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Marine Life Protection Act Initiative

Water Quality in the MLPA North Coast Study Region

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North Coast Study Region

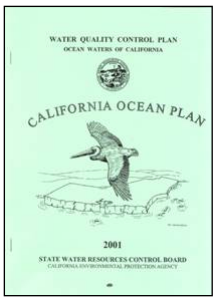
- 640 miles of coastline
- Drainage from 10,000 sq miles of watershed
- Generally sparse population
  - population concentrated within only a few coastal watersheds
  - forestry and some agricultural land use
- Generally very good marine water quality!
- Water quality problems spatially limited

Water Quality Overview

- Water quality standards
- Water quality opportunities
  - Areas of special biological significance
- Water quality concerns to avoid
  - Urban runoff and non-point source pollution
  - Point source waste water pollution
- Special considerations
- Guidance and evaluation methods

Water Quality Standards

- California Ocean Plan
  - EPA-approved water quality control plan
  - Near coastal ocean waters to three mile limit
  - Beneficial uses of ocean waters – human health and marine life receptors
  - Water quality objectives
  - Program of implementation
  - Areas of special biological significance (ASBSs)



- Other Standards
  - Enclosed Bays and Estuaries Plan, California Toxics Rule, Regional Board Basin Plan

Areas of Special Biological Significance

- ASBSs can be considered water quality opportunities
- Four in MLPA North Coast Study Region
- All ASBSs are marine managed areas and a subset of <u>state water quality protection areas (SWQPAs)</u>
- Waste discharges are prohibited
- 2003 survey found storm water and other discharges, currently being regulated by water boards
- On-going monitoring effort

ASBS - Large Areas of North Coast

ASBS Site	Area (mi^2)	SWQPA ID Number
Jughandle Cove	0.32	1
Trinidad Head	0.46	6
King Range	39.15	7
Redwood National Park	97.88	8

Water Quality Concerns – Urban Runoff and Nonpoint Sources

- Urban Stormwater Runoff
  - Numerous pollutants, toxic to marine life
- Sources of Concern - Phase II Permitted Communities
  - McKinleyville
  - Arcata
  - Eureka
  - Fortuna
  - Fort Bragg

Water Quality Concerns – Urban Runoff and Nonpoint Sources

- Areas of concern
  - Smith River
  - Crescent City and harbor
  - Klamath River (*Mycrocystis* blooms)
  - Trinidad and harbor
  - Mad River
  - Arcata and Humboldt bays
  - Eel River
  - Shelter Cove and harbor
  - Fort Bragg/Noyo Bay
- Nonpoint sources
  - urban runoff
  - agricultural runoff
  - timber harvest
  - marinas/harbors

Water Quality Concerns – Wastewater Discharges

Major Discharges	Effluent
Samoa Island Pulp Mill/Fairhaven Power	Lumber (pulp) mill wastewater and cooling water

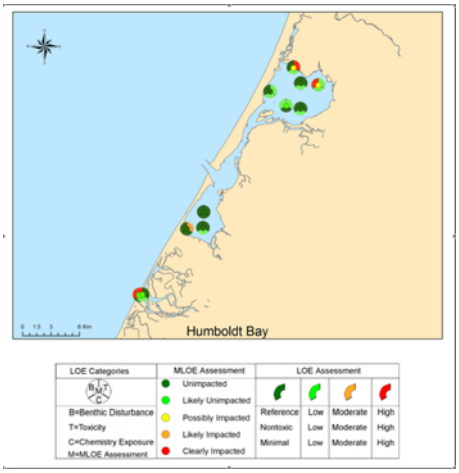
Intermediate Discharges	Effluent
Crescent City	Treated sanitary wastewater and seafood wastes
City of Arcata	Treated sanitary wastewater
Sierra Pacific Industries Arcata Division	Lumber (pulp) mill wastewater
City of Eureka	Treated sanitary wastewater
Fort Bragg, City of	Treated sanitary wastewater
Fortuna and other Eel River dischargers, collectively	Treated sanitary wastewater, cooing water and industrial wastewater

Water Quality Concerns – Wastewater Discharges

Minor Discharges	Effluent
CSU Humboldt	Marine lab waste seawater
Pacific Gas and Electric	Industrial wastewater (reclassified from major due to re-powering
Shelter Cove Waste Water Plant	Treated sanitary wastewater
Shelter Cove Fish Cleaning Station	Seafood wastes (currently un-permitted, may be controlled soon)
Mendocino City	Treated sanitary wastewater

Special Considerations

- Impaired water bodies (not meeting standards)
  - Several watersheds for stream quality (e.g., timber harvest effects, sediment, temperature, etc.)
  - Sediment pollution (Humboldt Bay for dioxins and polychlorinated biphenyls)



Special Considerations

- Impaired water bodies, continued
  - Beaches for bacteria (Trinidad, Moonstone)
  - Blue green algae (Klamath)
- Coastal energy development
  - Projects in planning stage so will not be included in evaluation
- Aquaculture
  - Some habitat, water/sediment quality effects
  - Best handled by SAT Levels of Protection Work Group

Water Quality Guidance

Initial proposal for SAT recommendations:

- Co-location, where possible, with SWQPAs
  - ASBSs are special subset of SWQPAs
- Avoiding, where possible, areas of water quality concern:
  - Urban stormwater and nonpoint sources of pollution
  - Waste water point sources
    1. Major sources – ½ mile radius buffer
    2. Intermediate sources – ¼ mile radius buffer
    3. Minor sources – avoid outfall point

Water Quality Evaluation

Two categories of marine protected areas (MPAs):

1. Bay and estuary MPAs
   - Bays and estuaries are more likely to be associated with storm-water runoff
   - No ASBS currently designated in embayments
2. Coastal MPAs
   - Coast and offshore islands
   - Large ASBS opportunities for co-location

