

In the Wrong Place with the Right Plan: Optimizing a Small Harbor Dredging Budget to Resolve New Regulatory and Contaminant Challenges

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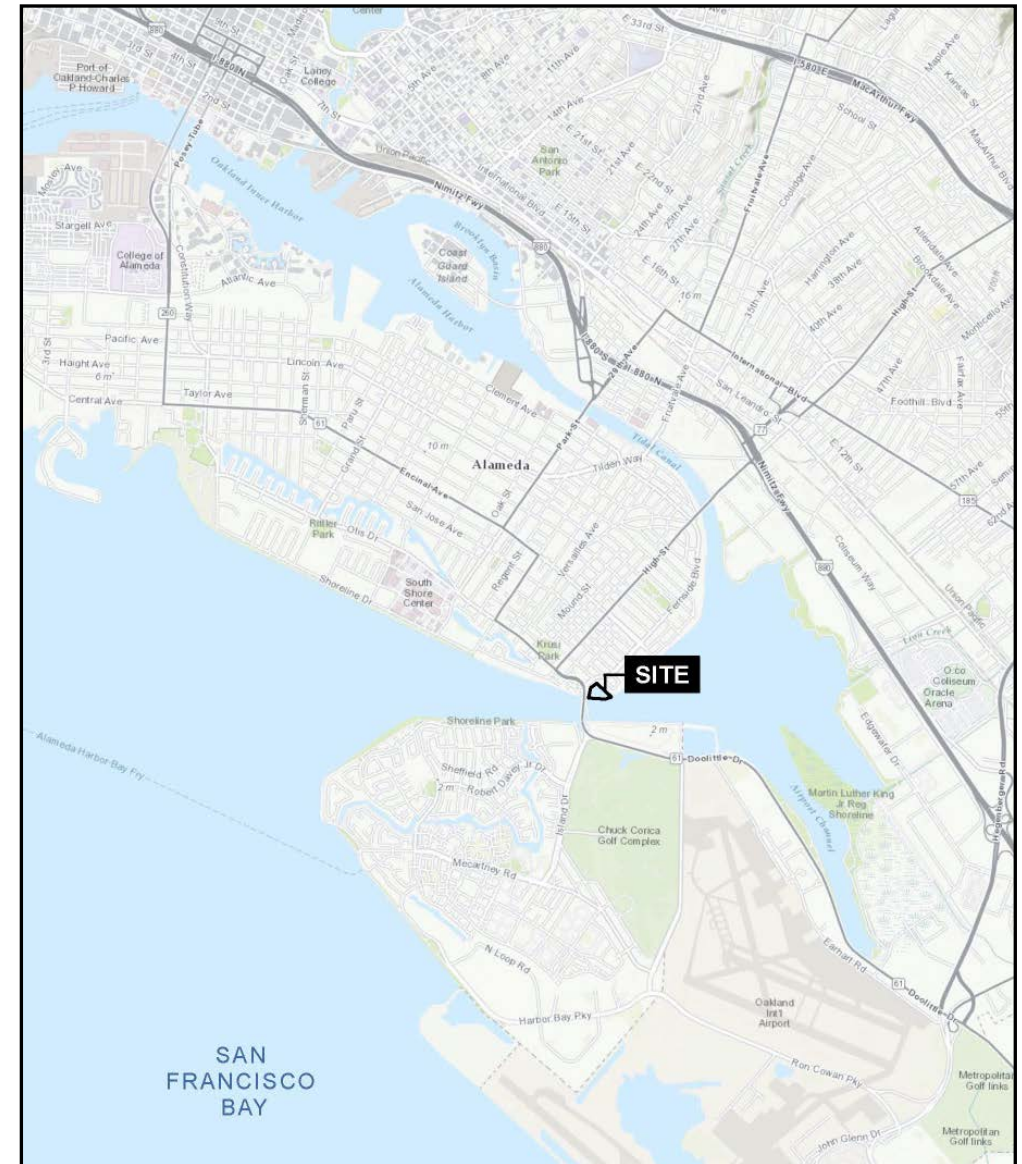


