

Science and Solutions

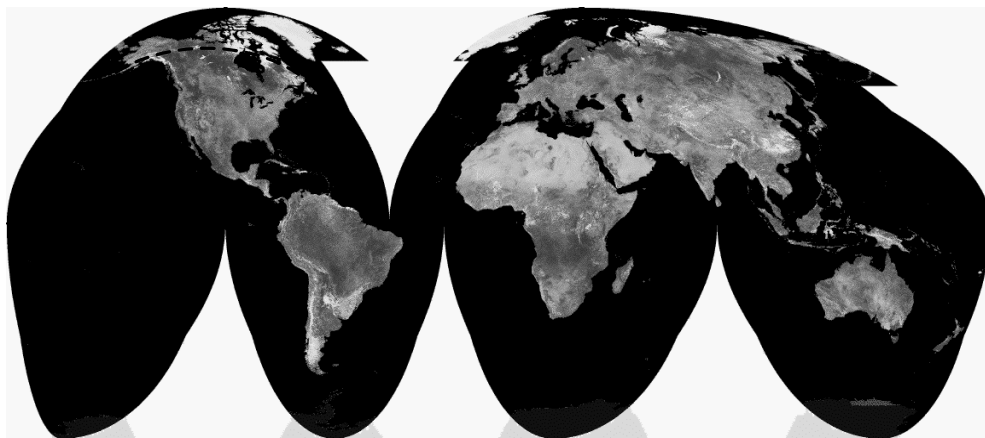
Science and Policy Aspects of the Mission Bay Water Quality Management Plan



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Aerial photo courtesy of
SANDAG / SanGIS

The Big Picture



- Population growth
- Resource distribution
- Assimilative capacity

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Satellite image courtesy of NASA

Assimilative Capacity in the San Diego Region

- California's "first city"
 - More time to explore the boundaries of assimilative capacity
- Tourism
 - Water sports
 - Recreational boating
- US Navy
- Urban density
- Porous Border
- Shared waters with Mexico

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Water Quality Standards

- Beneficial Uses
 - "Fishable, Swimmable"
 - Also wildlife habitat, shellfish harvesting, fish spawning....
- Water Quality Objectives
 - Numeric (e.g., total coliforms)
 - Narrative ("No toxics in toxic amounts")
- Prohibition against degradation

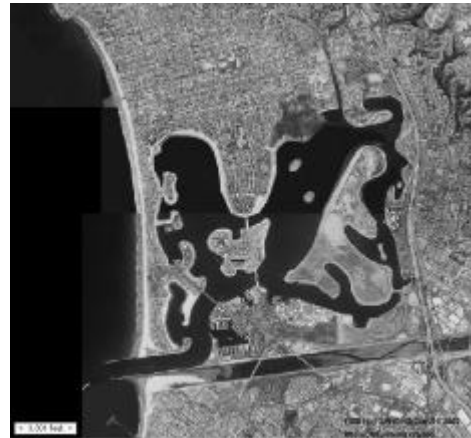
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Mission Bay

Water Quality Management Plan Goals

- Identify bacterial sources
- Assess role of circulation
- Determine health risks
- Develop baseline data
- Propose solutions

Restore and protect the beneficial use of water contact recreation, and all other beneficial uses



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The role of the Mission Bay Water Quality TAC

City of San Diego Clean Water Task Force

Actions through public policy and implementation



**Mission Bay Clean Water
Technical Advisory Committee**

Information through discussion and peer review

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Goals

- The City
 - Committed to a 50% reduction in beach closures
 - Developed a plan to attain that target
- The Regional Water Quality Control Board
 - Has a mandate to attain water quality standards
 - Needs information to develop TMDLs
 - Expects attainment of all beneficial uses
- The State Water Resources Control Board
 - Requires accountability for use of public funds
 - Governors commitment to Clean Beaches

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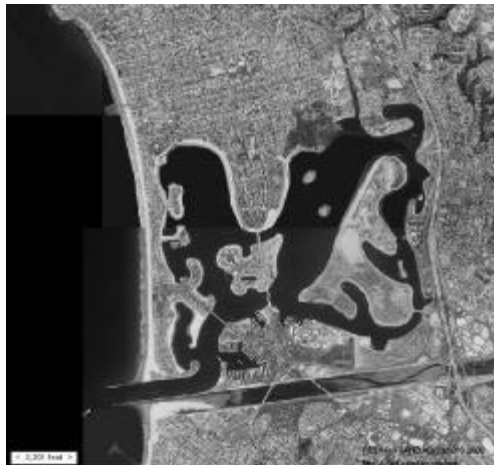
The Approach

- Share information
- Coordinate scientific peer review
- Assess uncertainties
- Make adaptive management recommendations
- Inform the public
- Listen to the public

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Seven Projects in the MBWQMP

- Problem Definition (2)
- Numeric Targets (1)
- Source Assessment (1)
- Linkage Analysis (1)
- Implementation (2)



