

**California MLPA Master Plan Science Advisory Team**  
**Summary of SAT Evaluation of Round 2 MPA Proposals for the MLPA South**  
**Coast Study Region: Water and Sediment Quality**  
*(Revised July 13, 2009 per recommendations at the June 18, 2009 SAT meeting)*

### **Overview of MPA Proposal Evaluations Regarding Water and Sediment Quality**

While water quality is not subject to management under the Marine Life Protection Act (MLPA), it may be an important consideration in designing marine protected area (MPA) proposals. Living marine resources may be substantially affected where water quality is significantly compromised, and may be subject to changes in key population (e.g., abundance, growth, reproduction, and mortality), and community (e.g., energetic, diversity, structure and organization) parameters. Water and sediment quality is a concern in the MLPA South Coast Study Region (SCSR) and should be considered during the MPA planning and design process. However, it is important to remember that water quality evaluations are not mandated by the MLPA, and should therefore be considered secondary to other MPA design guidelines. Water quality considerations should be incorporated if other guidelines and criteria have been met.

The MLPA Master Plan Science Advisory Team (SAT) determined that the best way to evaluate MPAs with regard to water quality is to allocate scores based on a presence or absence scoring system. The scoring system gives a range of values with 0.0 being the least desirable, and the range of 0.75 to 1.0 considered the most desirable. The latter range is influenced by MPAs that are co-located with areas of special biological significance (ASBSs). For example, MPAs that are absent any water quality concern areas and are completely within an ASBS would score the highest, or 1.0. However, it is not always possible to co-locate an MPA with an ASBS, therefore MPAs that are absent any water quality concern areas and are not co-located with an ASBS would score a 0.75. This 0.75 score is the upper threshold that a score could get without the presence of an ASBS, or in other words, it is still a very favorable score. Anything less than 0.75 indicates MPA co-location with water quality concern area(s). Methods for these analyses are described in an associated document: *Draft Methods Used to Evaluate Marine Protected Area Proposals in the South Coast Study Region* ("Evaluation Methods Document").

This document compares evaluation results for existing MPAs (proposal 0), MLPA South Coast Regional Stakeholder Group (SCRSG) proposals (Lapis 1, Lapis 2, Opal and Topaz), and external proposals (External A and External B).

### **Evaluation Considerations**

The SCRSG finalized four Round 2 draft MPA proposals on May 21, 2009 that were advanced for evaluation; taken together with the two revised external MPA proposals, this resulted in six draft proposals. All six draft proposals plus Proposal 0 (existing state MPAs) were run through the water quality evaluation. This evaluation was based on the presence or absence of the following scoring categories:

- Cooling water intake sites for power plants
- Storm water plumes from larger watersheds
- Municipal sewage or industrial outfalls

- Co-location with an ASBS (State Water Quality Protection Areas)

This summary document will focus on comparisons among all six proposals described above and their scores based on the four scoring categories.

All proposals include bays, estuaries or lagoons, due to the important role these systems play on the marine ecosystem. These embayments are productive and essential to the marine system as a whole largely because of their enclosed, protected nature at the mouths of coastal streams. This productivity is related to natural nutrient deposition from coastal streams. However, the influence of developed watersheds also makes them vulnerable to pollution since many of the coastal streams have been identified as water quality concern areas. Anthropogenic eutrophication from developed watersheds can upset the natural nutrient balance in these embayments. Toxic pollutants, also derived from watersheds and from anthropogenic activities on the shoreline, adhere to the sediments in bays and estuaries. Appendix A provides maps of available sediment quality sample results in those embayments included in the proposals; each station result provides information on the relative status of sediment toxicity, sediment chemistry, and benthic community condition. In addition, there are no Areas of Special Biological Significance (ASBS) currently designated in enclosed bays and estuaries. For all these reasons it would be difficult to include these areas without having the water quality evaluation score reduced.

The SAT also discovered a problem associated with spatial data for bays and estuaries that could influence the water quality scoring. The available data for shoreline length of these embayment areas is inaccurate; using the available shoreline data when calculating the weighted score affects the overall score of the proposal by unequally weighting the bays and estuaries. Therefore, shoreline lengths for bays and estuaries were reduced by half, to make the weighting more proportional to the actual MPA area. Furthermore, the SAT decided it would be more useful if MPAs within each proposal were segregated into two groups: MPAs proposed along the exposed coast (and islands) and MPAs proposed within bays and estuaries. Breaking the proposals into these two groups addresses the perception about each proposal's score, with the understanding that MPA placement in bays and estuaries, for the most part, would have a higher probability of having a reduced score than MPAs located along the coast.

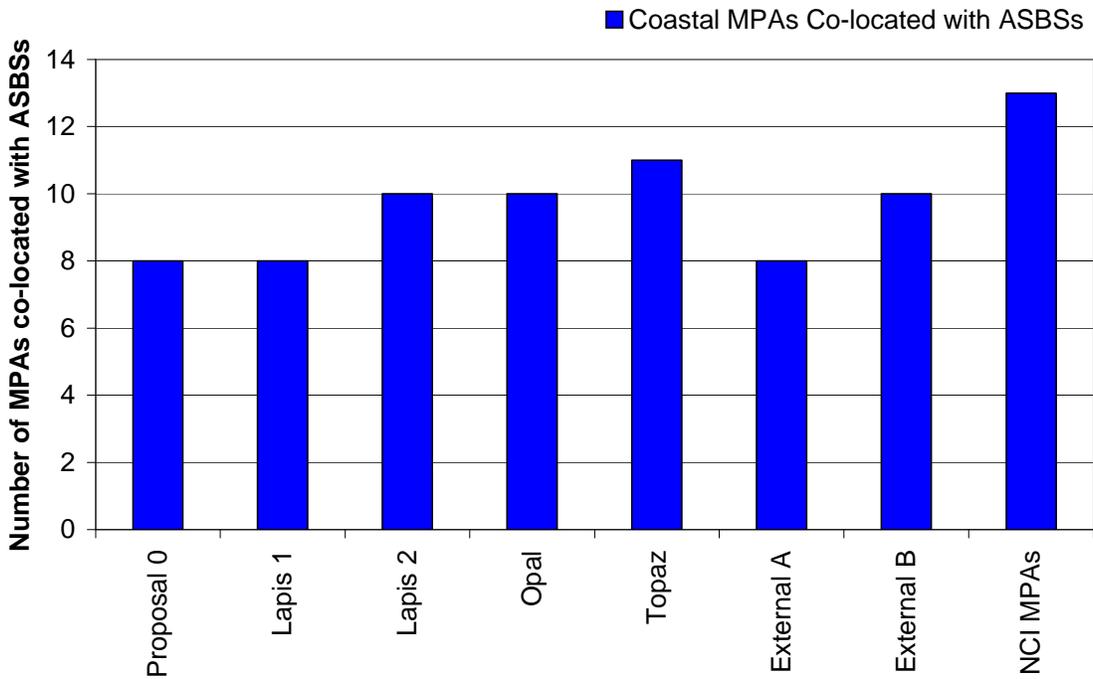
## **MPA Proposals Evaluated**

All proposals did well at avoiding power plant intakes in coastal MPAs. However, all but one proposal (External A) included MPAs co-located with power plant intake zones in embayments. Most proposals also did a good job of avoiding major municipal or industrial wastewater zones in coastal MPAs with the exception of External A and External B, which both co-located an MPA in the Los Angeles County JWPCP Carson Plant's White Point outfall zone. All other MPAs co-located with wastewater discharge zones occurred with intermediate dischargers, which have the lowest associated concern. Two proposals (External A and External B) proposed MPAs within the Portuguese Bend landslide area. The SAT has recently determined that this area is not appropriate for MPA placement due to degraded habitat. On another note, there were several instances where proposals did a good job of avoiding water quality concern