Presentation Outline

- 1 Site/Project Description
- 2 New Regulatory Policies Affecting Maintenance Dredging
- 3 Yacht Harbor Challenges
- 4 Strategies to Resolve Challenges

Aeolian Yacht Harbor: Site Description

- Located on southern shore of Alameda Island
- On San Leandro Channel between Bay and Oakland Estuary
- Built in 1906
- 87 Berths over 2.1 acres
- Dredge depth: -9 feet MLLW
- Siltation rate: Approx. 0.5 feet/yr
- Maintenance dredging cycle: Approx. 5 years
- Qualifies as small dredger under LTMS



Aeolian Yacht Harbor: Project Description



- Average depth = -5 feet MLLW
- 21,000 Cubic Yards, including overdepth
- Disposal site: In-Bay @ Alcatraz Environs

Regulatory Constraints on Dredging

- Permits
 - CWA Section 404 (USACE)
 - BCDC
 - Water Quality Cert. (Water Board)
 - State Lands Lease
 - Encroachment or Tidelands Permits

- Contaminant thresholds
 - Preponderance of Evidence

- LTMS Mgmt Plan
 - Work Windows



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- Permits
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 - *Cal Fish & Wildlife Take Permit*
 - *Cal Fish & Wildlife LSA*
- Contaminant thresholds
 - Preponderance of Evidence
 - *TMDLs*
 - *Bay Ambient for Upland Sites*
 - *Bioaccumulation Triggers*

- LTMS
 - Work Windows
 - *Beneficial Reuse: 40/40/20*
 - *Essential Fish Habitat Programmatic Consultation*



Regulatory Constraints on Dredging

- Contaminant Threshold Criteria

- 2008: Water Board adopted Hg TMDL under the SF Bay Basin Plan in 2008

- Prohibited in-Bay disposal of sediments with Hg > Bay ambient

- Sites accommodating higher Hg levels: Bay/Delta Islands, SF-DODS, Wetland Foundation

- 2013: Water Board issues Waste Discharge Requirements for Bay/Delta Islands

- Acceptance criteria now also Bay ambient concentrations

- Limits disposal options to SF-DODS and Wetland Foundation

Regulatory Constraints on Dredging

- 2011: Promulgation of EFH Programmatic Consultation
 - Direct Effects: Eel grass present within 45 meters of project
 - Mitigation required
 - Pre & Post-dredge surveys
 - Indirect Effects: Eel grass present within 250 m
 - Turbidity Avoidance
 - Turbidity Minimization



