



Science-based Resilience for Coastal Parks

DOUG GEORGE, PHD

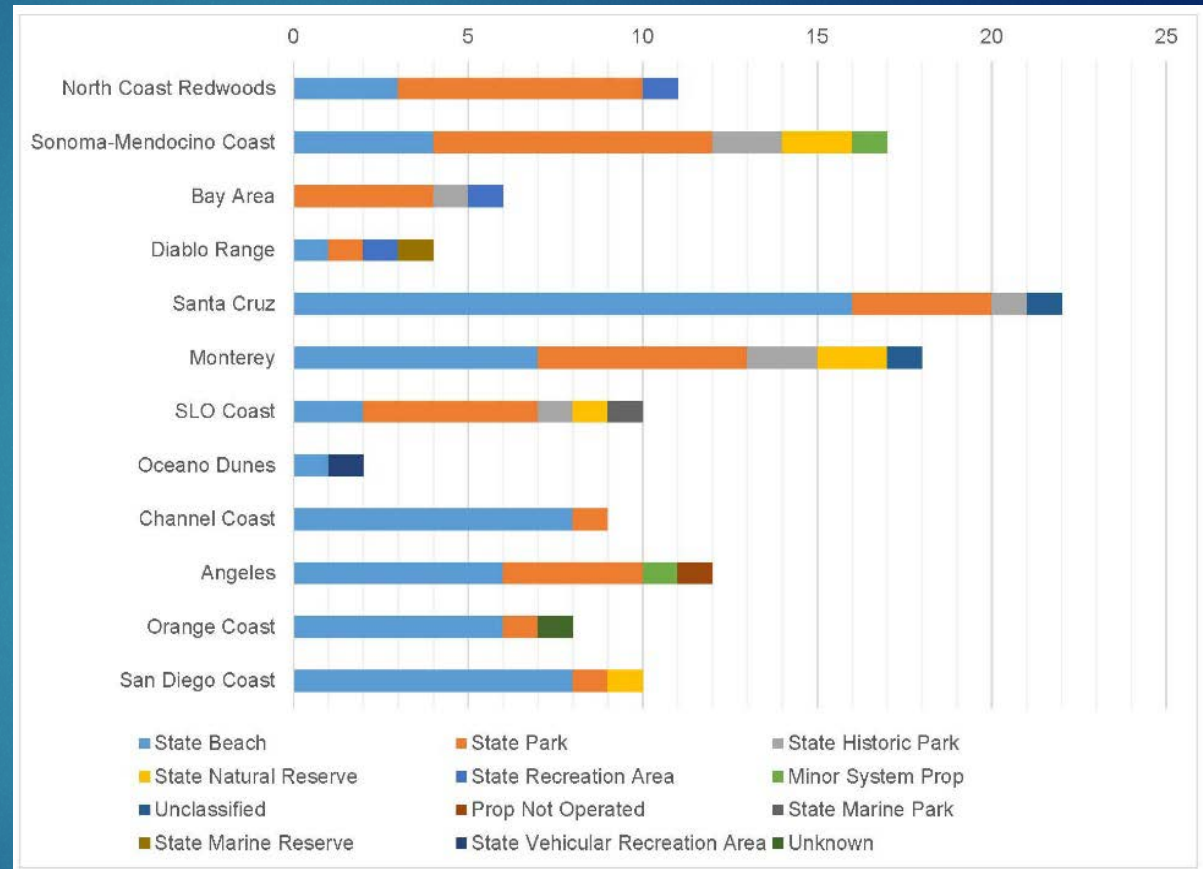
COASTAL PROGRAMS MANAGER, NATURAL RESOURCES DIVISION,
CA STATE PARKS

DOUGLAS.GEORGE@PARKS.CA.GOV



Parks' Coastal Presence

- ▶ Parks the largest landowner of the coast: 25%
- ▶ 129 units within 12 coastal districts
- ▶ 50 million tourist visitors/year
- ▶ Climate change impacts to Parks units: sea level rise, increased erosion, flooding, loss of access, changing habitats and species



62 Beaches (48%) 42 Parks (33%)
 Remainder a mix of natural reserves,
 recreation areas, and historical monuments

North-Central Coast Parks

MacKerricher SP (king tide)