areas by either 1) not extending the MPAs offshore, avoiding overlap with municipal discharge zones (i.e. Tijuana River Mouth MPAs), or 2) placing boundaries just short of a municipal discharge zone (i.e. MPAs near the Goleta outfall). All proposals did well to avoid the San Onofre Generating Station's intake zone and Los Angeles Harbor. Proposal 0 scored higher than all new proposals; this is due to the very small size of MPAs with water quality concerns and that small MPAs are less likely to encounter water quality concern zones than MPAs meeting the SAT's size guidelines.

The inclusion of the 13 Northern Channel Islands (NCI) MPAs equally in all proposals helped to improve overall weighted scores due to co-location with large ASBSs at those island MPAs (Figure 1). In addition to being co-located with ASBSs, none of the NCI MPAs are co-located with areas of water quality concern. Therefore all of the NCI MPAs receive the highest score of 1.0 (Table 1). Non-inclusive of the NCI MPAs, the various proposals included between eight and eleven ASBSs in coastal<sup>1</sup> MPAs.

**Figure 1. Number of coastal MPAs co-located with ASBS, with Northern Channel Islands (NCI) shown separately**



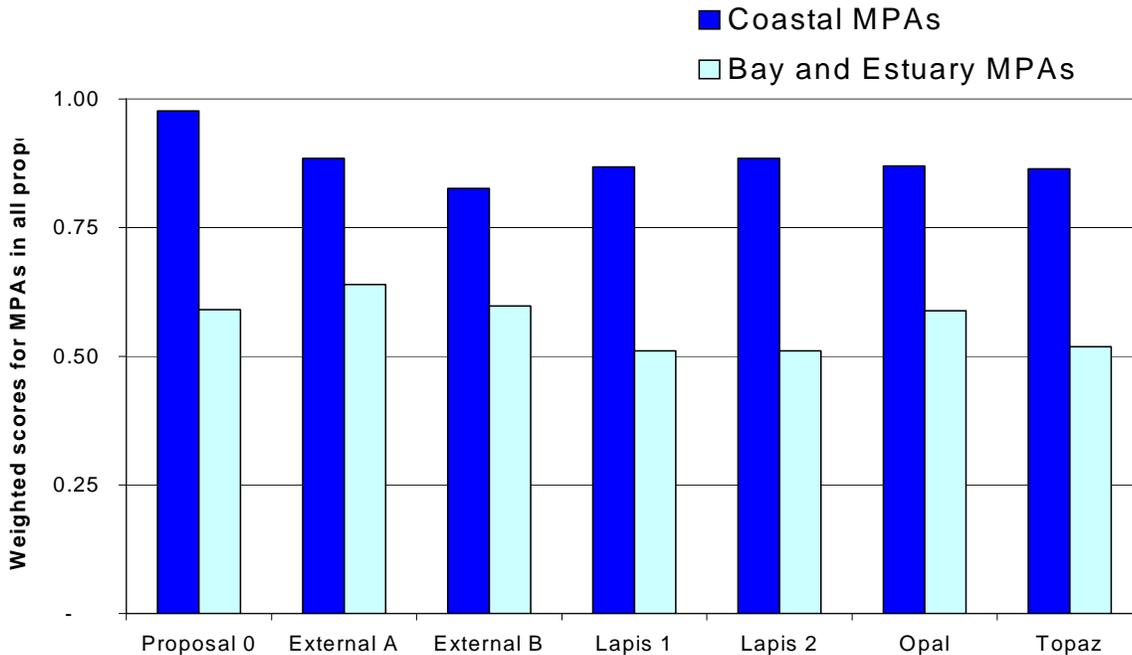
<sup>1</sup> The use of the term "coastal MPA" in this document refers to both mainland and island MPAs not located in bays or estuaries.

**Table 1. Water quality evaluation scores for existing Northern Channel Islands MPS, all of which are co-located with ASBS**

Existing NCI MPAs Co-located with ASBS	Average Score
Carrington Point	1.00
Crystal Cove	1.00
Footprint	1.00
Gull Island	1.00
Harris Point	1.00
Irvine Coast	1.00
Judith Rock	1.00
Painted Cave	1.00
Richardson Rock	1.00
Santa Barbara Island	1.00
Scorpion	1.00
Skunk Point	1.00
South Point	1.00

All proposals scored very well for coastal MPAs, with all proposal scores greater than 0.75 (Figure 2). The difference between the highest and lowest scores was very small. Of the six proposals submitted for evaluation, External A and Lapis 2 had the most favorable coastal MPAs scores while External B had the least favorable coastal MPA scores.

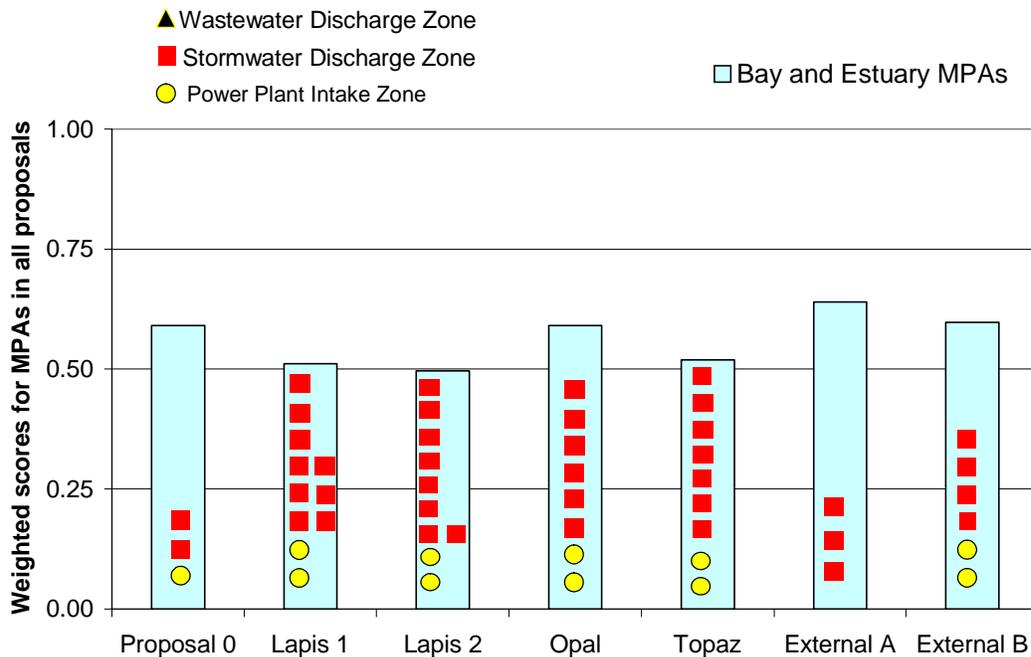
**Figure 2. Scores for all water quality evaluation categories in a given proposal**



