



Wheeler North Reef

Project Overview

Southern California Edison Company

7/30/2008

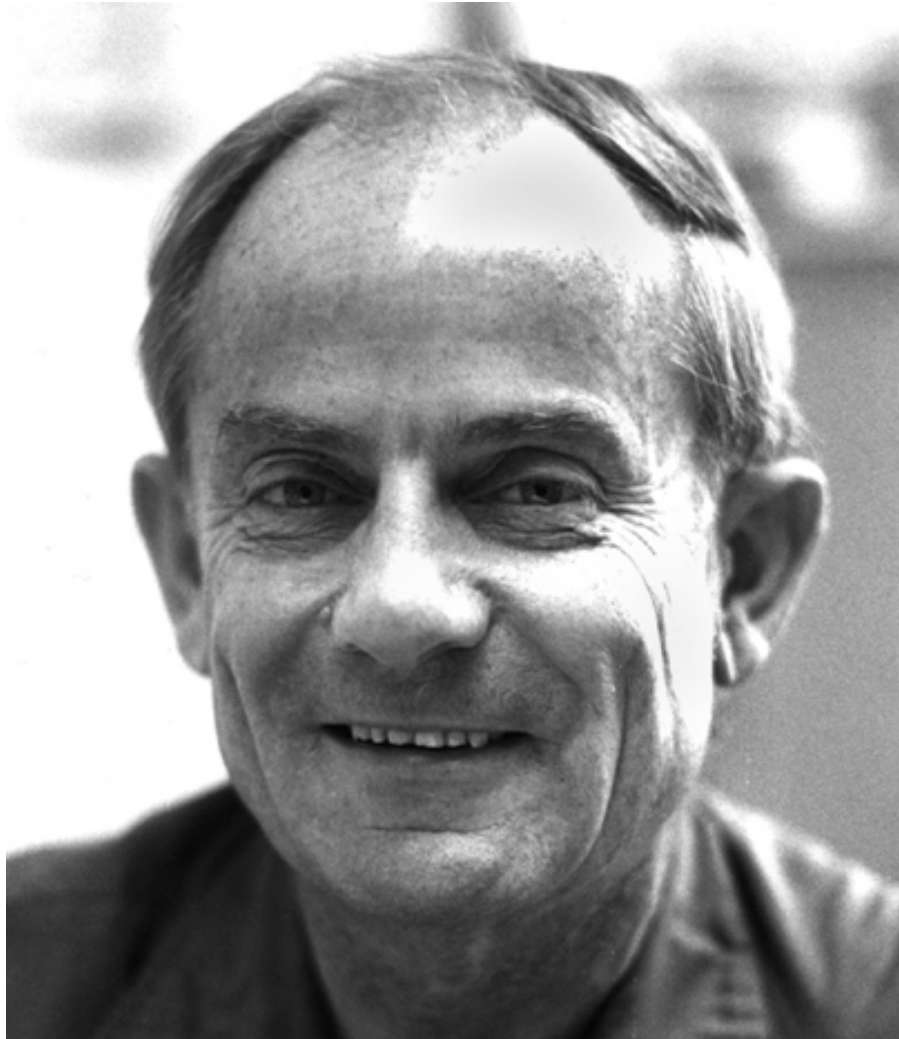
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Background

- One of two major projects designed to offset impacts from San Onofre Nuclear Generating Station (SONGS)
 - Conditions of 1974 Coastal Development Permit
 - Construct and maintain 150 acres of giant kelp habitat
 - San Dieguito wetlands, Hubbs hatchery, in-plant procedures
- 22-acre experimental reef built in 1999
 - Siting and design from 1991-97; Studied for 5 years
 - Meets all permit performance standards
- 128-acre build-out underway, summer 2008
 - Rock quarried and barged from Catalina Island
 - Placed on seafloor off San Clemente State Beach
 - 4-month construction period; finish before lobster season

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Slide 2



“You can’t go by there on Highway 5 without seeing them. I did the background study before any work commenced in 1963. It’s a rotten place to dive. [Laughter] That’s the best way to describe it.”

