

EWN FY15 IPR



Linear vs. Circular Berms - San Francisco Bay, Elizabeth Murray

Problem

- 90% of SF Bay tidal marshes now diked
- Restoration requires sediment to raise subsided elevation, but sufficient quantities rarely available
- Increasing accretion is essential
- Relative effectiveness of methods for decreasing fetch & increasing accretion unknown

Objective

- Determine relative effectiveness of linear vs. circular berms for decreasing fetch in restoration areas



Approach

- Monitor two restoration sites being constructed in the north SF Bay: one using linear berms and the other using round mounds
- Model waves on sites to determine decrease in fetch



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Project Funding by Year

- FY13: 165K
- FY14: 135K
- FY15: 150K (Possible deferral of 30-50k)
- FY16: (Potential funding for Sears Point)



Major Project Deliverables

- Interim Product: Project Design Documentation by Q4FY14 for Hamilton, ~~by 2QFY15 for Sears Pt~~
- Interim Product: Hamilton Data Set and validated wave model by Q3FY15
- Multiple model runs testing linear and circular berms within Hamilton model
- Tech Report of Hamilton Modeling

Value Statement

- *This project provides a scientific basis for more cost effective restoration by efficiently harnessing geomorphic processes to minimize fetch and erosion, facilitate sediment accretion in subsided restoration sites, and thereby document a beneficial use of dredge material.*



Draft by Q4FY15

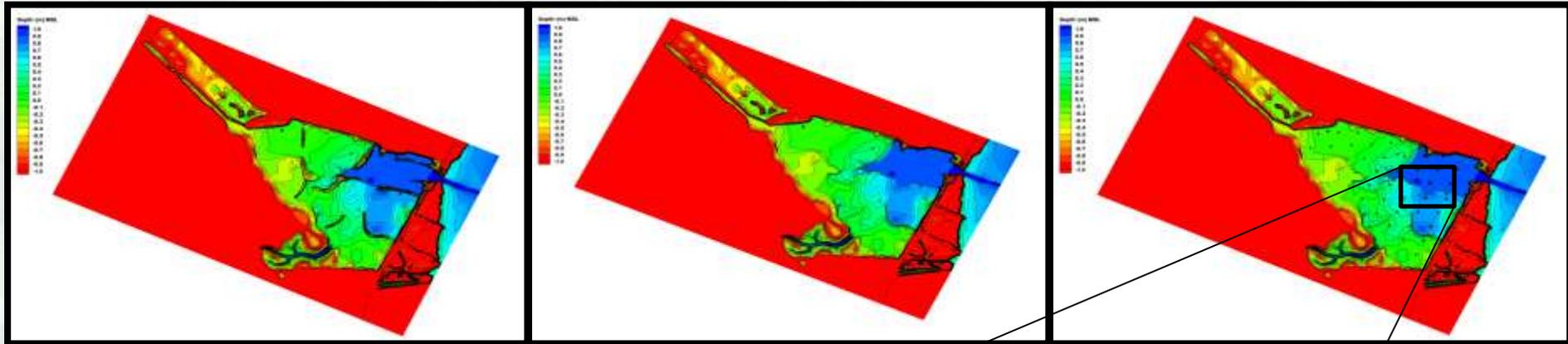


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Bathymetry of Hamilton Model under Different Scenario Runs



Linear Berms (As-Built)

No Berms (Control)

Mounds (ala Sears Pt.)

*Model mounds
based on LiDAR
of Sears Point
Mounds*



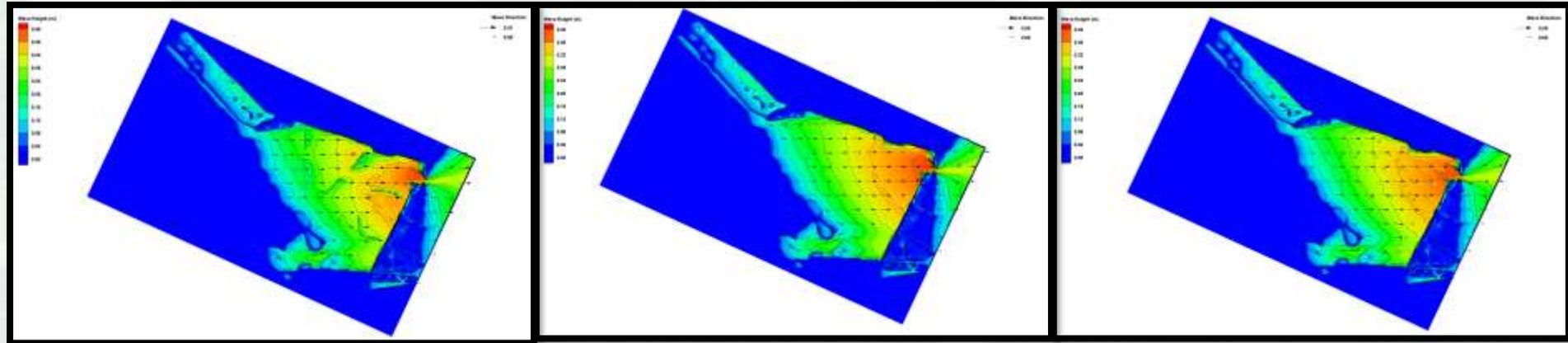
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Wave Height of Hamilton Model under Different Scenario Runs

Wave heights for 20 m/s wind from W, 0.5 m (MSL) tide, no vegetation



Linear Berms (As-Built)

No Berms (Control)

Mounds (ala Sears Pt.)

Other scenarios: different wind directions, wave at entrance, vegetation based on parameters for Pickleweed and *Spartina foliosa*, determined for wave attenuation research at Corte Madera, a nearby salt marsh in San Francisco Bay.



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■ FY15 Products

- Solutions to Coastal Disasters Conference Presentation
- EL Conference Presentation
- Comparative Efficacy Of Linear Berms Versus Mounds In Decreasing Fetch At Salt Marsh Restoration Sites In Formerly Diked Baylands In San Francisco Bay: Wave Modeling Results At Hamilton Wetlands (in prep)
- Revised Work plan proposing to extend work another year so Sears Point may also be studied. Construction completed end of September 2015, breach October 2015.