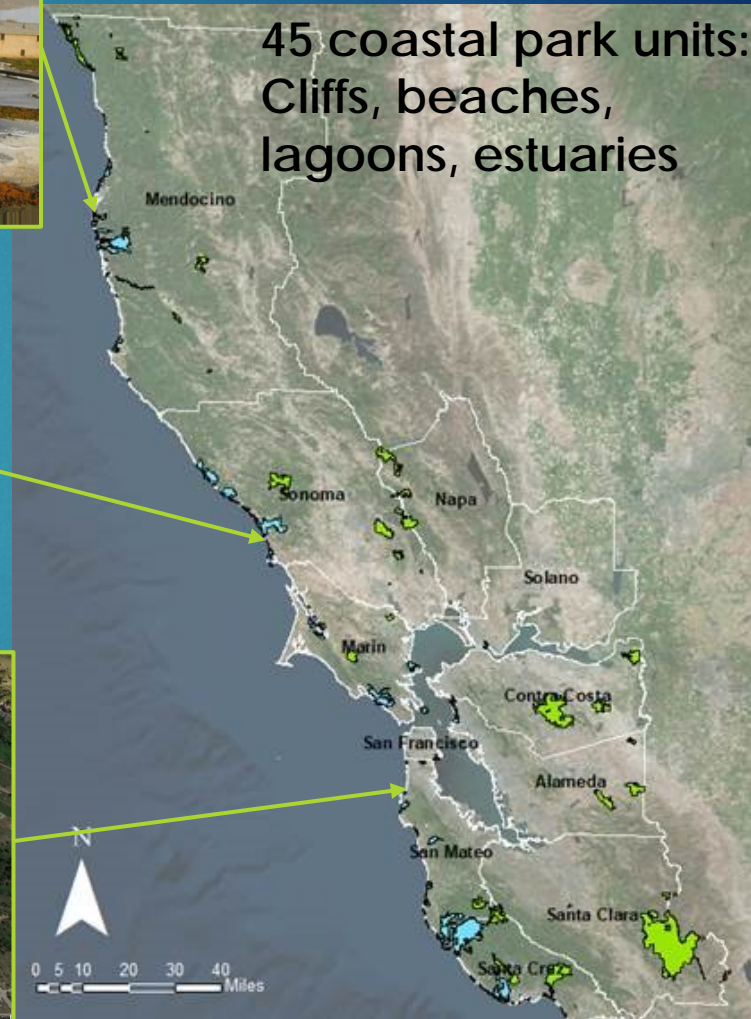
Salmon Creek
(Sonoma Coast)