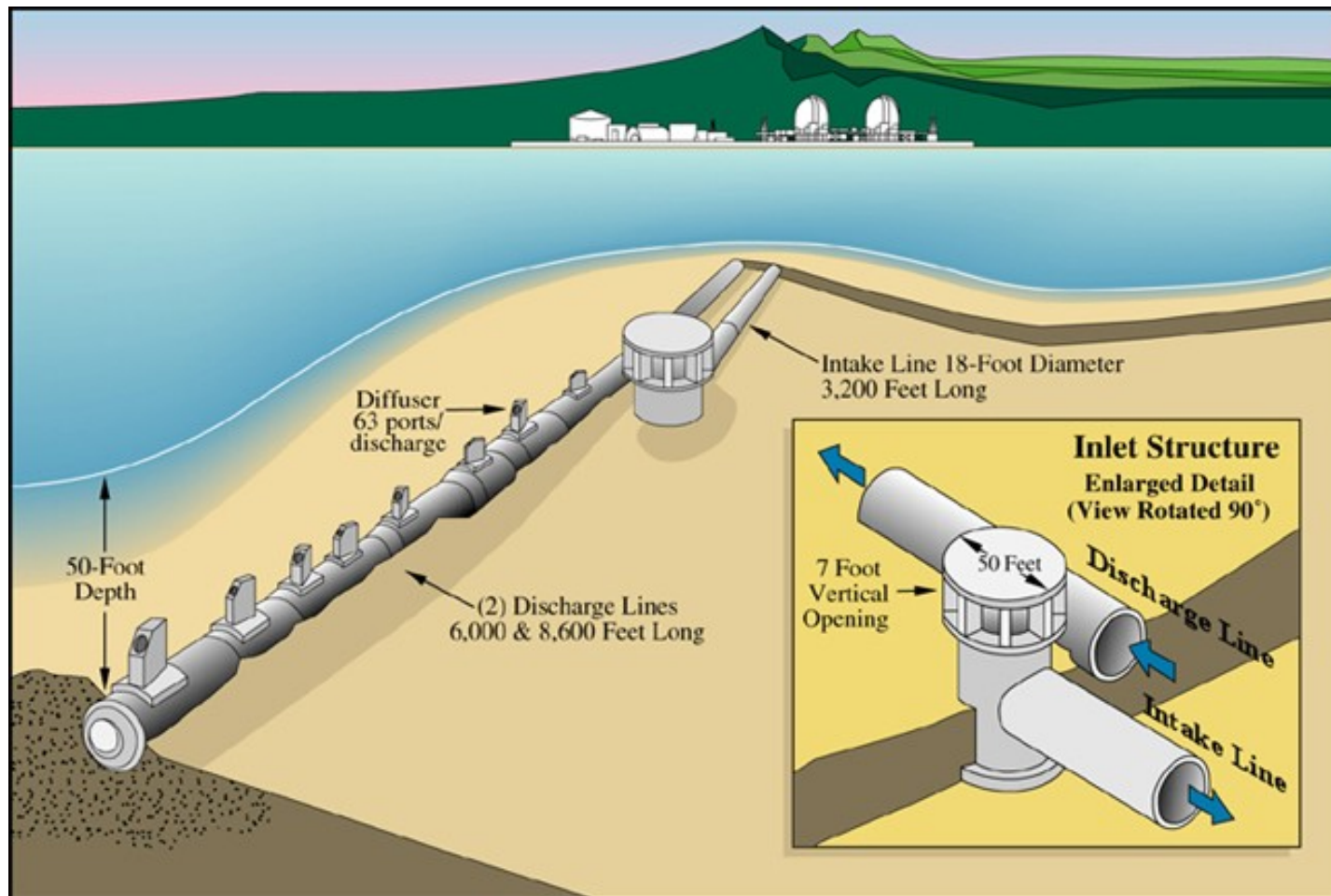
-Wheeler J. North, 1998, commenting on the oceanographic conditions in the waters off San Onofre

