Marine Life Protection Act Initiative

Proposed Water Quality Evaluation Methods for the MLPA South Coast Study Region

Dominic Gregorio, MLPA Master Plan Science Advisory Team and California State Water Resources Control Board

Presentation to the MLPA Master Plan Science Advisory Team
April 6, 2009 • Via webinar

Water Quality Guidance

- **SAT recommends avoiding, where possible, areas of water quality concern:**
  1) cooling water intake sites for power plants,
  2) municipal sewage or industrial outfalls, and
  3) pollutant discharges from large industrial or developed watersheds.
- **SAT recommends including, where possible, state water quality protection areas (SWQPAs)**
  – Areas of special biological significance (ASBSs) are the only subset of SWQPAs

Water Quality Guidance

- Water quality concern areas were mapped and most sites received a buffer zone, depending on the site
  – Power plant: Entrainment impact zones
  – Stormwater discharge: Toxicity plume zones
  – Municipal and Industrial Wastewater:
    - Major wastewater discharges – ½ mile impact zone, outfall and pipes
    - Intermediate discharges – no impact buffer zone, point data only

Scoring Methods

- Scores are allocated based on the presence or absence of any of the three water quality concern areas (intakes or discharges) in a proposed MPA
  – If an MPA includes any of these three then the overall score is reduced
- For SWQPAs, scores are based on the percentage of shoreline coverage

Evaluation Scoring Methods

- Scoring hierarchy is used for the areas of water quality concern based on potential effects to MPA success
- Effects from power plant intakes > stormwater discharges > industrial/municipal wastewater discharges
- Co-locating with an SWQPA improves the score

Evaluation Scoring Methods

MPA Located in Area of Water Quality Concern	Score Becomes
Power Plant Intake Zone	-1.5
Stormwater Discharge	-1.0
Wastewater Discharge	-0.5
MPA Located in Area of Water Quality Opportunity	**Score Increased By**
State Water Quality Protection Area	Between 0 and 1, or fraction thereof (percentage of shoreline coverage)

- All four categories are averaged to obtain a score
  - Maximum score an MPA can receive is 1
  - Maximum score an MPA array or proposal can receive is 1

Evaluation Scoring Methods

- Potential problem with approach
  - Proposals with a different number of MPAs in them, but the same size and the same water quality concerns or opportunity areas, would score differently
- Solution may be using a weighted approach using either the MPA area or the MPA's shoreline coverage distance

State Water Quality Protection Area Scoring

Example: Existing Heisler Park SMR and Heisler Park ASBS

- MPA (in red) does not completely coincide with an ASBS (in black)
- ASBS shoreline covers 90% of MPA shoreline
- Score, rounded down to nearest 1/10, would be 0.9

State Water Quality Protection Area Scoring

Example: Laguna Beach SMCA and Heisler Park ASBS

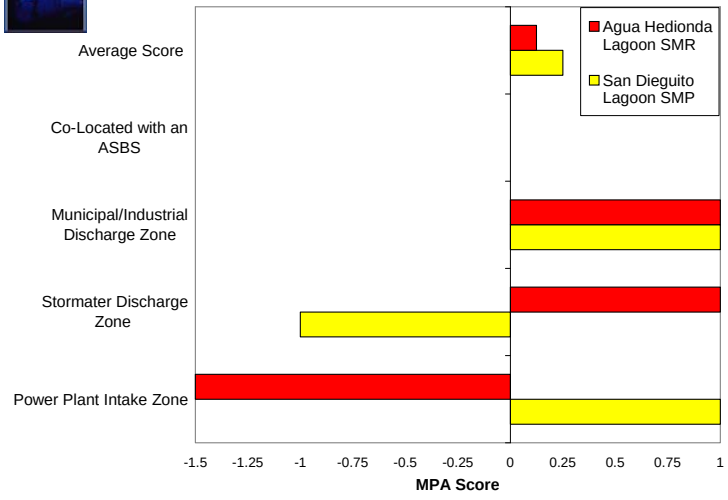
- MPA (in yellow) has the entire ASBS (black) within it
- ASBS is small and only covers around 10% of SMCA's shoreline
- Score would then get the minimum score (0.5) for a small ASBS completely within an MPA or 0.1?