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Water Quality Survey

Problem Definition

- Goals
 - Move the source assessment up the watersheds
 - Give County Health Department information it needs
- Approach
 - Bacteriological analysis
 - Weekly sampling over three years
 - Wet and dry weather
 - Rapid Reporting to SD County Health Department
- Lead
 - City of San Diego MWW (Ric Amador)
 - (and thanks to Patty Vainik for coordination support)
- Funding:
 - \$362,500 (MWW Supplemental Environmental Project)

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Water and Sediment Testing

Problem Definition

- Goal
 - Develop baseline data for water and sediment quality, toxicity, benthic and pelagic communities, and relationship to beneficial uses
- Approach
 - Physical measurements (temperature, salinity, phytoplankton)
 - Sediment sampling (chemistry, toxicity, benthic communities)
 - Storm event sampling (water, sediment, plankton and benthos)
- Lead
 - University of San Diego (Ron Kauffman)
- Funding
 - \$200,000 (Clean Beaches Initiative Grant)

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Epidemiological Study

Problem definition, numeric targets, source assessment, linkage analysis

- Goals
 - Relate illness incidences to indicator bacteria
 - Identify sources of bacteria
- Approach
 - Analytical
 - Look at DNA to distinguish human from non-human sources, look for human viral elements
 - Epidemiological
 - Relate analytical data to interview data on illnesses
- Lead
 - SCCWRP (Ken Schiff)
- Funding:
 - 975,000 (SWRCB grant), \$700,000 (MWWD SEP)

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Bacteria Source Identification

Source assessment, implementation

- Goal
 - Identify and abate sources of bacteria
- Approach
 - Infrastructure: dye and tracers
 - Boat moorings: bacterial sampling
 - “Operational” and “ubiquitous” : visual observation
 - Implement solutions as sources are identified
- Lead
 - MEC Analytical Systems, Inc. (Lisa Kay)
- Funding
 - Phase I: \$650,000; Phase II: \$650,000 (CBI Grant)

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Contaminant Dispersion Study

Linkage analysis

- Goal
 - Identify key factors affecting the flushing rate of segments of Mission Bay
- Approach
 - Field observations (dye, drifters, salinity-temp)
 - Computer modeling
- Lead
 - Scripps Institute of Oceanography (John Largier)
- Funding
 - \$400,000 (MWWWD SEP)

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Rose and Tecolote Creek Water Quality Improvement

Implementation

- Goal
 - Identify and implement structural BMPs to improve water quality (i.e., swales, infiltration, constructed wetlands)
- Approach
 - Compare potential BMPs with GIS layers to establish ranking
 - Evaluate highest ranked BMPs for feasibility
 - Select and implement BMPs
- Lead
 - Rick Engineering (Dennis Bowling)
- Funding
 - \$2,000,000 (SWRCB grant); \$1,700,000 CBI grant

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Tecolote Creek Treatment Wetland

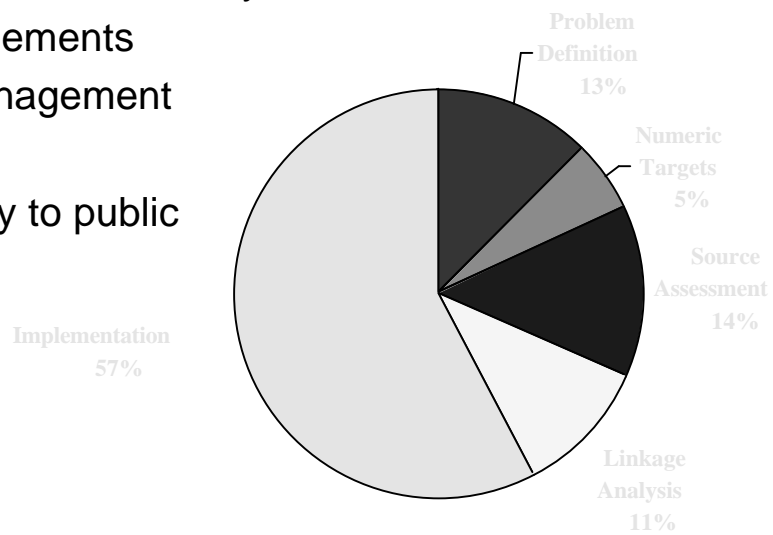
Implementation

- Goal
 - Design a treatment wetland to reduce loadings of pollutants of concern (bacteria, metals)
- Approach
 - Design and construct of a saltwater marsh
 - Monitoring and modeling
 - Conform to Mission Bay Park Master Plan habitat values
 - Adaptive management to accommodate eelgrass, heavy recreational use, sedimentation, circulation and flooding
- Lead
 - Merkel and Associates (Keith Merkel)
- Funding
 - City of San Diego (\$160,000 design only)

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Summary

- Seven Projects, \$7.8 Million
- Attainment of Water Quality Standards
- Key TMDL elements
- Adaptive management
- Public funds
- Accountability to public



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