022 Sidescan Sonar Survey: Report highlights

- Total acres: 956.5 acres
- Cover class: how dense the eelgrass bed is. Proxy for health.
- Less than half in 40-100% cover class, over 25% in the <5% cover class



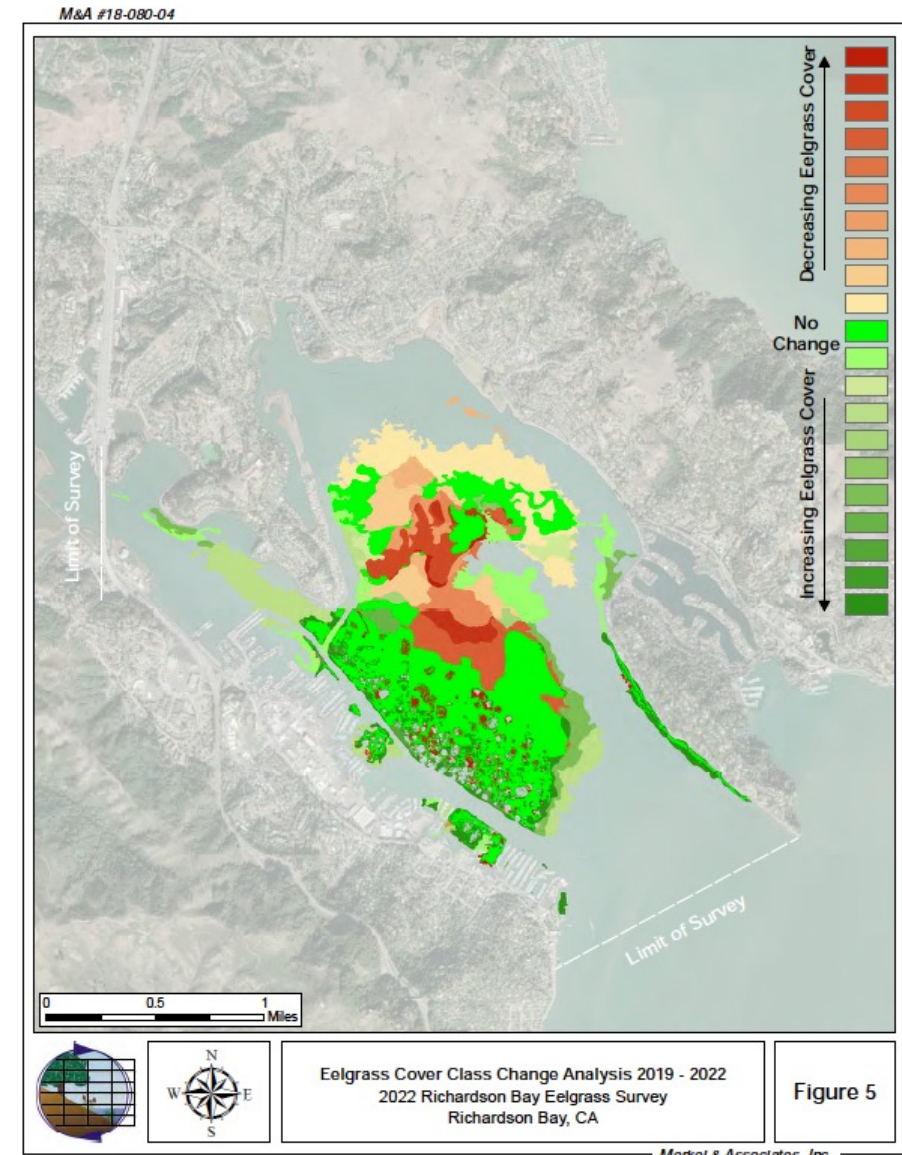
2022 Sidescan Sonar Survey: Change through years