*Note: Scores between 0.75 and 1.0 indicate MPA placement without water quality concern area. Scores less than 0.75 indicate placement of MPAs within water quality concern areas.*

The bay and estuary MPAs scored lower than coastal MPAs for all proposals, with scores ranging from 0.51-0.64 (Figures 2 and 3). This was expected because of the reasons provided above regarding power plant intakes and storm water discharges. All of the proposals included storm water plumes in certain bay and estuary MPAs. External A included the least number (and lowest percentage) of major storm water plumes in embayment MPAs; however External A also proposed the least number of embayment MPAs. Further, all of the proposals except for External A included power plant intakes in certain bay and estuary MPAs. The two power plant intakes zones that influenced nearly all of the proposal's scores for the bay and estuary MPAs (except External A) were Encina Power Plant near Agua Hedionda Lagoon and the South Bay Power Plant in San Diego Bay. Overall, for bay and estuary MPAs, External A had the best water quality score.

**Figure 3. Weighted scores and the associated water quality concerns for all Round 2 proposals**



*Note: Stormwater discharge zones was the dominant concern area in each proposal that included bays and estuaries.*

The following individual summaries focus on the specific co-location with areas of water quality concern and ASBSs. By reviewing the individual MPA proposal charts and tables, it is possible to determine which, if any, MPA could be adjusted to include areas without water quality concerns. Again, these considerations should be secondary and supplemental to other SAT guidelines, such as size, spacing and habitat representation/replication.

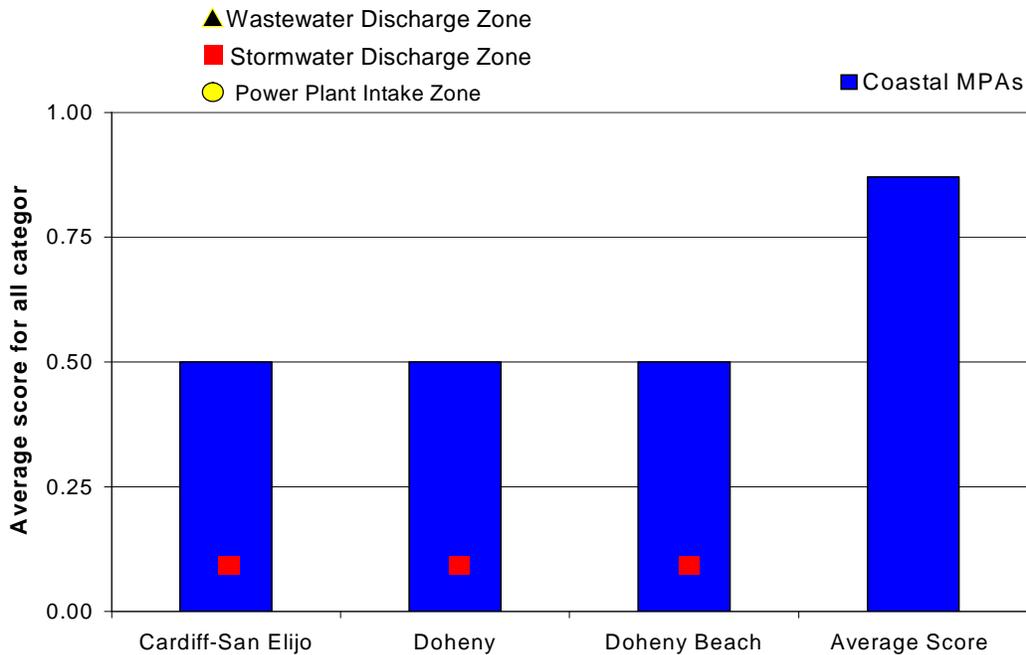
**Proposal 0: Individual Summary**

Proposal 0 (the existing MPAs) contains 42 MPAs, which include 13 in the NCI and 29 not in the NCI. Not inclusive of the NCI MPAs there are 22 MPAs located along the coast and seven located in bays and estuaries.

57% (four of seven) of the existing MPAs in bays and estuaries scored well (0.75). There is one existing MPA co-located in a bay with a power plant intake (Encina Power Plant at Agua Hedionda lagoon) and two located in lagoons connected to major stormwater discharge zones (San Elijo Lagoon and San Dieguito Lagoon at Escondido and San Dieguito Creeks respectively).

The average score for existing coastal MPAs is 0.87. Not inclusive of NCI, 19 out of 22 coastal MPAs (86%) scored 0.75 or higher. Also not inclusive of NCI, eight of 22 (36%) existing MPAs are co-located within ASBSs (Table 2). Only three out of 22 coastal MPAs scored lower than 0.75 (located within stormwater discharge plumes at San Juan and Escondido Creeks) (Figure 4).

**Figure 4. Proposal 0 scores for coastal MPAs with water quality concerns and the average score.**



**Table 2. Water quality evaluation scores for Proposal 0 that either had water quality concerns and/or were co-located with ASBSs**

Existing Coastal MPAs	Average Score
Cardiff-San Elijo	0.50
Doheny	0.50
Doheny Beach	0.50
Existing Bay and Estuary MPAs	Average Score
Agua Hedionda Lagoon	0.38
San Dieguito Lagoon	0.50
San Elijo Lagoon	0.50
Existing MPAs Co-located with ASBSs	Average Score
Laguna Beach	0.77
Heisler Park	0.97
La Jolla	0.97
Robert E Badham	1.00
San Diego-Scripps	1.00
Anacapa Island SMCA	1.00
Anacapa Island SMR	1.00
Big Sycamore Canyon	1.00

*Note: Does not include NCI MPAs. See appendix B for the breakdown of these scores.*