Portion of Proposal 0 Evaluation Table

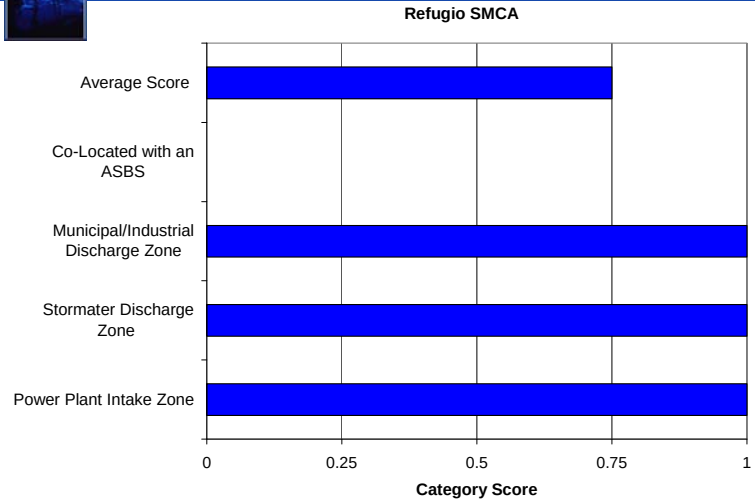
Proposal 0/Existing MPAs	Not located in a Power Plant Intake Zone	Not located in a Stormwater Discharge Zone	Not located in a Muni/Ind Discharge Zone	Co-Located with an ASBS	Average Score
Richardson Rock SMR (San Miguel Island)	1.0	1.0	1.0	1.0	**1.00**
.....	.....	.....	.....	.....	.....
Heisler Park SMR	1.0	1.0	1.0	0.90	**0.98**
Laguna Beach SMCA*	1.0	1.0	1.0	0.50	**0.88**
.....	.....	.....	.....	.....	.....
Rufugio SMCA	1.0	1.0	1.0	0	**0.75**
San Dieguito SMP	1.0	-1.0	1.0	0	**0.25**
Agua Hedionda Lagoon SMR	-1.5	1.0	1.0	0	**0.13**
.....	.....	.....	.....	.....	.....
Average for all Categories**	**0.94**	**0.77**	**1.00**	**0.42**	**0.78**

*Included all of Heisler Ecological Reserve ASBS so it received a minimum of 0.5, even though the ASBS only covered 10% of the Laguna Beach. **The average for categories include all MPAs in analysis. This table has been truncated and only a few MPAs are shown above.

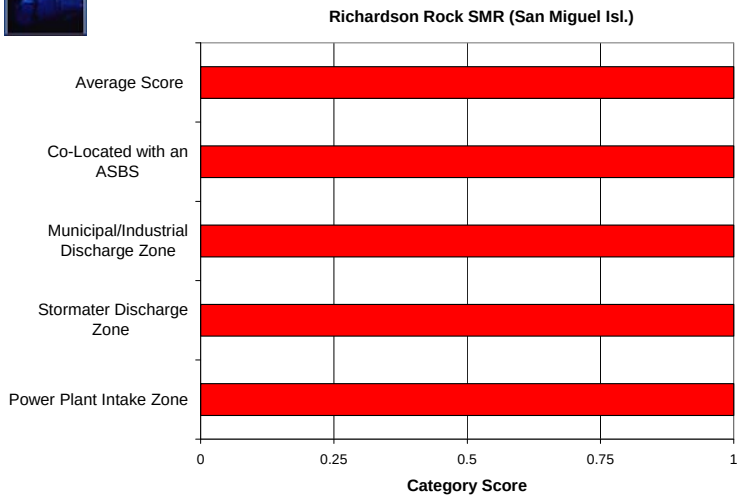
Example of Low Scores (0.13, 0.25)



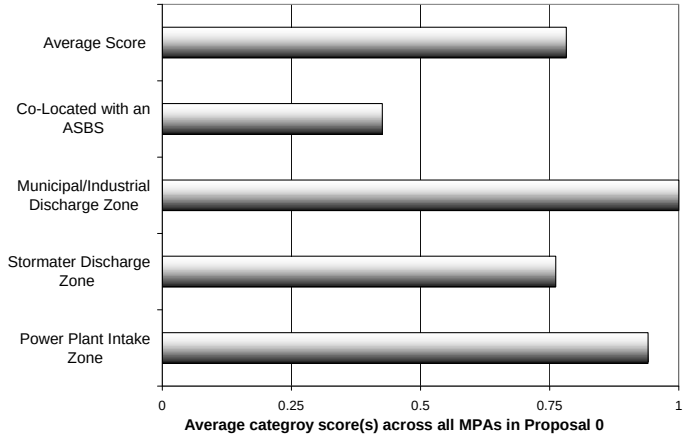
Example of High Score (0.75)



Example of High MPA Score (1)



Proposal 0 (Existing MPAs) Evaluation



Proposal 0 (Existing MPAs) Summary

- 37 of 43 MPAs scored between 0.75 and 1.0 (which is the ideal range based on water quality guidance document)
- 5 low scoring MPAs had a score of 0.25
- 1 low scoring MPA had a score of 0.13
- **Average score for Proposal 0 was 0.78**

Questions