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Wheeler J. North 1922-2002

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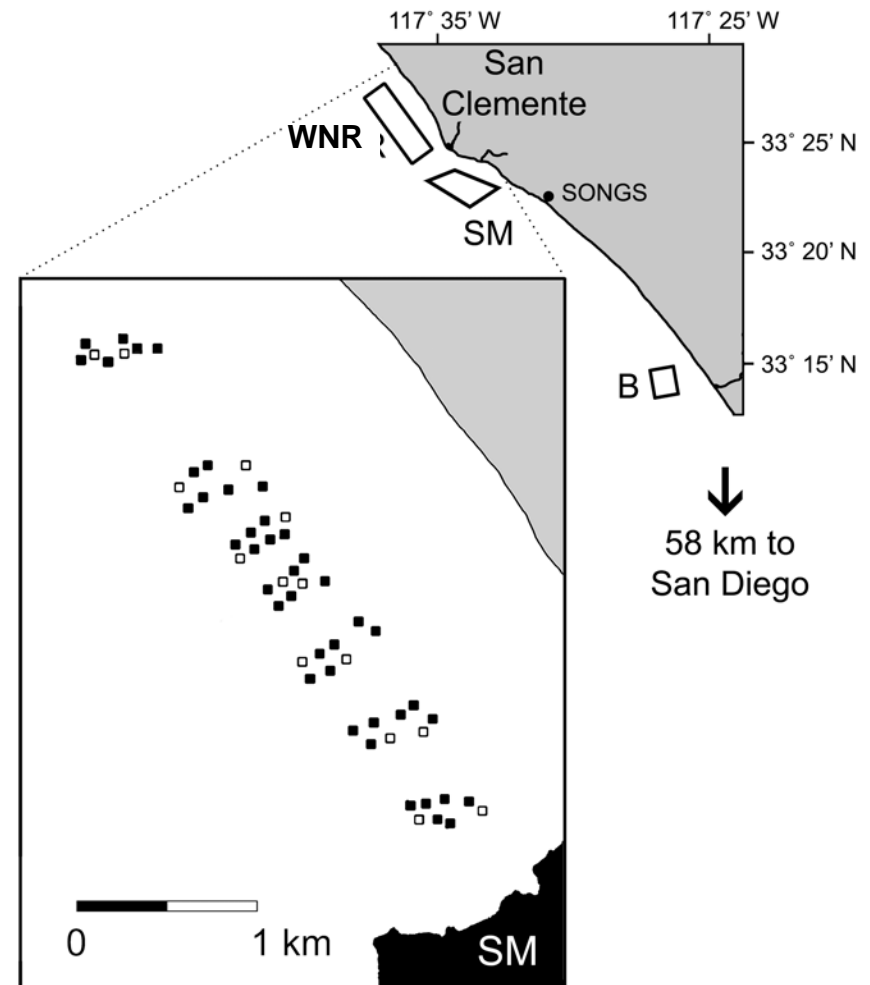
SONGS Seawater Cooling System