### **Lapis 1: Individual Summary**

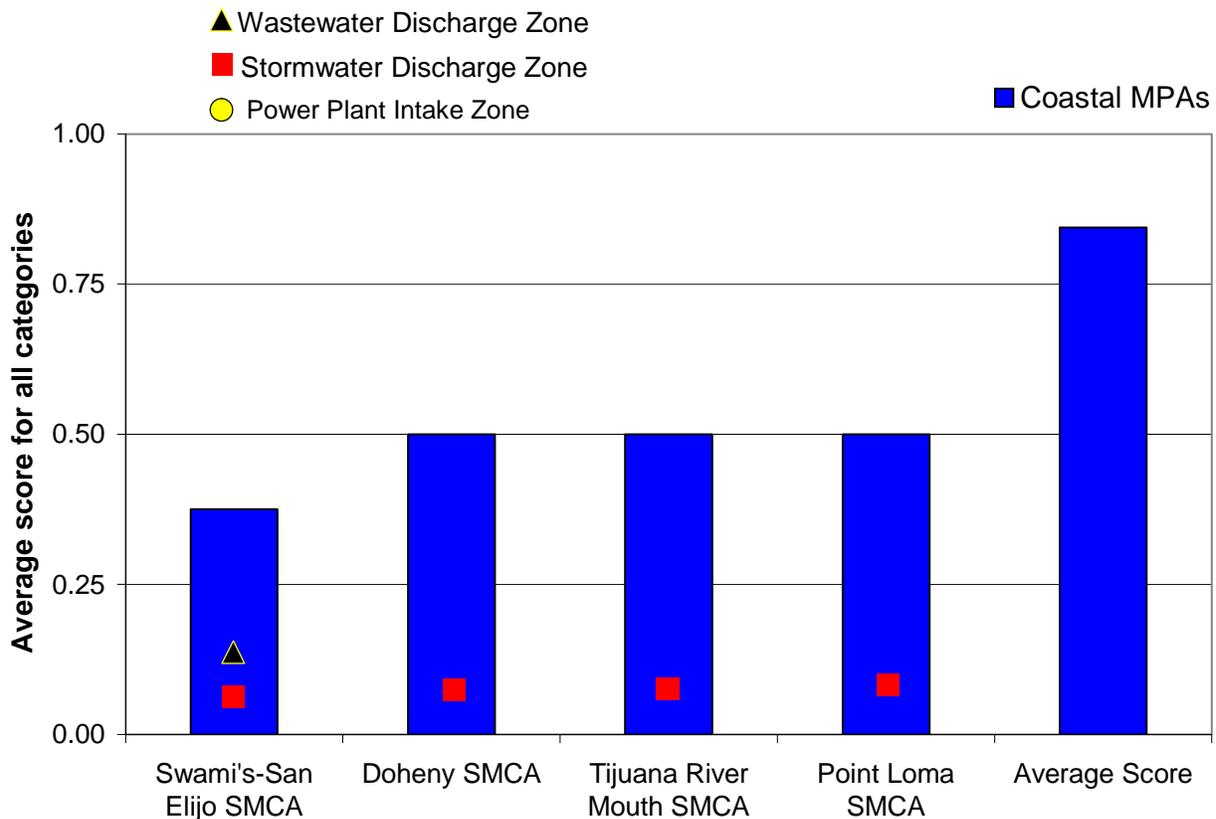
The Lapis 1 proposal comprises 54 MPAs, including 13 in the NCI and 41 not in the NCI.

Only 40% of the Lapis 1 MPAs located in bays and estuaries scored well (0.75); 9 out of 15 MPAs located in bays and estuaries scored lower than 0.75. Ha Sil South San Diego Bay SMP is co-located with both a power plant intake zone (South Bay Power Plant) and a major stormwater discharge zone. Agua Hedionda Lagoon SMR is co-located with both a power plant intake zone (Encina Power Plant). Seven MPAs were co-located with major stormwater discharge zones as follows: Mugu Lagoon SMRMA (Calleguas Creek), San Elijo Lagoon SMR (Escondido Creek), San Dieguito Lagoon SMR (San Dieguito Creek), Peñasquitos Lagoon SMR (Peñasquitos Creek), San Diego River SMCA (San Diego River), Famosa Slough SMR (Pueblo San Diego Watershed), and Tijuana Estuary SMR (Tijuana River).

The average score for Lapis 1 coastal MPAs is 0.84 (Figure 5). Not inclusive of NCI, 22 out of 26 (85%) coastal MPAs scored 0.75 or higher. Not inclusive of NCI, ten of 26 (38%) coastal MPAs are co-located within ASBSs (Table 3). There were four coastal MPAs that scored lower than 0.75. Three coastal MPAs (Doheny SMCA, Point Loma SMCA and Tijuana River Mouth SMCA) received reduced scores because they were located within major stormwater discharge zones (San Juan Creek and Pueblo San Diego Watershed respectively). One

coastal MPA (Swamis-San Elijo SMCA) is co-located with both a stormwater discharge zone (Escondido Creek) and a wastewater discharge zone (San Elijo outfall).

**Figure 5. Lapis 1 scores for coastal MPAs with water quality concerns and the average score**



**Table 3. Proposed MPAs by the Lapis 1 group that either had water quality concerns and/or were co-located with ASBSs**

Proposed Coastal MPAs	Average Score
Swami's-San Elijo SMCA	0.38
Doheny SMCA	0.50
Point Loma SMCA	0.50
Tijuana River Mouth SMCA	0.50
Proposed Bay and Estuary MPAs	Average Score
Ha Sil (South San Diego Bay) SMP	0.13
Agua Hedionda Lagoon SMR	0.38
Famosa Slough SMR	0.50
San Dieguito Lagoon SMR	0.50

Peñasquitos Lagoon SMR	0.50
San Diego River SMCA	0.50
San Elijo Lagoon SMR	0.50
Tijuana Estuary SMR	0.50
Mugu Lagoon SMRMA	0.50

Proposed MPAs Co-located with ASBS	Average Score
Laguna Beach SMR	0.77
Farnsworth Bank SMR	0.83
Newport Beach SMCA	0.96
La Jolla SMR 1	0.97
San Clemente Pending Military Closure 1	1.00
San Clemente Pending Military Closure 2	1.00
San Diego- Scripps SMCA	1.00
Lachusa SMCA	1.00
Point Dume SMR	1.00
Arrow Point SMCA	1.00

*Note: Does not include NCI MPAs. See appendix C for the breakdown of these scores.*