- Binary change 2019 vs 2022:
 - 13% increase
 - Within normal bed variability



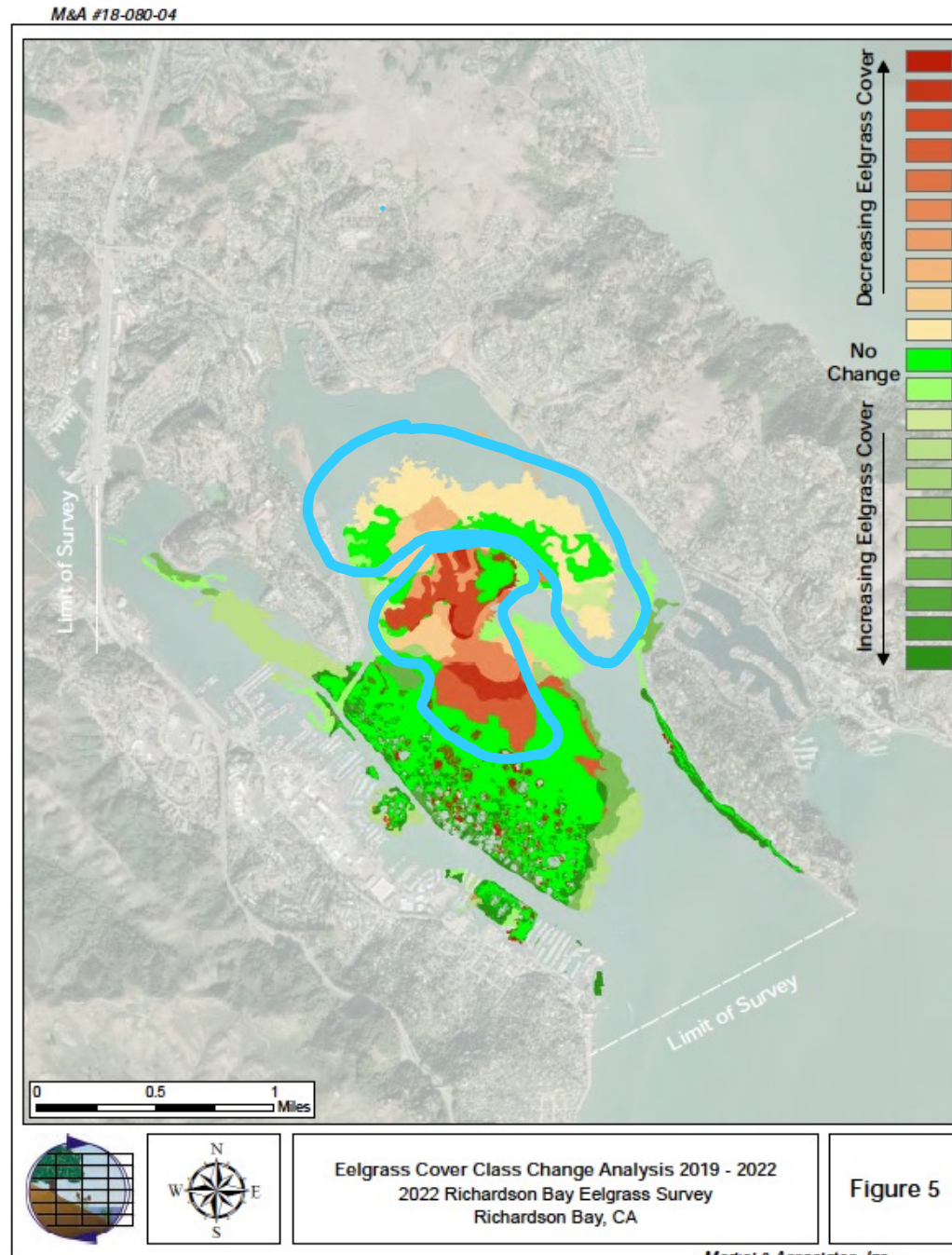
2022 Sidescan Sonar Survey: Change through years