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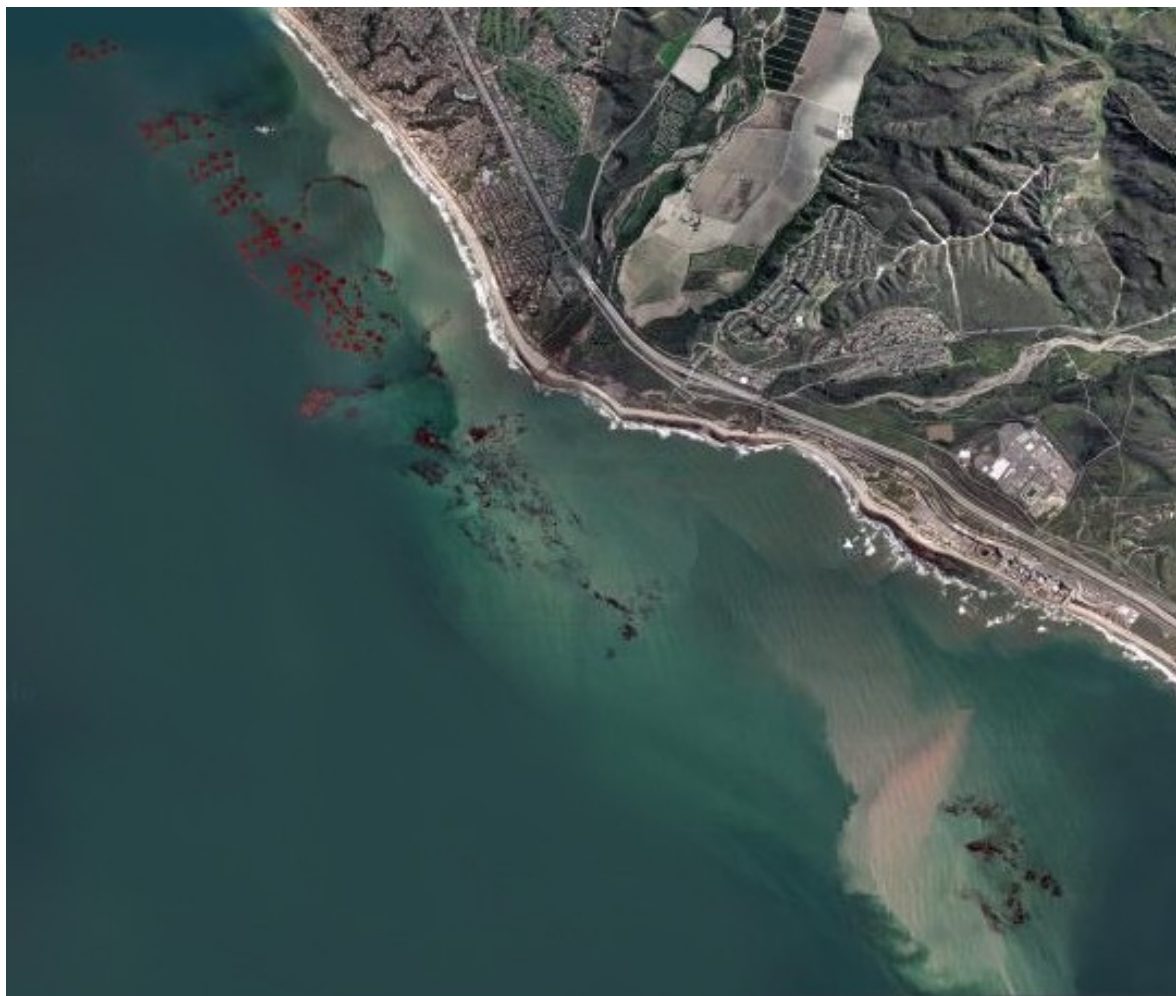
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Wheeler North Reef – Location and Experimental Phase 1



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Satellite View – WNR and SONGS Discharge Plume



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Phase 1 Reef Canopy from Satellite