Regulatory Constraints on Dredging

• Indirect Effects Conservation Measures

– Turbidity Avoidance

- Hydraulic dredging
- Sand dredging
- Sediments disperse away from eel grass

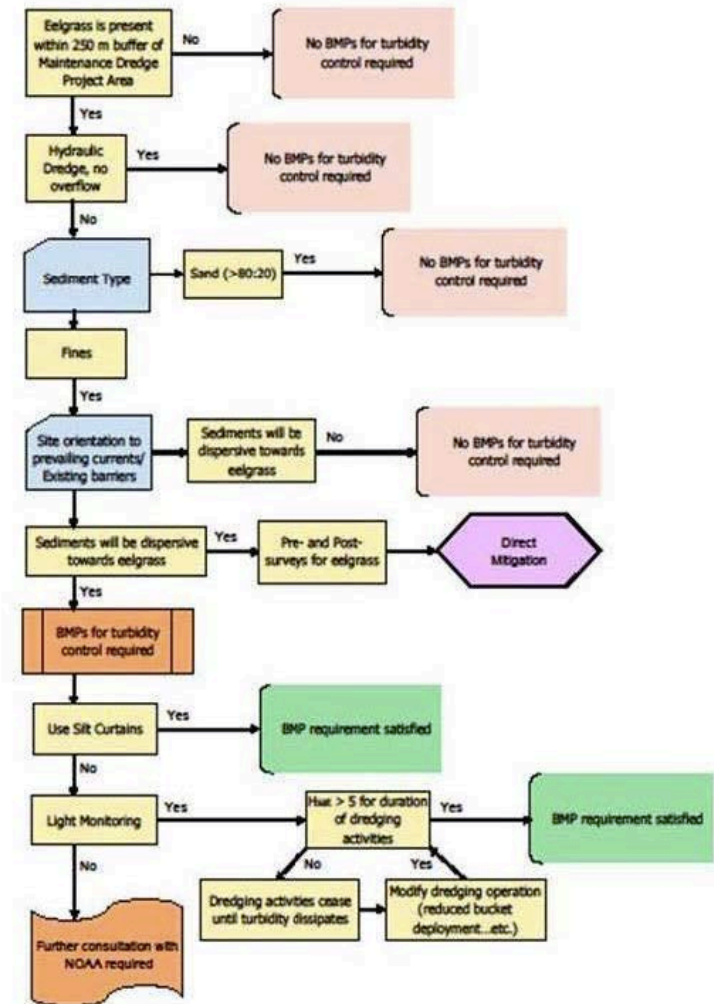
→ Prohibited under CESA
 → Bay predominantly silt/clay
 → Difficult to establish

– Turbidity Minimization

- Silt curtain
- Light monitoring

→ Potential high cost, questionable effectiveness
 → Moderate cost, not a conservation measure

Appendix 2. Eelgrass Indirect Effects Flowchart
 Flowchart depicting step-wise decision making process for avoidance, minimization, and implementation of Best Management Practices (BMPs) for indirect effects of turbidity on eelgrass.