- Closer look 2019 vs 2022:
 - Some areas of expansion
 - Some areas of decline



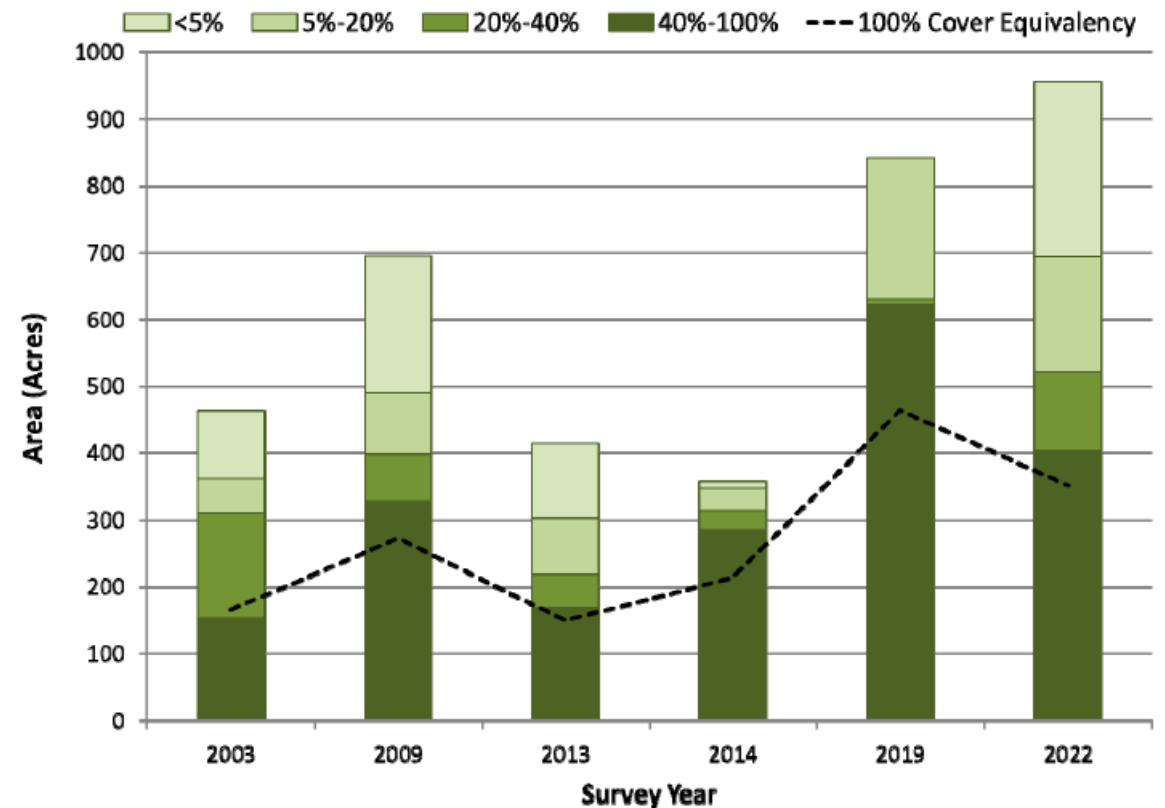
Likely causes of declines

- Northern reaches: thermal stress
- Loss in core: eelgrass wasting disease



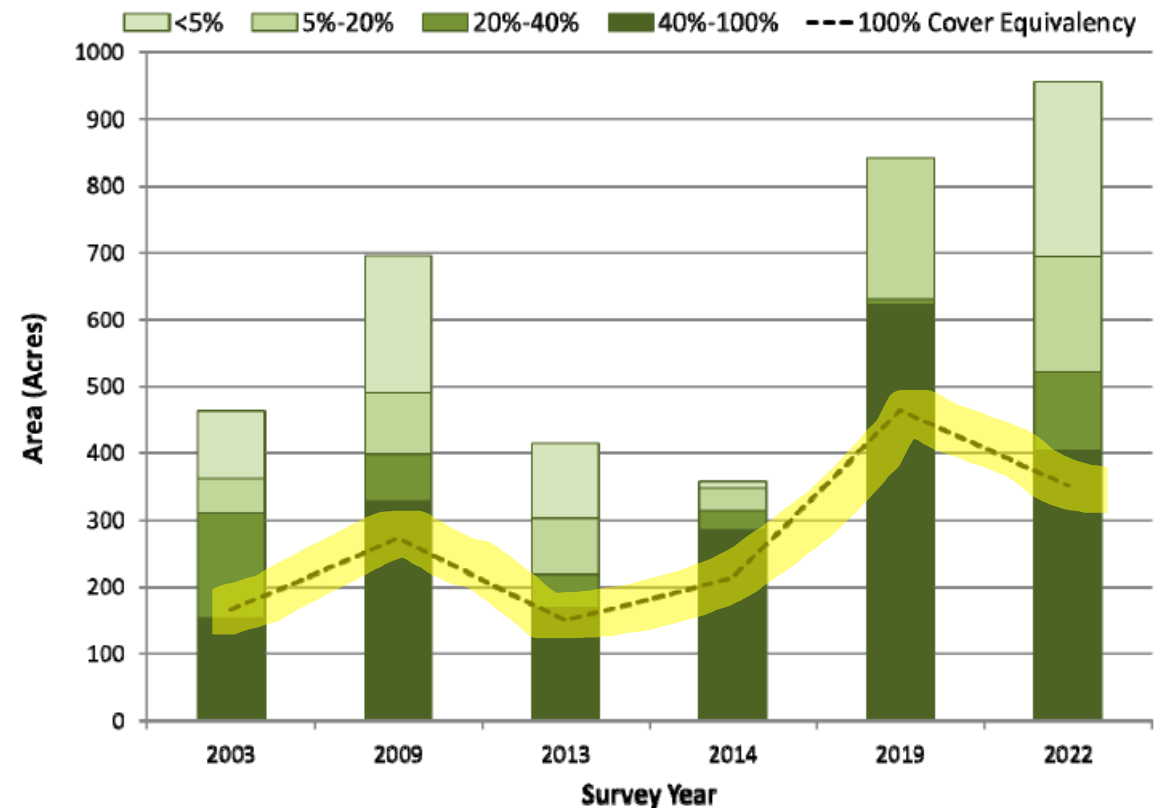
2022 Sidescan Sonar Survey: Change through years

- Biggest change: decline 2009 → 2013
- Absolute cover: variable but generally increasing over the past 20 years
- 100% cover equivalency: less dramatic increase since 2003, better indicator of bed health
- 20 years is NOT very long in the context of an eelgrass bed



2022 Sidescan Sonar Survey: Change through years

- Definition of 100% cover equivalency: area that would be covered if all present eelgrass was at 100% cover
- Beneficial when evaluating:
 - Eelgrass bed productivity
 - Biomass
 - Other metrics dependent on plant density, (e.g., carbon cycling and storage)
- 100 percent cover equivalency declined by 24.2% between 2019-2022



Wildlife and Habitat Monitoring

1. 2022 Sidescan Sonar Survey

2. 2022 & 2023 Damage Assessment

3. 2022/2023 Waterbird Monitoring

2022 & 2023 Eelgrass Damage Assessments

- Method: aerial photography and GIS analysis
- Photos by 111th Aerial Photography Group
- Analysis and report by Audubon CA



Photo: 111th Group, courtesy Audubon CA

2022 & 2023 Eelgrass Damage Assessments

- Goal: How much eelgrass is damaged by anchor scour? Does eelgrass recover within an anchor scar?
- Scour – damage from anchors, chains, other ground tackle
- Methods repeated from previous study (Kelly *et al.* 2019)
- Low and high damage estimates