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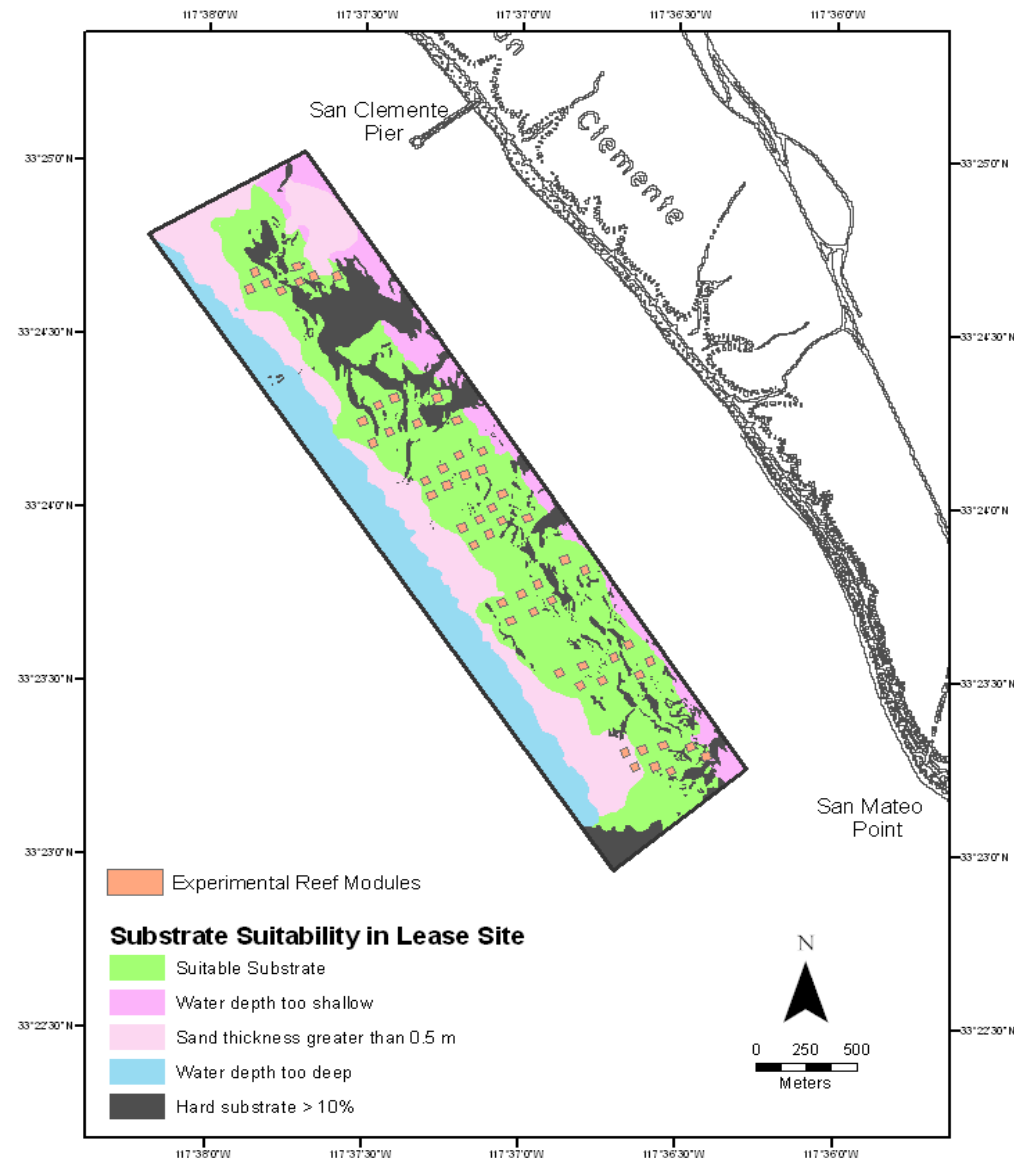
Phase 1 Reef Canopy



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Phase 1 Siting Plan



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Phase 1 