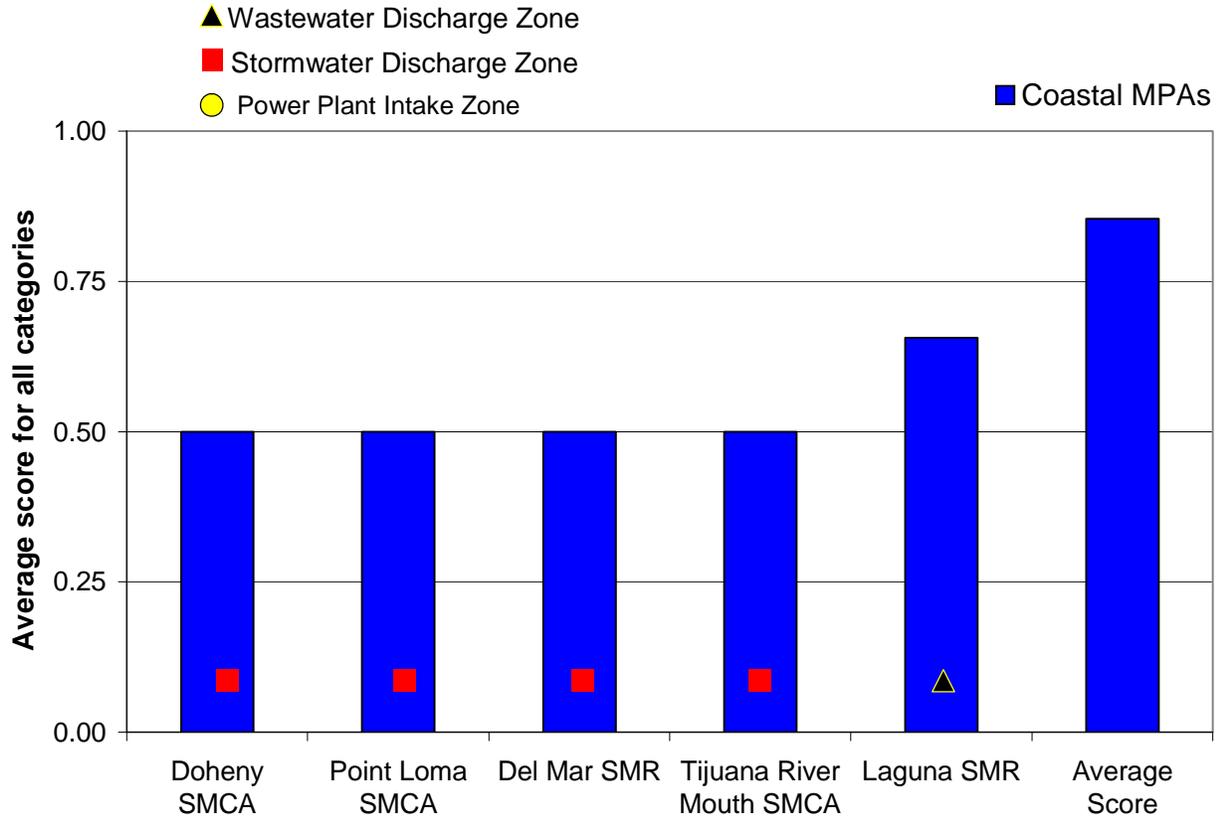
### **Lapis 2: Individual Summary**

The Lapis 2 proposal comprises 55 MPAs, including 13 in the NCI and 42 not in the NCI.

Only 40% of the Lapis 2 MPAs located in bays and estuaries scored well (0.75). Nine out of 15 MPAs located in bays and estuaries scored lower than 0.75. Ha Sil South San Diego Bay SMP is co-located with both a power plant intake zone (South Bay Power Plant) and a major stormwater discharge zone. Agua Hedionda Lagoon SMR is co-located with both a power plant intake zone (Encina Power Plant). Seven MPAs were co-located with major stormwater discharge zones as follows: Mugu Lagoon SMRMA (Calleguas Creek), San Elijo Lagoon SMR (Escondido Creek), San Dieguito Lagoon SMR (San Dieguito Creek), Peñasquitos Lagoon SMR (Peñasquitos Creek), San Diego River SMCA (San Diego River), Famosa Slough SMR (Pueblo San Diego Watershed), and Tijuana Estuary SMR (Tijuana River).

The average score for Lapis 2 coastal MPAs is 0.85 (Figure 6). Not inclusive of NCI, 22 out of 27 (82%) coastal MPAs scored 0.75 or higher. Not inclusive of NCI, ten of 27 (37%) coastal MPAs are co-located within ASBSs (Table 4). There were five coastal MPAs that scored lower than 0.75. Four coastal MPAs (Doheny SMCA, Del Mar SMR, Point Loma SMCA, and Tijuana River Mouth SMCA) received reduced scores because they were located within major stormwater discharge zones (San Juan Creek, Peñasquitos Creek, Pueblo San Diego Watershed and Tijuana River). One coastal MPA (Laguna SMR) is co-located with a wastewater discharge zone (Aliso outfall).

**Figure 6. Lapis 2 scores for coastal MPAs with water quality concerns and the average score**



**Table 4. Proposed MPAs by the Lapis 2 group that either had water quality concerns and/or were co-located with ASBSs.**

Proposed Coastal MPAs	Average Score
Doheny SMCA	0.50
Tijuana River Mouth SMCA	0.50
Point Loma SMCA	0.50
Del Mar SMR	0.50
Proposed Bay and Estuary MPAs	Average Score
Ha Sil (South San Deigo Bay) SMP	0.13
Agua Hedionda Lagoon SMR	0.38
Famosa Slough SMR	0.50
San Dieguito Lagoon SMR	0.50
Peñasquitos Lagoon SMR	0.50

San Diego River SMCA	0.50
San Elijo Lagoon SMR	0.50
Tijuana Estuary SMR	0.50
Mugu Lagoon SMRMA	0.50

Proposed MPAs Co-located with ASBS	Average Score
Laguna SMR	0.66
Farnsworth Bank SMR	0.83
Newport Beach SMCA 1	0.96
La Jolla SMR	0.97
Begg Rock SMR	1.00
San Diego-Scripps SMCA	1.00
Big Sycamore Canyon SMR	1.00
San Clemente Pending Military Closure 1	1.00
San Clemente Pending Military Closure 2	1.00
Arrow Point SMCA	1.00

*Note: Does not include NCI MPAs. See appendix D for the breakdown of these scores.*

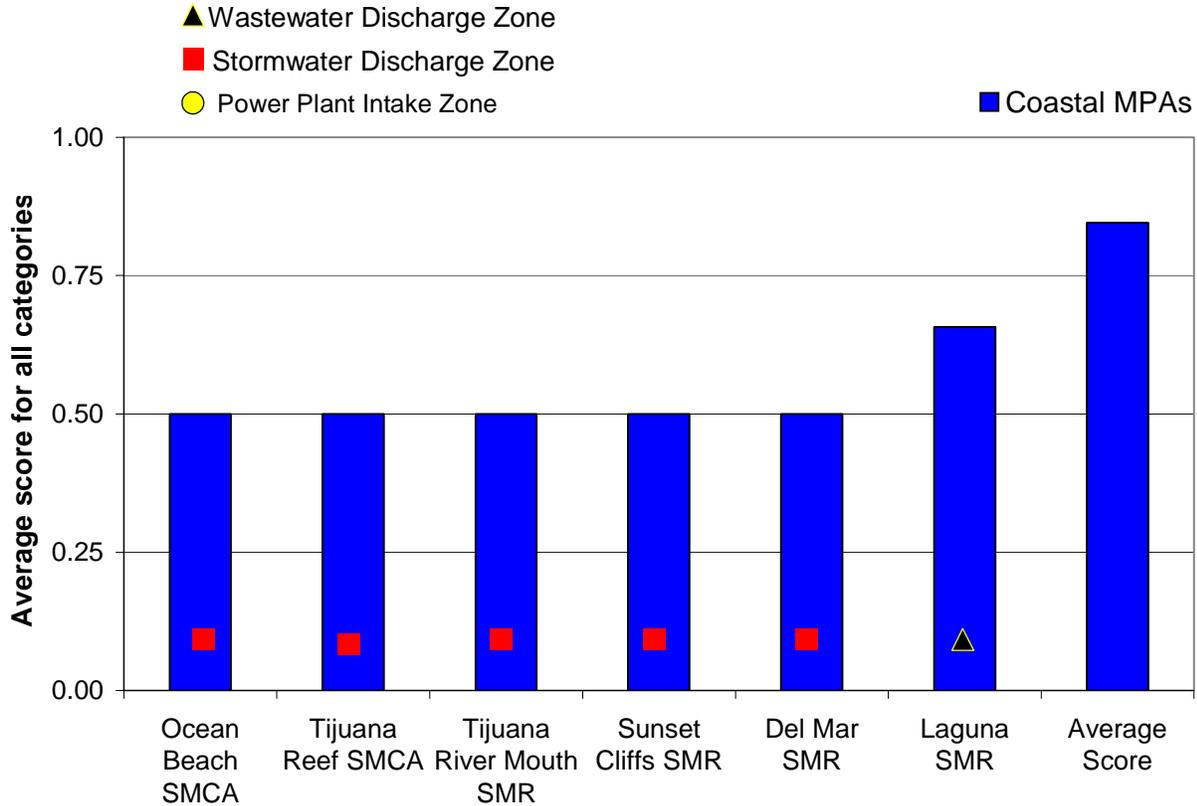
### ***Opal: Individual Summary***

The Opal proposal comprises 56 MPAs, including 13 in the NCI and 43 not in the NCI.