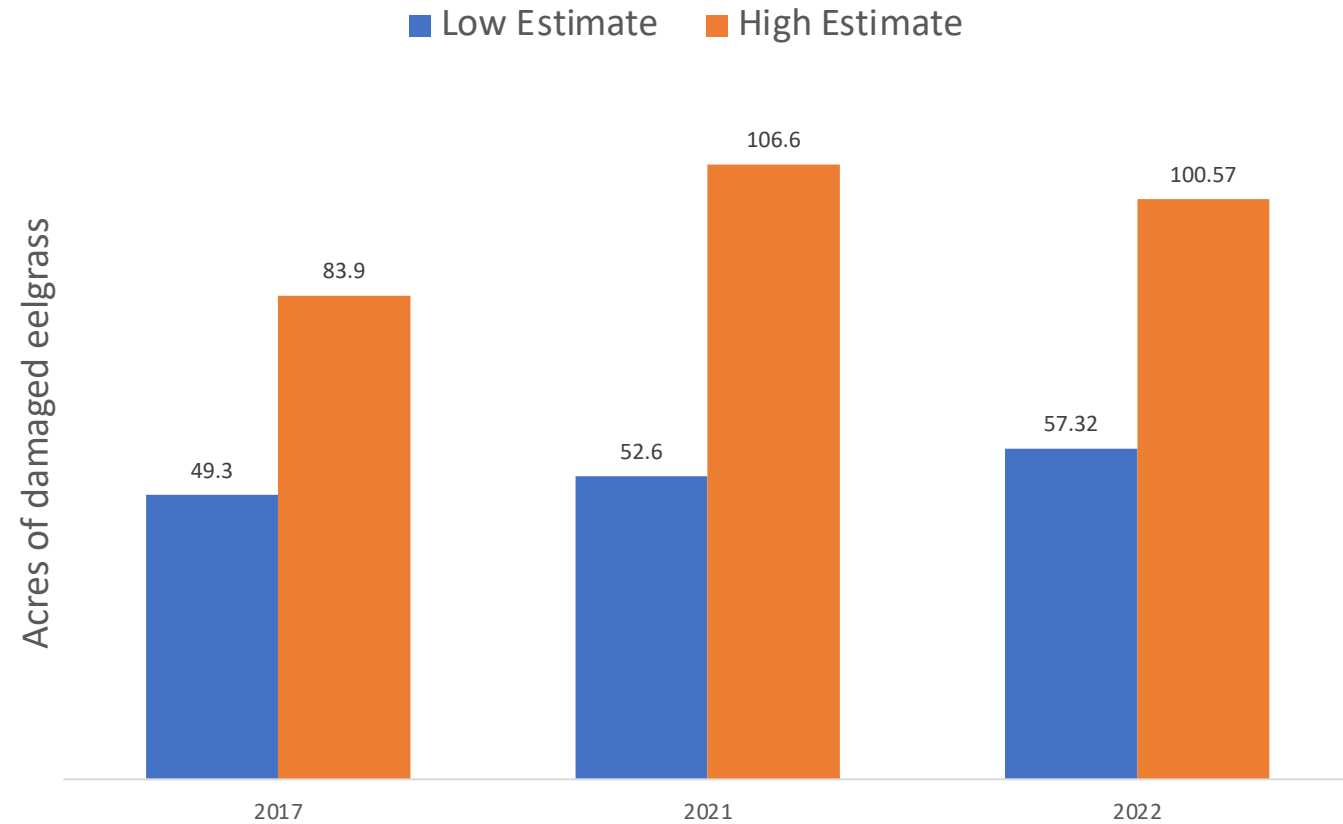


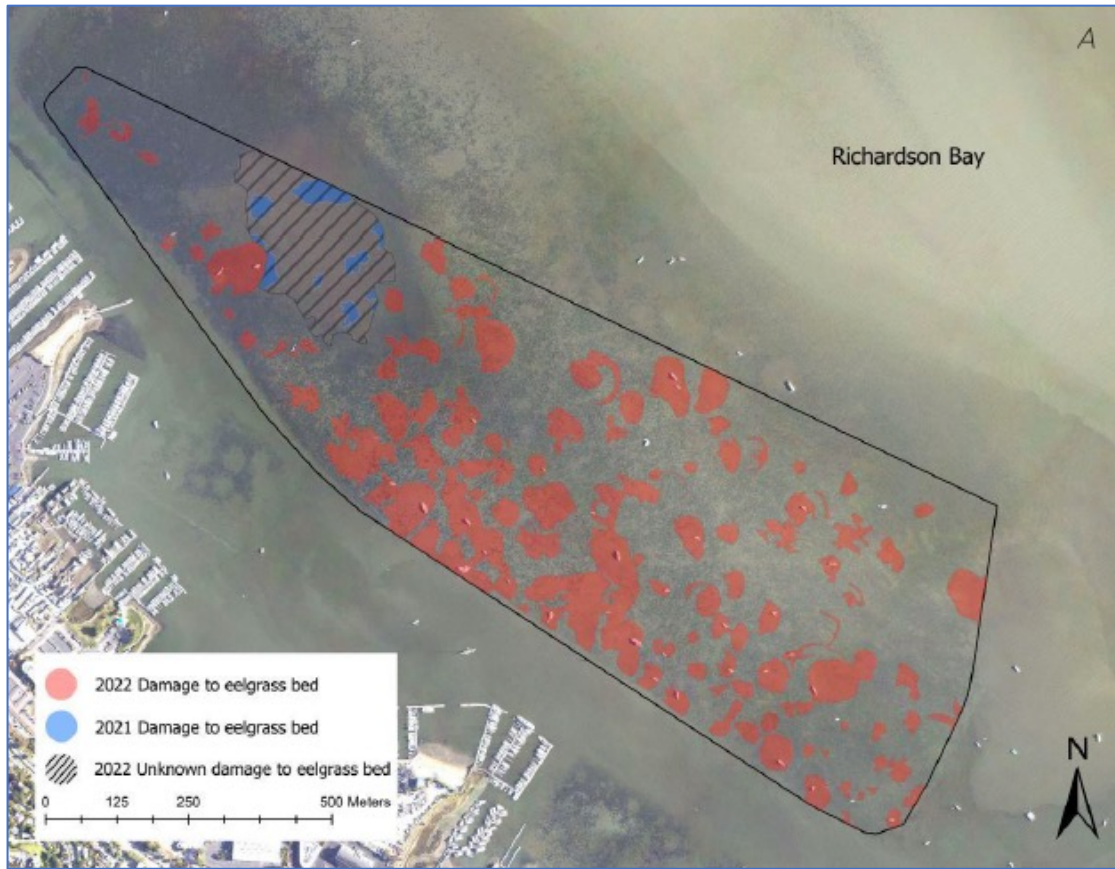
Photo: 111th Group, courtesy Audubon CA



Eelgrass damage assessment: Anchor Scour

Anchor Scour in Richardson Bay





2022 Survey:
Assessment influenced by area of unknown damage, suspected harmful algal bloom



2023 Survey:
Assessment not possible due to macroalgal mat
obscuring the eelgrass bed from view

Eelgrass damage assessment: Additional Findings

- Some, but not all, anchor scars show signs of recovery
- Suggests recovery takes more than one year