and 2 Construction – Derrick barge and supply barge



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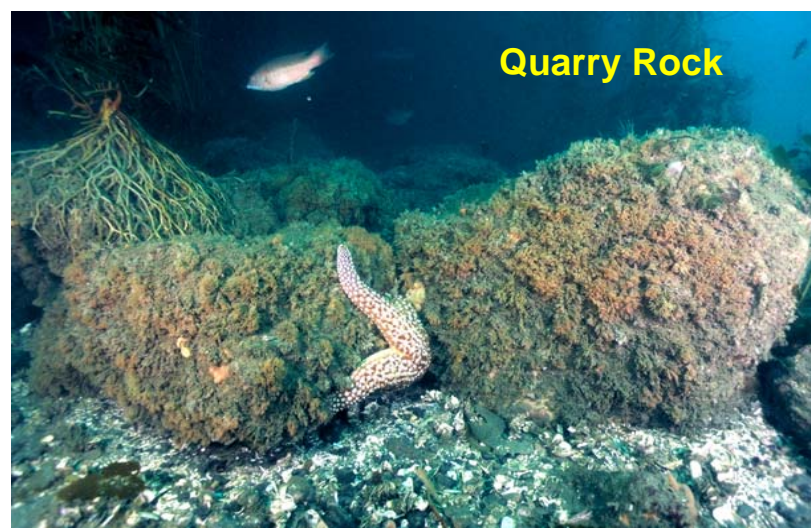
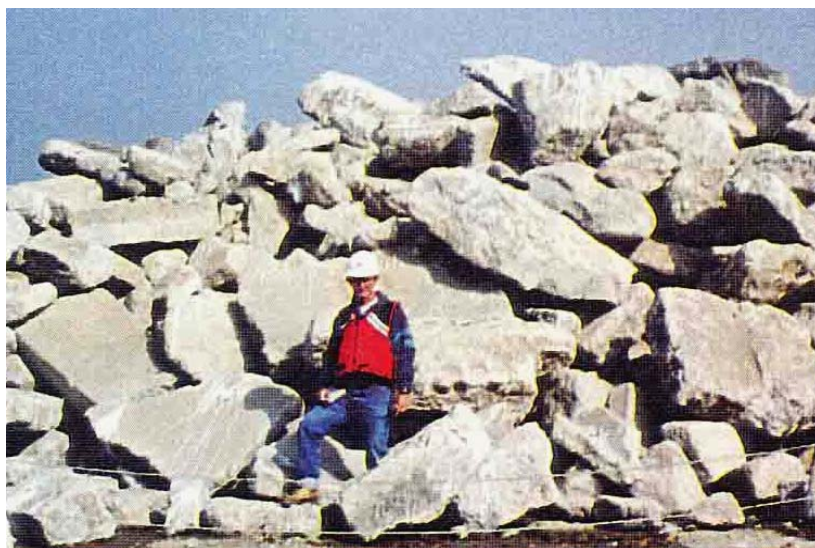
Phase 1 and 2 Construction – Derrick barge and construction