54% of the Opal MPAs located in bays and estuaries scored well (0.75). Six out of 13 MPAs located in bays and estuaries scored lower than 0.75. South San Diego Bay SMP is co-located with both a power plant intake zone (South Bay Power Plant) and a major stormwater discharge zone. Agua Hedionda Lagoon SMR is co-located with both a power plant intake zone (Encina Power Plant). Four MPAs were co-located with major stormwater discharge zones as follows: Point Mugu Estuary SMRMA (Calleguas Creek), San Dieguito SMR (San Dieguito Creek), Peñasquitos SMR (Peñasquitos Creek), and Tijuana River Estuary SMR (Tijuana River).

The average score for Opal coastal MPAs is 0.85 (Figure 7). Not inclusive of NCI, 24 out of 30 (80%) coastal MPAs scored 0.75 or higher. Not inclusive of NCI, ten of 30 (33%) coastal MPAs are co-located within ASBSs (Table 5). There were six coastal MPAs that scored lower than 0.75. Five coastal MPAs (Del Mar SMR, Ocean Beach SMCA, Sunset Cliffs SMR, Tijuana River Mouth SMR and Tijuana Reef SMCA) received reduced scores because they were located within major stormwater discharge zones (Peñasquitos Creek, Pueblo San Diego Watershed and Tijuana River). One coastal MPA (Laguna SMR) is co-located with a wastewater discharge zone (Aliso outfall).

**Figure 7. Opal scores for coastal MPAs with water quality concerns and the average score**



**Table 5. Proposed MPAs by the Opal group that either had water quality concerns and/or were co-located with ASBSs.**

Proposed Coastal MPAs	Average Score
Ocean Beach SMCA	0.50
Tijuana Reef SMCA	0.50
Sunset Cliffs SMR	0.50
Del Mar SMR	0.50
Tijuana River Mouth SMR	0.50
Proposed Bay and Estuary MPAs	Average Score
South San Diego Bay SMCA	0.13
Agua Hedionda Lagoon SMR	0.38
Tijuana River Estuary	0.50
Peñasquitos SMR	0.50
Point Mugu Estuary SMRMA	0.50
San Digueito SMR	0.50

<u>Proposed MPAs Co-located with ASBS</u>	<u>Average Score</u>
Laguna SMR	0.66
Laguna North SMCA	0.96
La Jolla SMR	0.97
San Diego-Scripps SMCA	1.00
San Clemente Pending Military Closure 1	1.00
San Clemente Pending Military Closure 2	1.00
Lechuza SMR	1.00
Point Dume SMCA	1.00
Begg Rock SMR	1.00
Arrow Point-Lion's Head SMCA	1.00

*Note: Does not include NCI MPAs. See appendix E for the breakdown of these scores.*

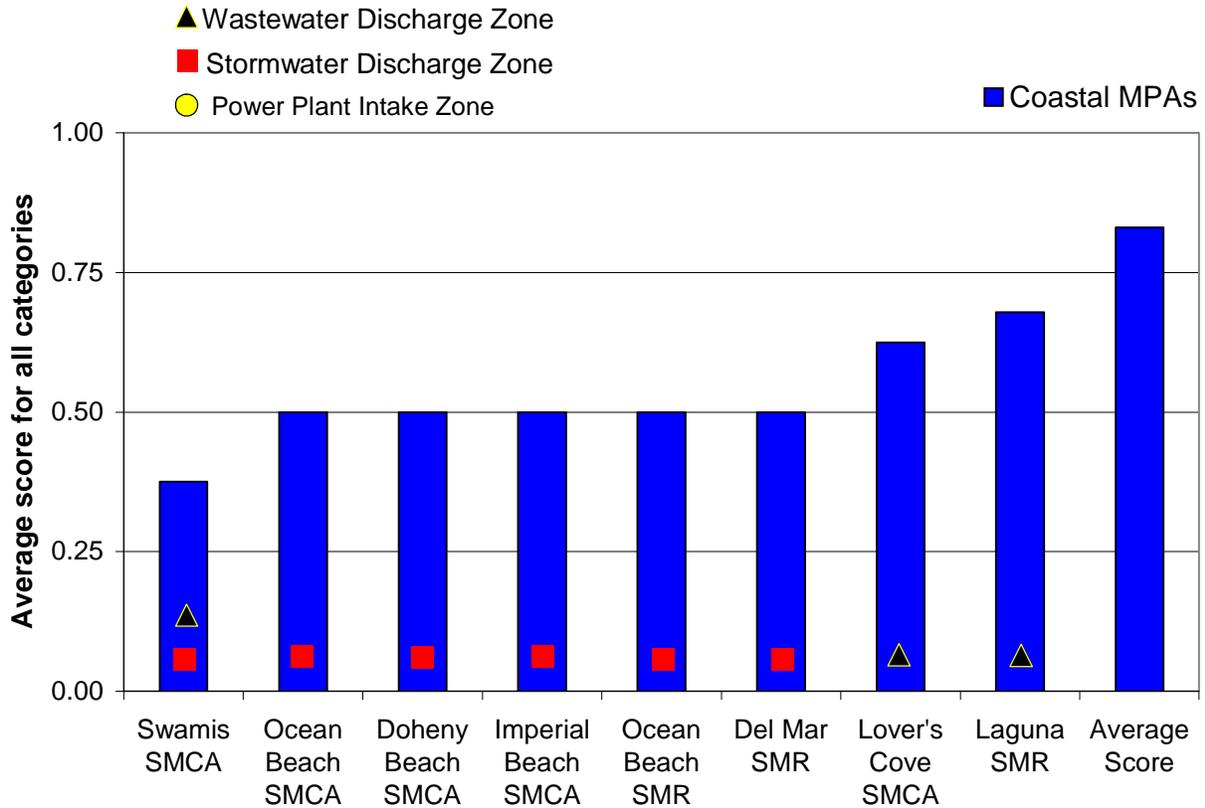
### ***Topaz: Individual Summary***

The Topaz proposal comprises 66 MPAs, including 13 in the NCI and 53 not in the NCI.