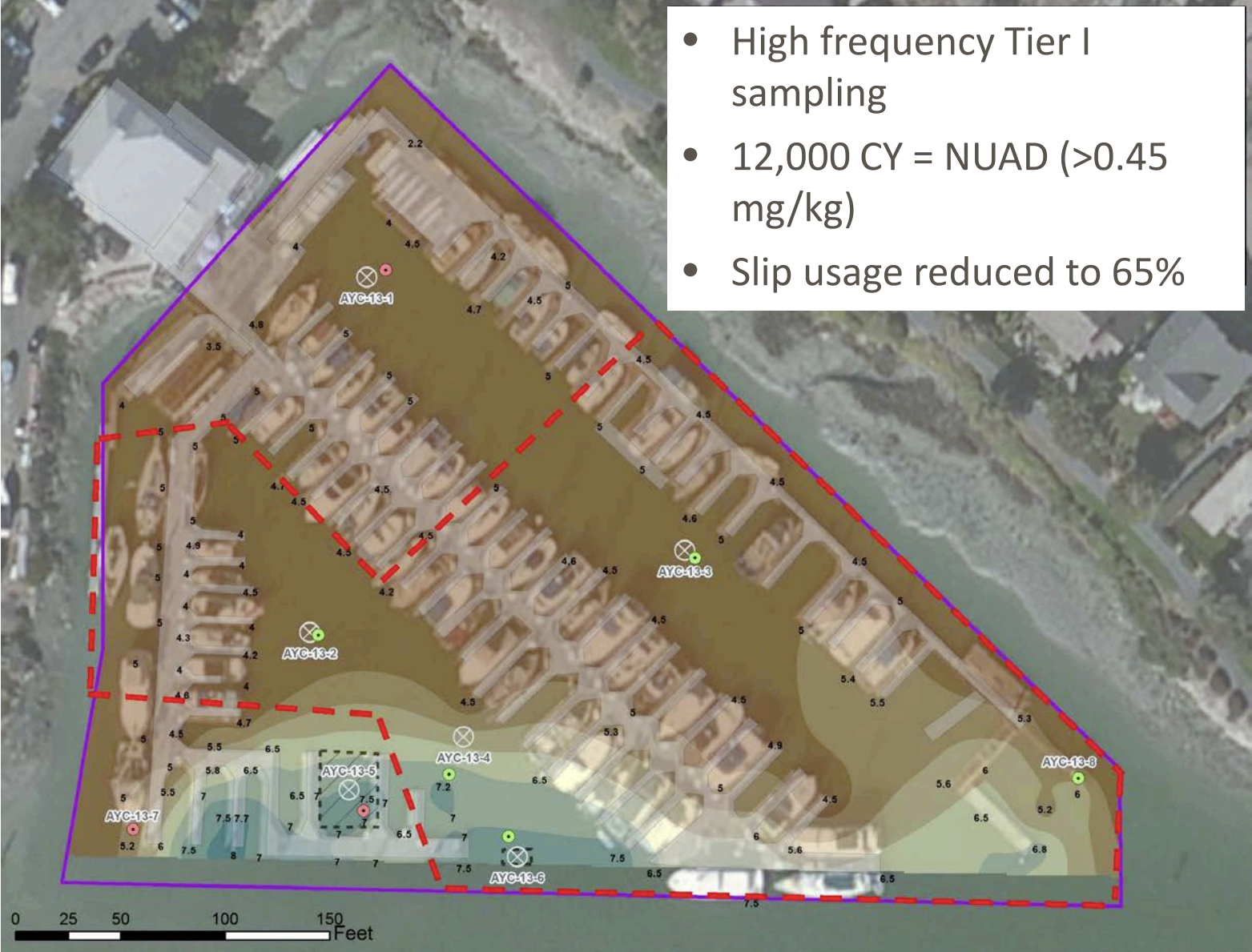


Yacht Harbor Challenges

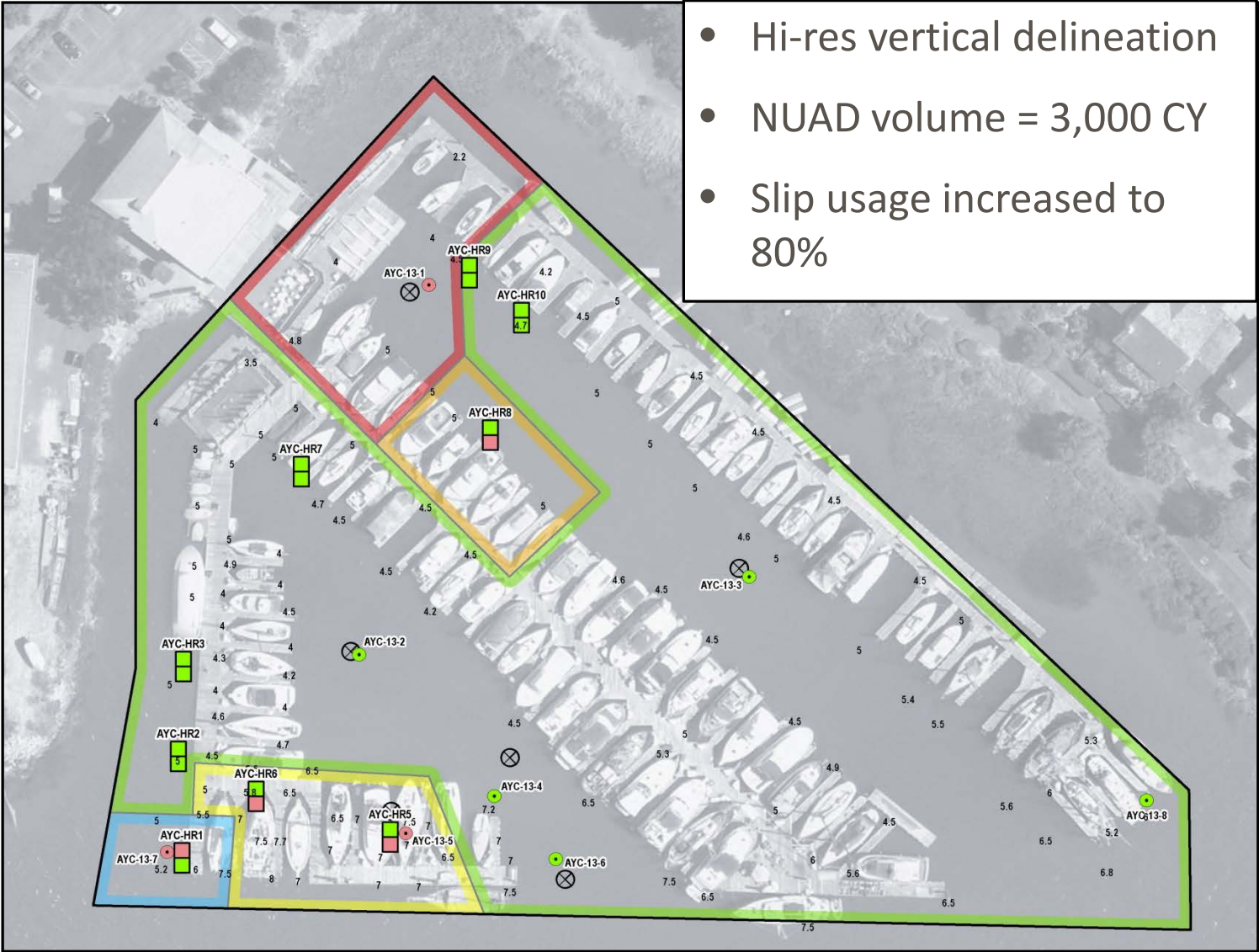
- **#1 Mercury Contamination**
 - Consistently 0.3 to 1.0 mg/kg in
 - Bay ambient = 0.4 to 0.5 mg/kg
 - Typically 20% of material above ambient
 - 2007: Preponderance of evidence approach allows for in-Bay disposal
 - 2010: Hg TMDL prohibits in-Bay. Upland placement at Bay/Delta islands allowed
 - 2015: New WDR prohibits use of Bay/Delta islands