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Monolayer Design - Concrete vs Rock Substrate

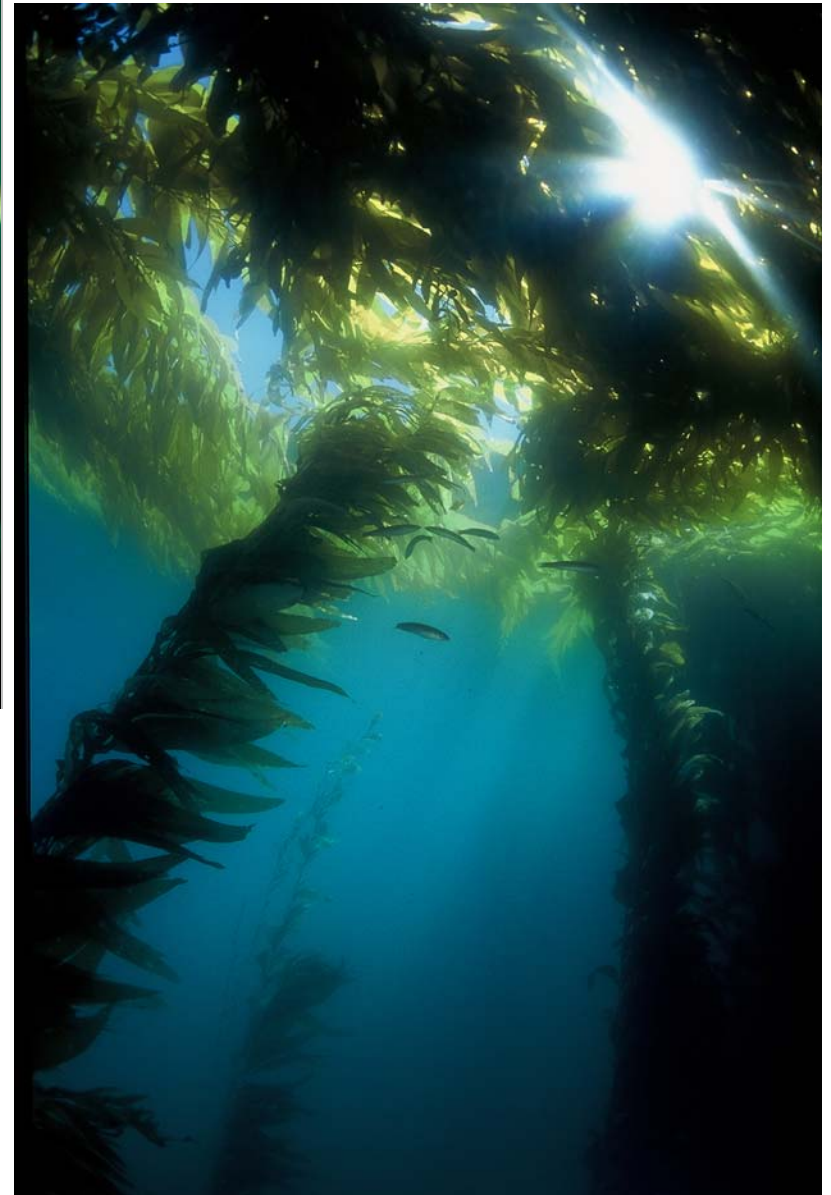


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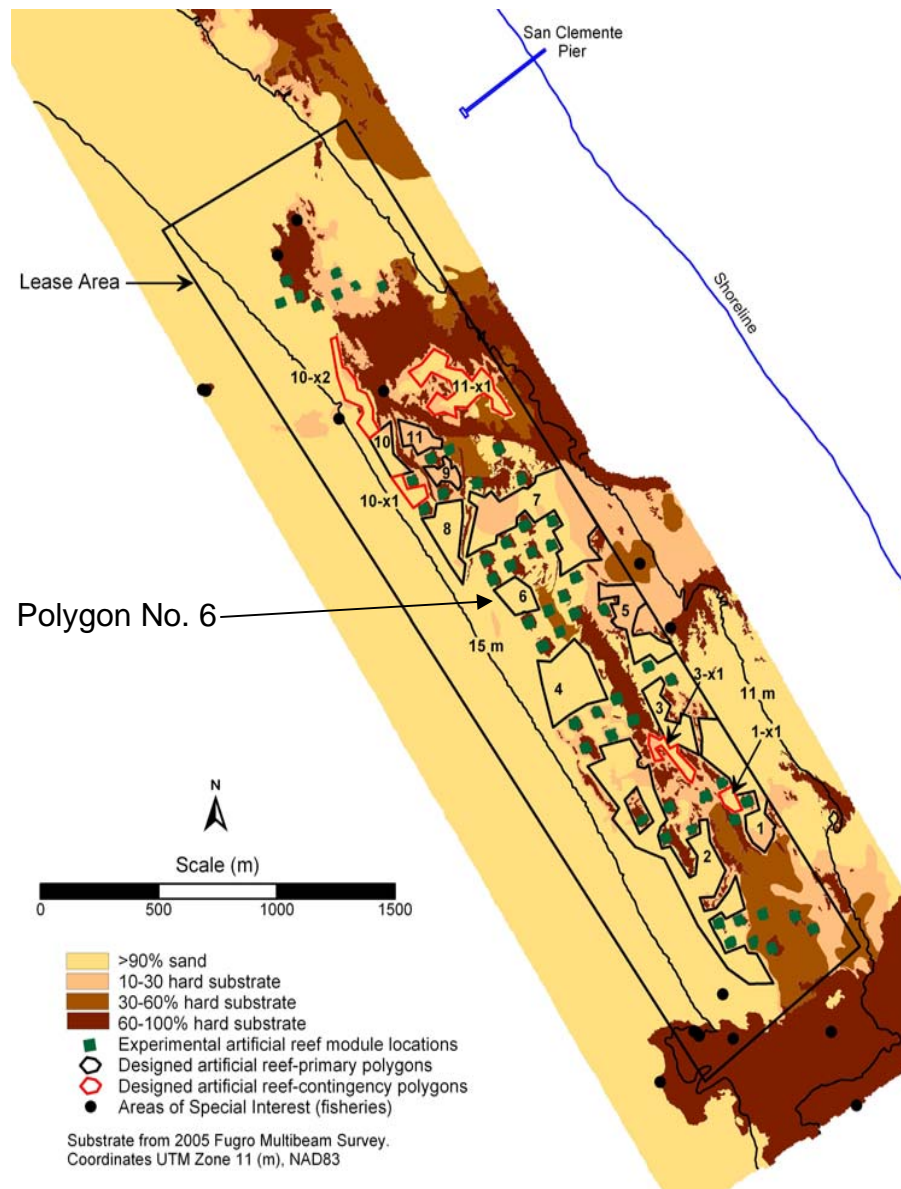
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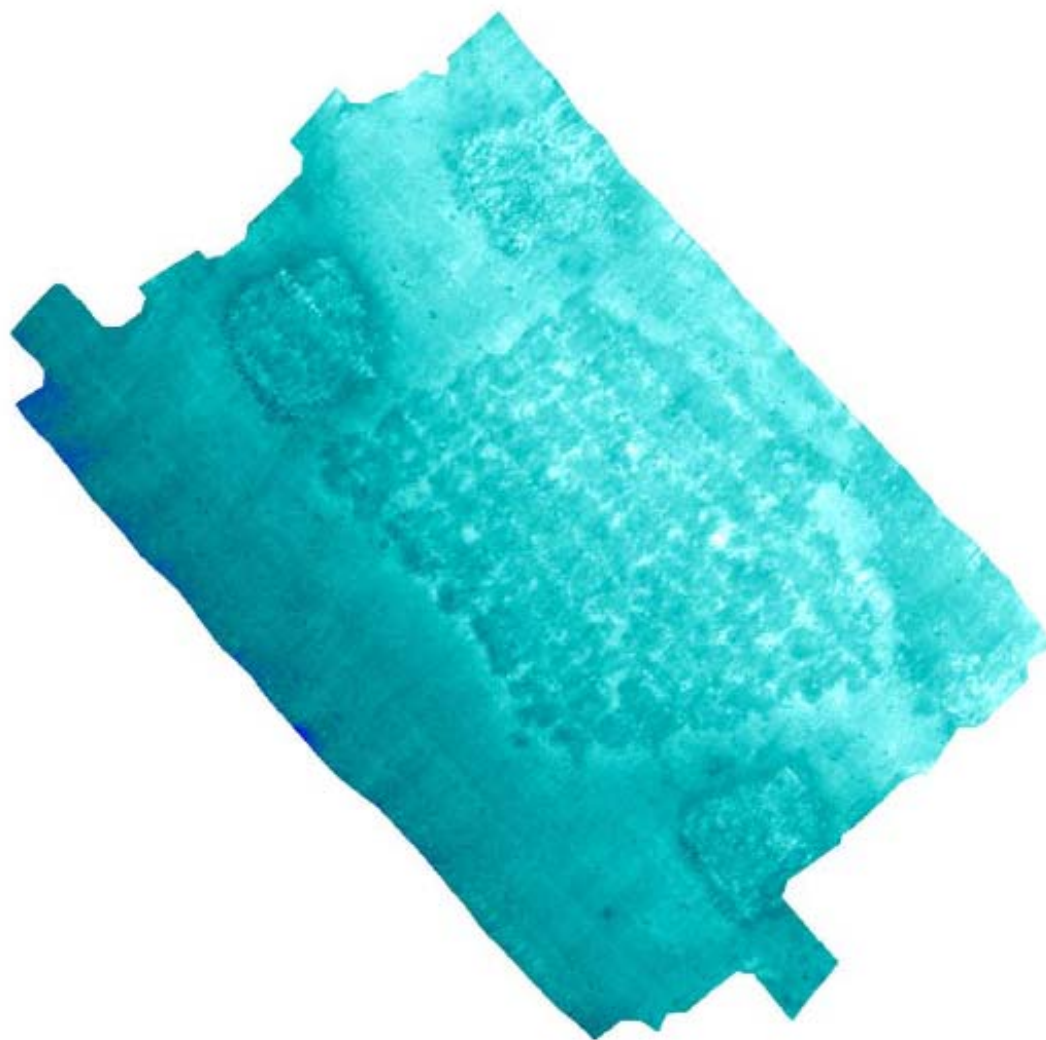
Phase 2 Reef Plan

- 127.6 additional acres
- Avoid existing kelp persistence
- Avoid Phase 1 modules
- Avoid existing hard bottom



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Figure 2. As-built Polygon 6 in proximity to four experimental reef modules from multi-beam survey.

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Phase 1 Reef – Diver Video 2002



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