Proposed Changes to Methods

In general, methods used in the MLPA South Coast Study Region will be used in the north coast with the following exceptions:

South Coast Evaluation

- bays/estuaries were evaluated using a shoreline length divided by 2 measurement
- power plant entrainment was the major concern
- strong recommendation to avoid industrial harbors (LA/LB and San Diego)

North Coast Recommendation

- recommend bays/estuaries be evaluated using an area measurement
- no need to focus on power plant entrainment
- include harbors as nonpoint sources

Scoring of MPA Proposals

- Scores based on presence/absence
- Co-location with areas of water quality concern scores deducted
  - Effects from stormwater and nonpoint source discharges > industrial/municipal wastewater discharges
- Co-location with areas of opportunity
  - SWQPAs/ASBS - scores improved

Evaluation Scoring Methods

Description of scores:

- 0.0 is the least desirable and has serious water-quality concerns.
- For embayment MPAs, 0.75 is considered the most desirable, with no water-quality concerns.
- For coastal MPAs, 0.75 is desirable, indicating no water-quality concerns.
- Coastal MPAs with scores over 0.75 indicate they are co-located with an area of special biological significance (ASBS) / state water quality protection area; a score of 1.0 is the most desirable.

Embayment MPAs

Water Quality Concern Area	Co-located with Water Quality Concern Area Scores	Not Co-located with Water Quality Concern Area Scores
Stormwater/Nonpoint Source Discharge	-1.0	1.0
Wastewater Discharge	-0.5	1.0
Final score for each MPA	Average of scores for each category, weighted by multiplying by ratio of MPA area to regional proposal total area for embayments.	

Maximum score for each category is 1.0.

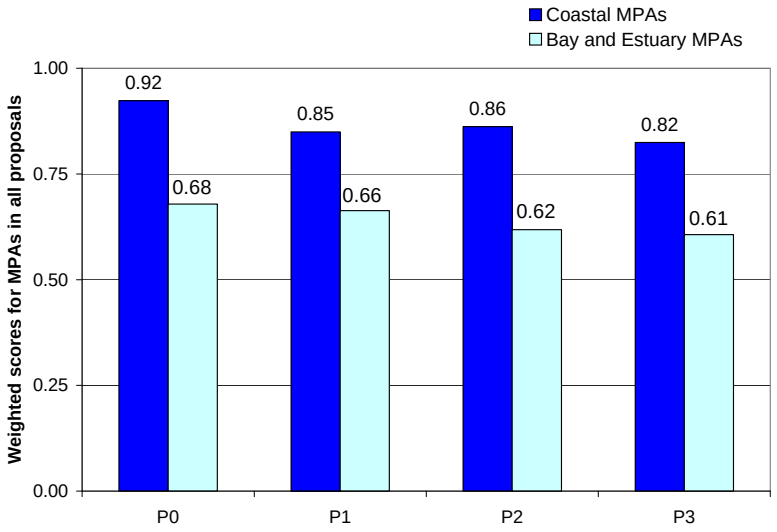
Coastal MPAs

Water Quality Concern Area	Co-located with Water Quality Concern Area Scores	Not Co-located with Water Quality Concern Area Scores
Stormwater/Nonpoint Source Discharge	-1.0	1.0
Wastewater Discharge	-0.5	1.0
Water Quality Protection Area	**Co-located with SWQPA**	**Not Co-located with SWQPA**
SWQPA/ASBS	Between 0 and 1, based on the % of shoreline coverage	0
Final score for each MPA	Average of scores for each category, weighted by multiplying by ratio of MPA shoreline to regional proposal total shoreline for coastal MPAs	

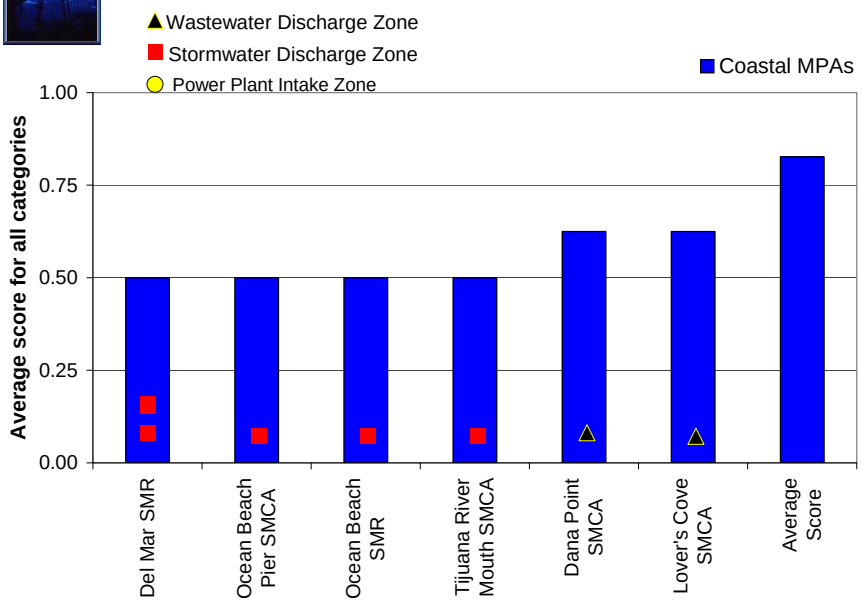
Maximum score for each category is 1.0.

South Coast Example of Results

Comparison of Proposals



Example Single Proposal Coastal MPAs



Next Steps

- Create guidance document for MLPA North Coast Study Region
  - Maps to show areas of water quality concerns, and water quality opportunities
- Potential SAT approval of evaluation process and maps