Recovery



No Recovery

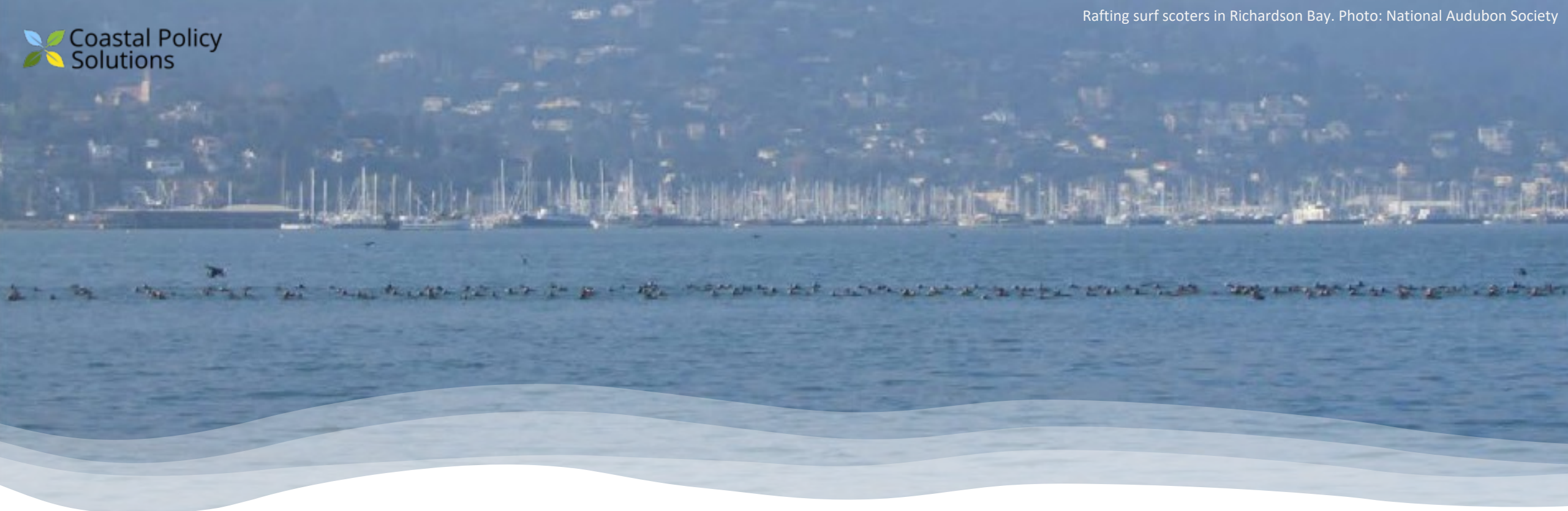


Wildlife and Habitat Monitoring

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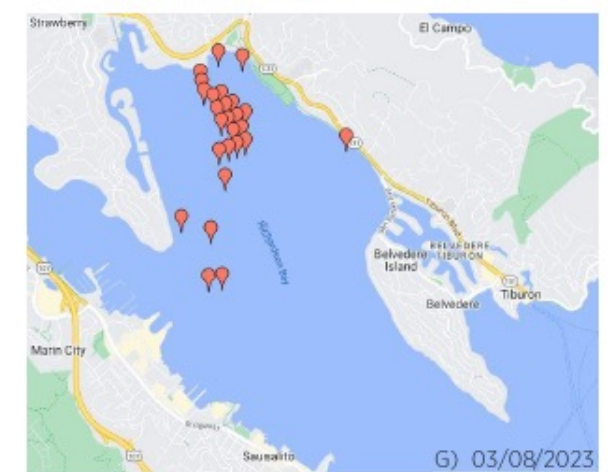
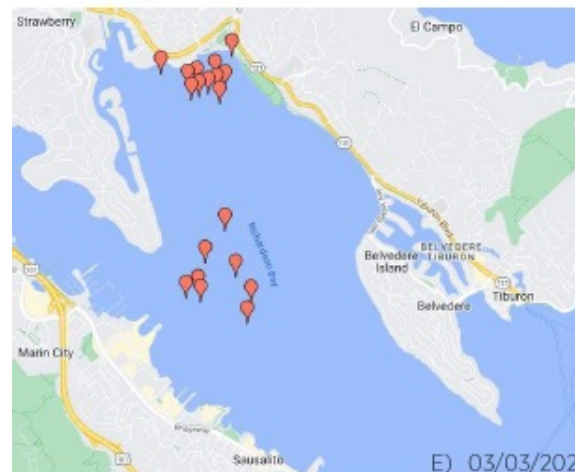
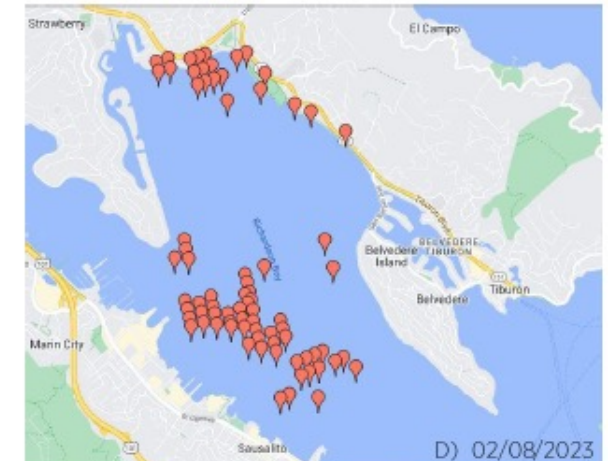
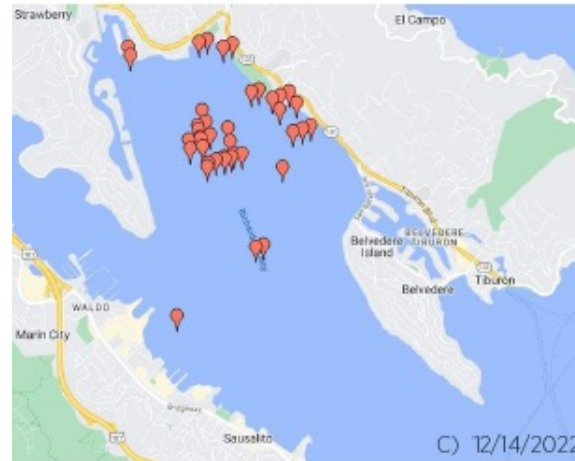
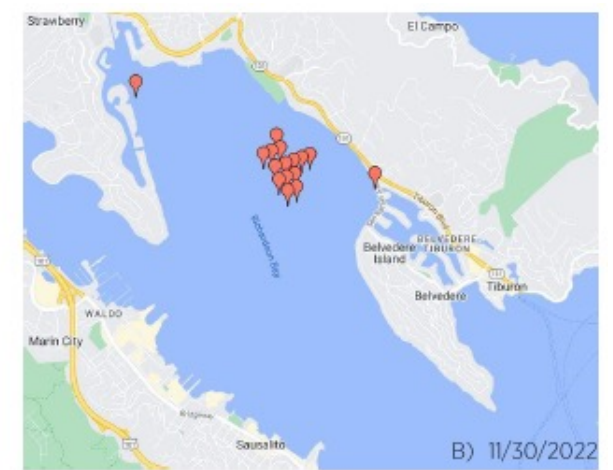
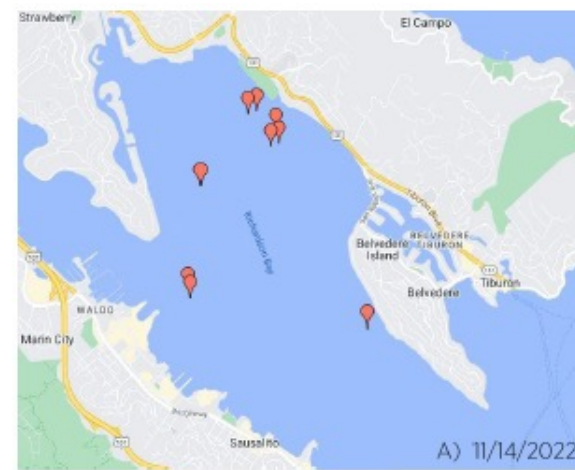
3. 2022/2023 Waterbird Monitoring



2022/2023 Waterbird Monitoring

- Goal: Where in Richardson Bay are birds using the water to raft?
 - Rafts – groups of up to 10,000 birds resting on the water's surface

2022/2023 Waterbird Monitoring: Locations of Waterbird Rafts



2022/2023 Waterbird Monitoring: --- Locations of Waterbird Rafts

Results: Continue to see rafts primarily along northern and eastern shorelines, same as previous years.



Major Takeaways

- The good:
 - Damage to eelgrass from anchor scour appears to have plateaued
 - Continue to see evidence of eelgrass recovery
- The not so good:
 - Overall health of the bed is questionable
 - Thermal stress, wasting disease, algal competition - all expected to increase with climate change
- The takeaway:
 - Protecting and restoring this bed is more crucial than ever



Questions?