Only 39% of the Topaz MPAs located in bays and estuaries scored well (0.75). Eleven out of 18 MPAs located in bays and estuaries scored lower than 0.75 (Table 6). South San Diego Bay SMP is co-located with both a power plant intake zone (South Bay Power Plant) and a major stormwater discharge zone. Agua Hedionda Lagoon SMR is co-located with a power plant intake zone (Encina Power Plant). Nine MPAs were co-located with major stormwater discharge zones as follows: Ventura River Mouth SMCA (Ventura River), Magu/Muwu SMRMA (Calleguas Creek), Santa Clara Rivermouth SMCA (Santa Clara River), San Elijo Lagoon SMR (Escondido Creek), San Dieguito SMR (San Dieguito Creek), Peñasquitos SMR (Peñasquitos Creek), Kendal Frost SMCA (Pueblo San Diego Watershed), San Diego River/ Famosa Slough SMR (San Diego River), and Tijuana River Estuary SMR (Tijuana River).

The average score for Topaz coastal MPAs is 0.83 (Figure 8). Not inclusive of NCI, 28 out of 35 (80%) coastal MPAs scored 0.75 or higher. Not inclusive of NCI, 12 of 35 (34%) MPAs are co-located within ASBSs (Table 6). There were eight coastal MPAs that scored lower than 0.75. The Swamis SMCA scored low (0.38) due to location within both a stormwater discharge zone and a wastewater discharge zone. Lovers Cove SMCA and Laguna SMR were co-located with wastewater discharge zones (Avalon and Aliso outfalls respectively). Five other coastal MPAs (Doheny Beach SMR, Del Mar SMR, Ocean Beach SMCA, Ocean Beach SMR and Imperial Beach SMCA) received reduced scores because they were located within major stormwater discharge plumes (Santa Clara River, San Juan Creek, Peñasquitos Creek, Pueblo San Diego Watershed and Tijuana River).

**Figure 8. Topaz scores for coastal MPAs with water quality concerns and the average score**



**Table 6. Proposed MPAs by the Topaz group that either had water quality concerns and/or were co-located with ASBSs**

Proposed Coastal MPAs	Average Score
Swamis SMCA	0.38
Ocean Beach SMCA	0.50
Doheny Beach SMCA	0.50
Imperial Beach SMCA	0.50
Ocean Beach SMR	0.50
Del Mar SMR	0.50
Lover's Cove SMCA	0.63
<b>Bays and Estuaries MPA</b>	
South San Diego Bay SMCA	0.13
Agua Hedionda Lagoon SMR	0.38
Peñasquitos SMR	0.50
Ventura River Mouth SMCA	0.50

San Digueito SMR	0.50
San Diego River/ Famosa Slough SMR	0.50
Santa Clara Rivermouth SMCA	0.50
San Elijo Lagoon SMR	0.50
Magu/Muwu SMRMA	0.50
Kendal Frost SMCA	0.50
Tijuana River Estuary SMR	0.50

Proposed MPAs Co-located with ASBS	Average Score
Laguna SMR	0.68
Crystal Cove SMCA	0.96
La Jolla North SMR	0.97
La Jolla North SMR	1.00
Begg Rock SMR	1.00
Emerald Bay SMCA	1.00
Point Dume SMCA	1.00
Point Dume SMR	1.00
San Clemente Pending Military Closure 1	1.00
San Clemente Pending Military Closure 2	1.00
Deer Creek SMCA	1.00
Sequit SMCA	1.00

*Note: Does not include NCI MPAs. See appendix F for the breakdown of these scores.*

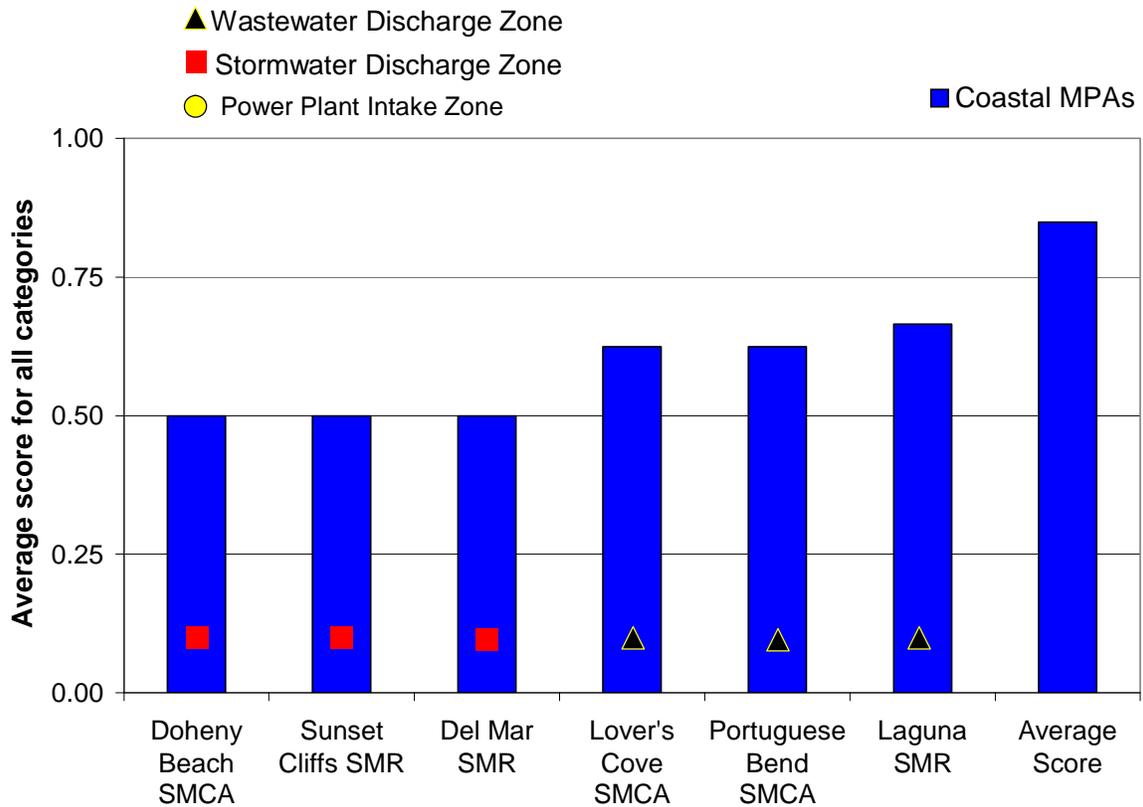
### **External A: Individual Summary**

The External A proposal comprises 47 MPAs, including 13 in the NCI and 34 not in the NCI.

Five of eight MPAs (63%) that are located in bays and estuaries scored well (0.75). Three MPAs located in bays and estuaries (San Elijo Lagoon SMR, San Dieguito Lagoon SMR, and Oneonta Slough SMR) scored lower than 0.75, due to co-location with major stormwater discharge zones (Escondido Creek, San Dieguito Creek and the Tijuana River respectively).