Yacht Harbor Challenges



Yacht Harbor Challenges



Yacht Harbor Challenges

- #2 Eel Grass



Programmatic EFH Conservation Measures

- Programmatic Avoidance Measures conflicted by other regulatory restrictions
- Programmatic Minimization Measures:
 - Silt Curtain: Only available contractor did not own operable silt curtain. Would increase cost by 15%
 - Light Monitoring: Moderately expensive
 - On account of additional cost of disposing Hg contaminated sediments, AYC did not have resources to pay for Minimization Measures
- “If none of the avoidance or minimization measures recommended in the Programmatic Consultation are implementable, then that project must undergo individual consultation with NMFS.”
- Alternative suite of conservation measures proposed.

Alternative EFH Conservation Measures

- Developed suite of measures that could be implemented without significant impacts to dredge operations.
 - Project Duration
 - “Eelgrass plants have adequate carbon reserves to withstand at least 30 days of light limitation” (Zimmerman et al, 1990)
 - As a “small” project, dredging the Yacht Harbor does not require a lot of time
 - Contractual obligation to finish within 30 days
 - Turbidity Monitoring performed by Yacht Harbor staff
 - Increase Dredge Bucket/Excavator Cycle Time
 - Periodic Suspension of Operations
- Army Corps & BCDC expressed support for proposal
- Preliminary support from NMFS, HOWEVER became obvious that significant amount of time would be necessary for staff to review and approve.

Look what I found!



Conclusions

- Despite a general absence of significant adverse ecological impacts, sediments in certain areas of the Bay will continue to be plagued by mildly higher concentrations of Hg.
- Sediment quality strategies are available to minimize the impacts of Hg (and other contaminants) to dredge plans, but additional dredged material management options are needed.
- Growing understanding among regulatory agencies regarding the impracticability of EFH conservation measures for some projects. Resource agencies need to be further engaged.