Pacifica SB



45 coastal park units:
Cliffs, beaches,
lagoons, estuaries



Year 0 of the Coastal Programs – Focus Areas

Oceanography Program

Project Consulting and Permitting

SLR Adaptation

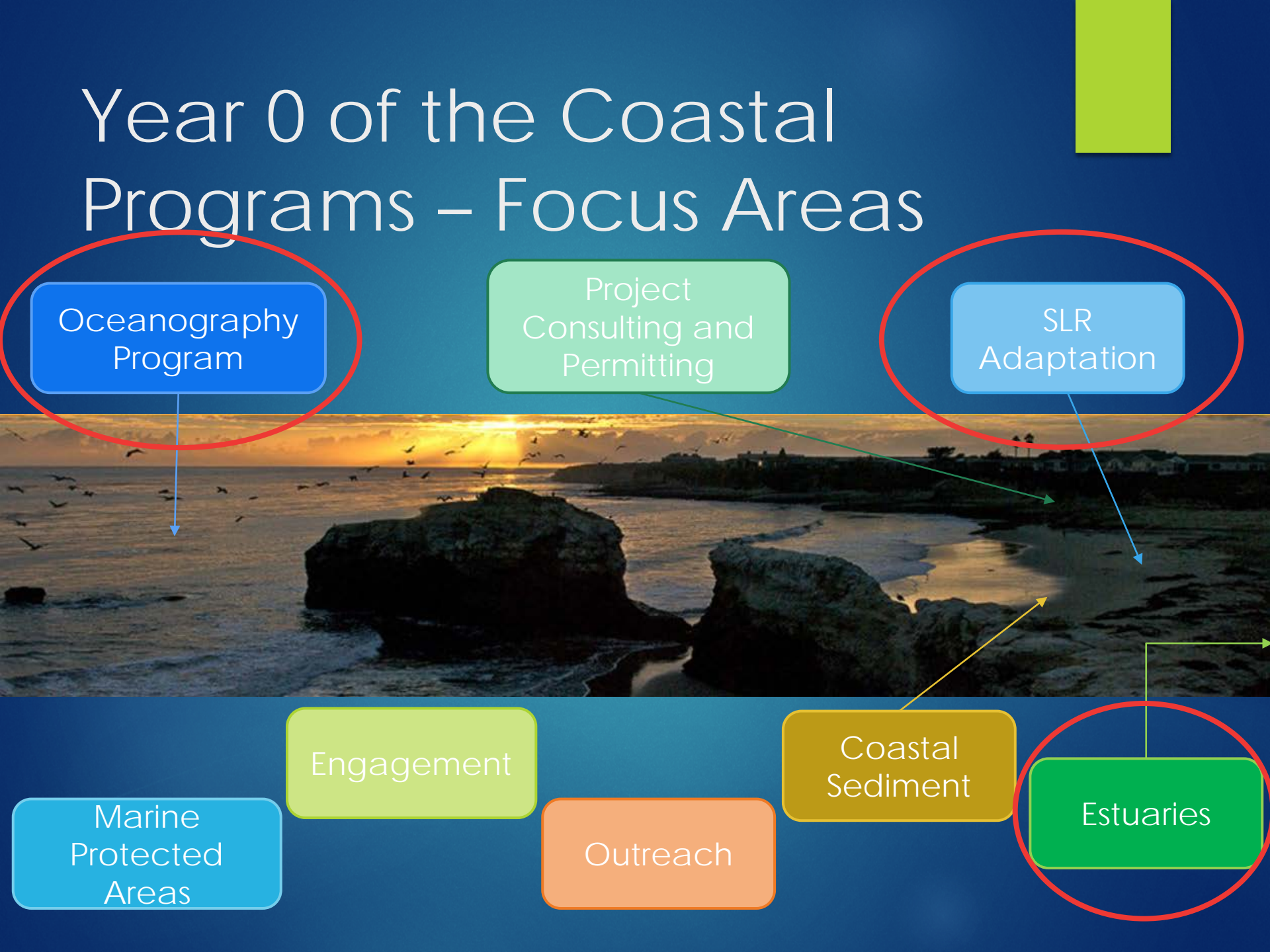
Engagement

Marine Protected Areas

Outreach

Coastal Sediment

Estuaries



Estuaries Initiative

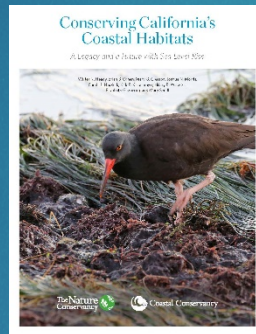
Motivation: 50% of California's estuaries within Parks jurisdiction

Goal: Ensure resilient, low-management estuarine and lagoon habitats



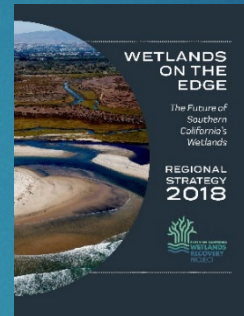
2014-2017 Parks-EPA Study

- 60 Parks estuaries assessed
- Bar-built estuaries and wetland resources list
- 30 priority estuaries CRAMed



2018 SCC-TNC Study Estuarine Types (8)

Alkaline Marsh
Artificial Salt Pond
Estuarine Forested/Shrub Wetland
Invertebrate Reef
Irregularly-flooded Estuarine Marsh
Regularly-flooded Estuarine Marsh
Tidal Channel
Tidal Flat and Salt Panne



2018 So Cal Wetlands Recovery Project

- Four goals

State Experts

John Largier (UCD)
Sarah Giddings (UCSD)

Science:

- Data synthesis
- Prioritization of sites and issues

Communication:

- Workshops
- District engagement

Management:

- Visioning
- Develop plan for estuary restoration efforts
- Implement

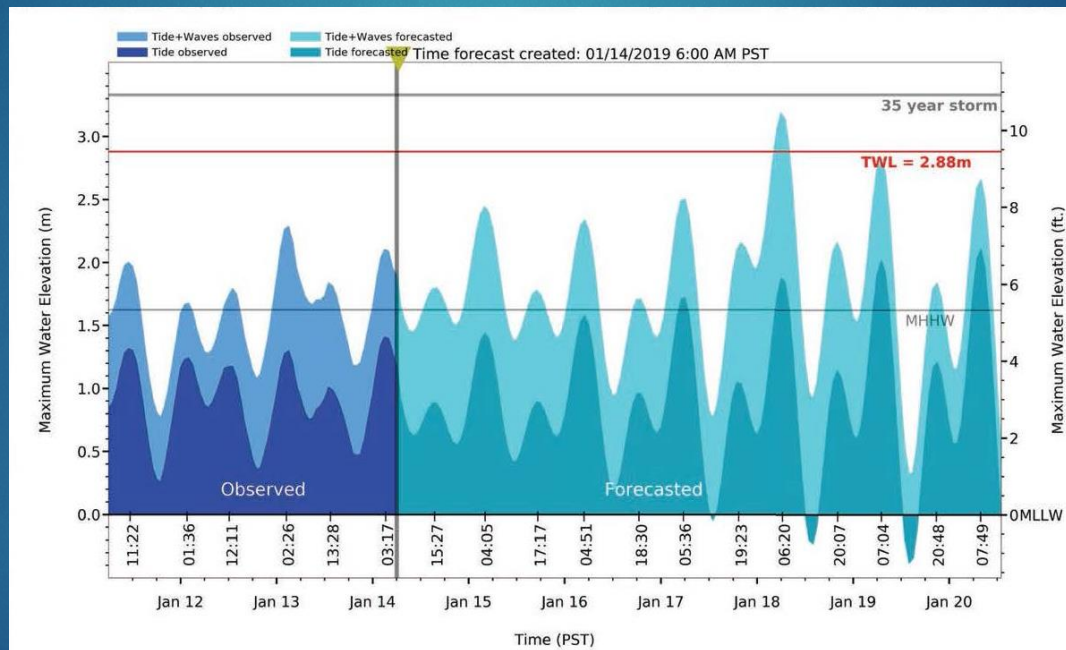
Oceanography Program: Overview

- ▶ Access, Safety, Education
 - ▶ CDIP, Shore Stations, Invasive Species, Non-toxic Paints Outreach
- ▶ Beach Erosion Control and Restoration
 - ▶ Cliff Erosion Analysis, Beach Nourishment Impacts, So Cal Coastal Erosion Study
- ▶ Boating Facilities Development
 - ▶ Copper Toxicity, Petroleum Hydrocarbons, PCBs, Trait-Based Assessments, Flood Modeling, Facilities Flooding, CA SLR and Waves, Tsunamis
- ▶ Management of Parks Resources
 - ▶ Estuary Inlet Dynamics



Oceanography Program: Coastal Flood Forecasts

- Combining tides and wave models for total water level prediction → useful preparation tool for Parks facilities



- Currently 40 locations in SoCal (some Parks units)
- Plan to expand to ~75 Parks units statewide

<http://www.sccoos.org/data/flooding-storm-surge-models/#a>

Wright's Beach, Sonoma Coast State Park

- ▶ Most popular campground in Sonoma-Mendocino
- ▶ Stressors: creek flow, dynamic beach, low profile



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SLR Adaptation

Dept Operations Manual Policy: Natural coastal processes should be allowed to continue without interference

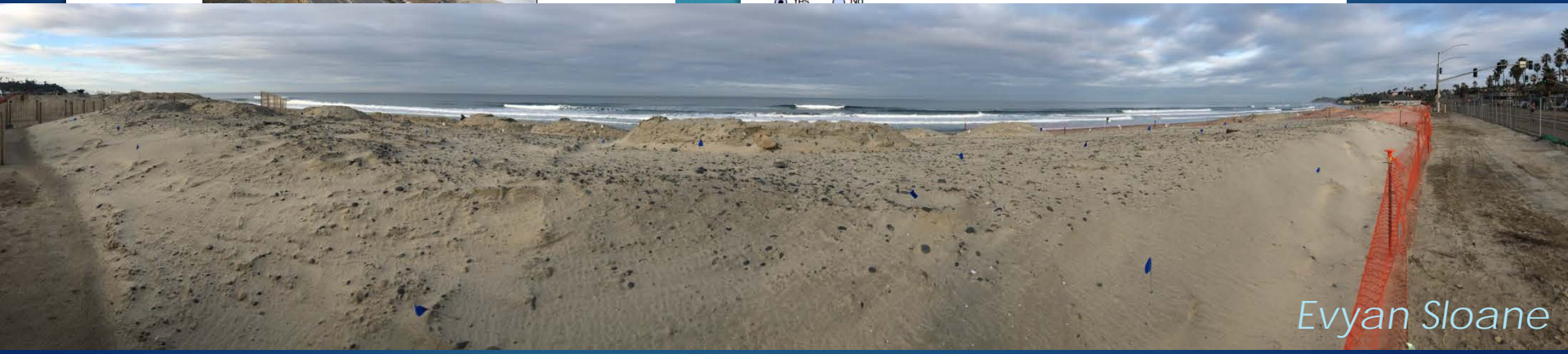
► Cardiff State Beach Living Shoreline

CALIFORNIA

Sea-



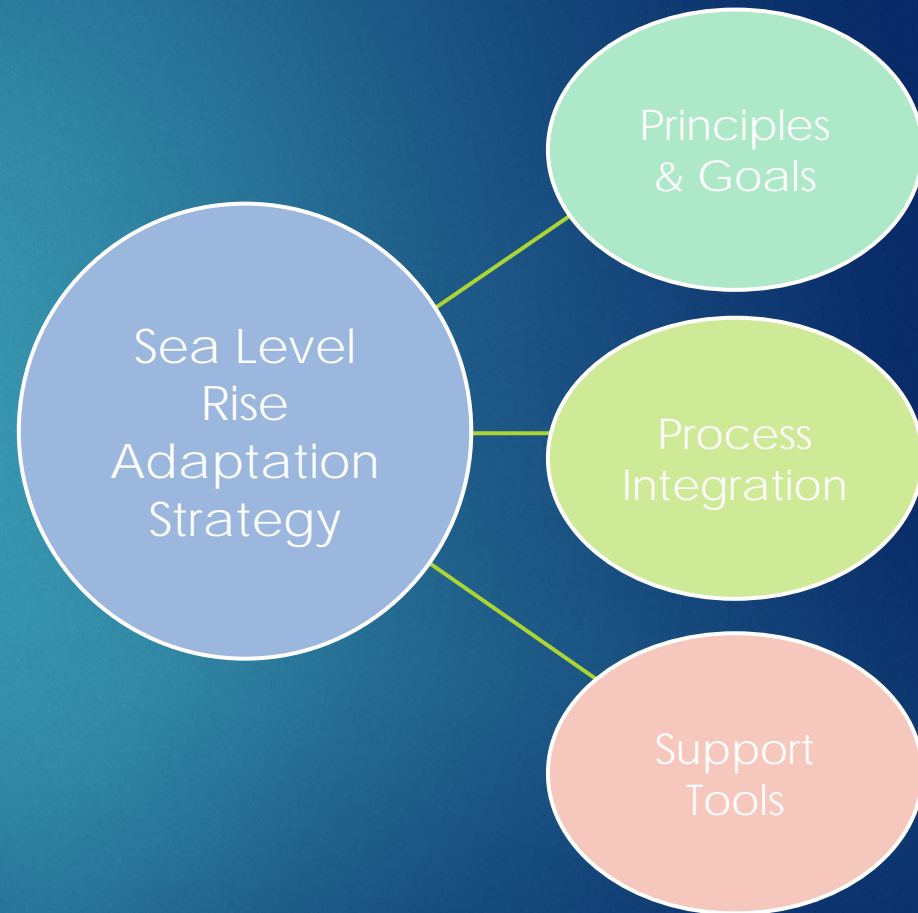
Doug George



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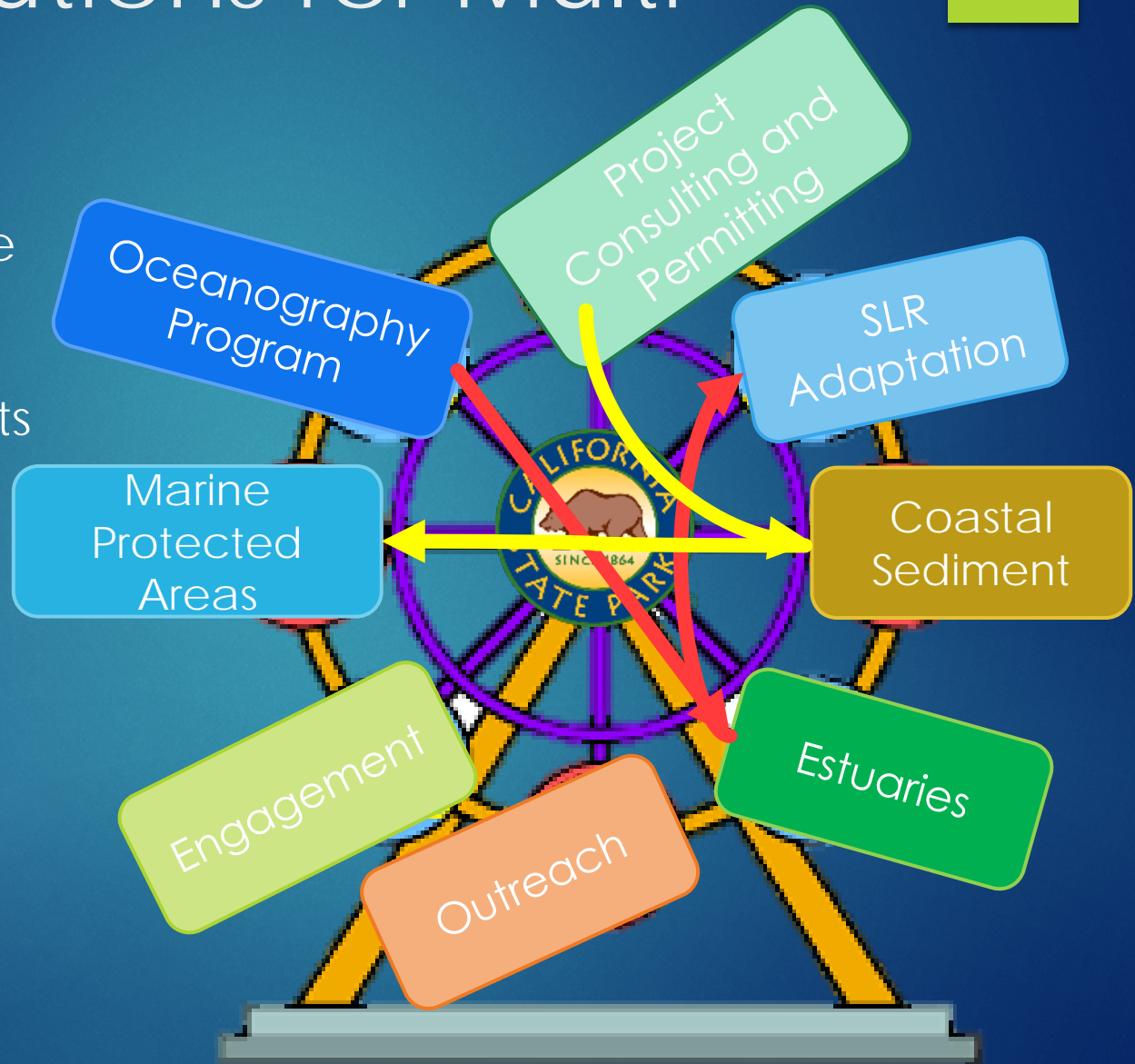
CSP Sea Level Rise Working Group

- ▶ Purpose: Develop a Sea Level Rise Adaptation Strategy for State Parks
- ▶ Goals of Strategy:
 - ▶ Provide staff with principles, goals, and tools to integrate sea level rise into existing processes
 - ▶ Build department-wide resilience to sea level rise and extreme events
 - ▶ Support continued access while protecting recreational opportunities and resources



Multi-Solutions for Multi-Stressors

- Parks can be a pilot partner to test concepts on public property



Parks' Inspiration

The mission of California State Parks is to provide for the health, inspiration and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation.



Douglas.George@parks.ca.gov