The average score for External A coastal MPAs is 0.85 (Figure 9). Not inclusive of NCI, 20 out of 26 (77%) coastal MPAs scored 0.75 or higher. Not inclusive of NCI, eight of 26 (31%) MPAs are co-located within ASBSs (Table 7). There were six coastal MPAs with scores lower than 0.75. Three coastal MPAs received reduced scores (Lovers Cove SMCA, Portuguese Bend SMCA, and Laguna SMR) because they were located within wastewater discharge zones (Avalon, White Point, and Aliso outfalls respectively.) Three other coastal MPAs (Doheny Beach SMCA, Del Mar SMR and Sunset Cliffs SMR) received reduced scores because they were located within major stormwater discharge zones (San Juan Creek, Peñasquitos River, and Pueblo San Diego Watershed respectively).

**Figure 9. External A scores for coastal MPAs with water quality concerns and the average score**



**Table 7. Proposed MPAs by External A group that either had water quality concerns and/or were co-located with ASBSs**

Proposed Coastal MPAs	Average Score
Doheny Beach SMCA	0.50
Sunset Cliffs SMR	0.50
Del Mar SMR	0.50
Lover's Cove SMCA	0.63
Portuguese Bend SMCA	0.63
Proposed Bay and Estuary MPAs	Average Score
San Elijo Lagoon SMR	0.50
San Dieguito Lagoon SMR	0.50
Oneonta Slough SMR	0.50

<u>Proposed MPAs Co-located with ASBSs</u>	<u>Average Score</u>
Laguna SMR	0.67
La Jolla SMR	0.97
Crystal Cove SMCA	0.99
Big Sycamore Canyon SMR	1.00
Deer Creek SMCA	1.00
San Clemente Pending Military Closure 1	1.00
San Clemente Pending Military Closure 2	1.00
Begg Rock SMR	1.00

*Does not include NCI MPAs. See appendix G for complete scoring for External A.*

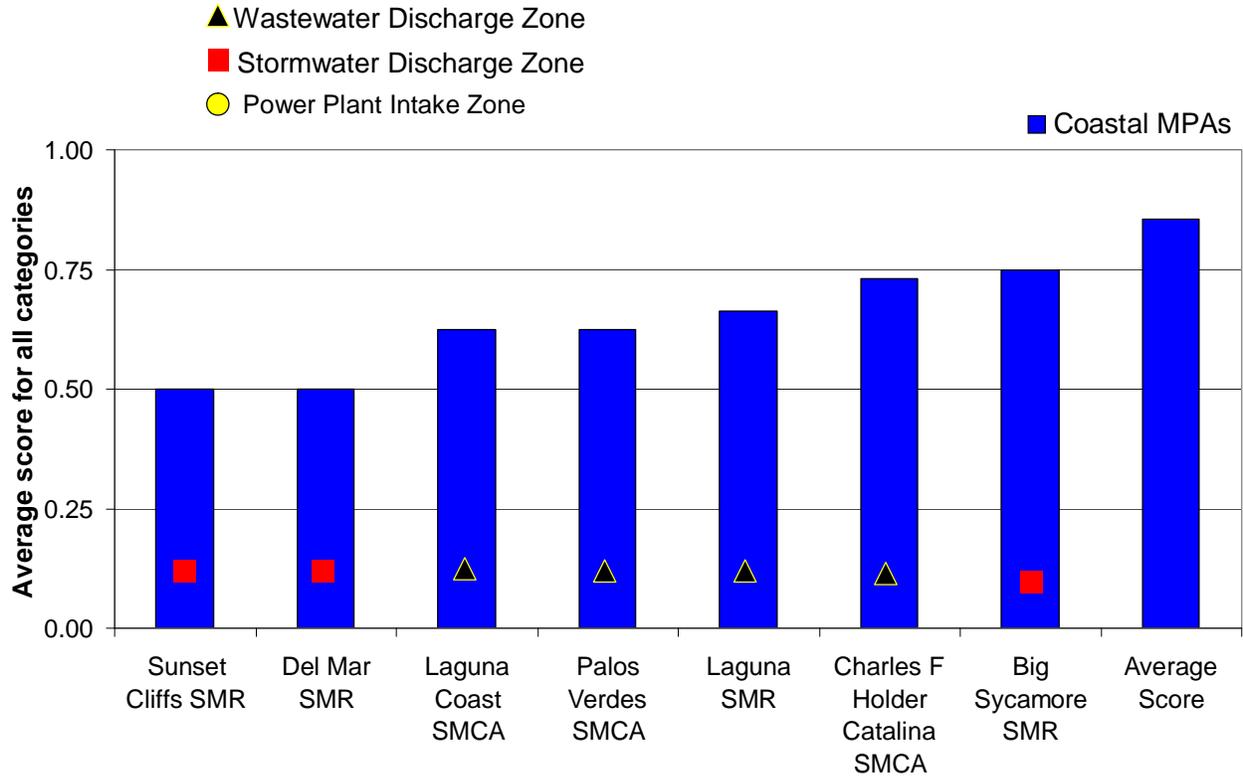
### **External B: Individual Summary**

The External B proposal comprises 50 MPAs, including 13 in the NCI and 34 not in the NCI.

55% of the External B MPAs located in bays and estuaries scored well (0.75). Five out of 11 MPAs located in bays and estuaries scored lower than 0.75 (Table 8). South San Diego Bay SMP is co-located with both a power plant intake zone (South Bay Power Plant) and a major stormwater discharge zone. Agua Hedionda Lagoon SMR is co-located with both a power plant intake zone (Encina Power Plant). Mugu Lagoon SMRMA, San Elijo Lagoon SMP, and San Dieguito Lagoon SMR all were located in major stormwater discharge zones (Calleguas, Escondido and San Dieguito Creeks respectively).

The average score for External B coastal MPAs is 0.86 (Figure 10). Not inclusive of NCI, 20 out of 26 (77%) coastal MPAs scored 0.75 or higher. Not inclusive of NCI, ten of 26 (39%) coastal MPAs are co-located within ASBSs (Table 8). One of the coastal MPAs (Big Sycamore SMR) was co-located with an ASBS but was also located within major stormwater discharge plume from Calleguas Creek, resulting in a score of 0.75. However, there were six coastal MPAs that scored lower than 0.75. Four coastal MPAs (Charles F Holder Catalina SMCA, Palos Verdes SMCA, Laguna Coast SMCA, and Laguna SMR) received reduced scores because they were located within wastewater discharge zones (Avalon, White Point, and Aliso outfalls). Two other coastal MPAs (Del Mar SMR and Sunset Cliffs SMR) received reduced scores because they were located within major stormwater discharge zones (Peñasquitos River, and Pueblo San Diego Watershed respectively).

**Figure 10. External B scores for coastal MPAs with water quality concerns and the average score**



**Table 8. Proposed MPAs by External B group that either had water quality concerns and/or were co-located with ASBSs**

Proposed Coastal MPAs	Average Score
Sunset Cliffs SMR	0.50
Del Mar SMR	0.50
Laguna Coast SMCA	0.63
Palos Verdes SMCA	0.63
<hr/>	
Proposed Bay and Estuary MPAs	Average Score
South San Diego Bay SMP	0.13
Agua Hedionda Lagoon SMR	0.38
San Elijo Lagoon SMP	0.50
Mugu Lagoon SMRMA	0.50
San Dieguito Lagoon SMR	0.50
<hr/>	
Proposed MPAs Co-located with ASBSs	Average Score
Laguna SMR	0.66

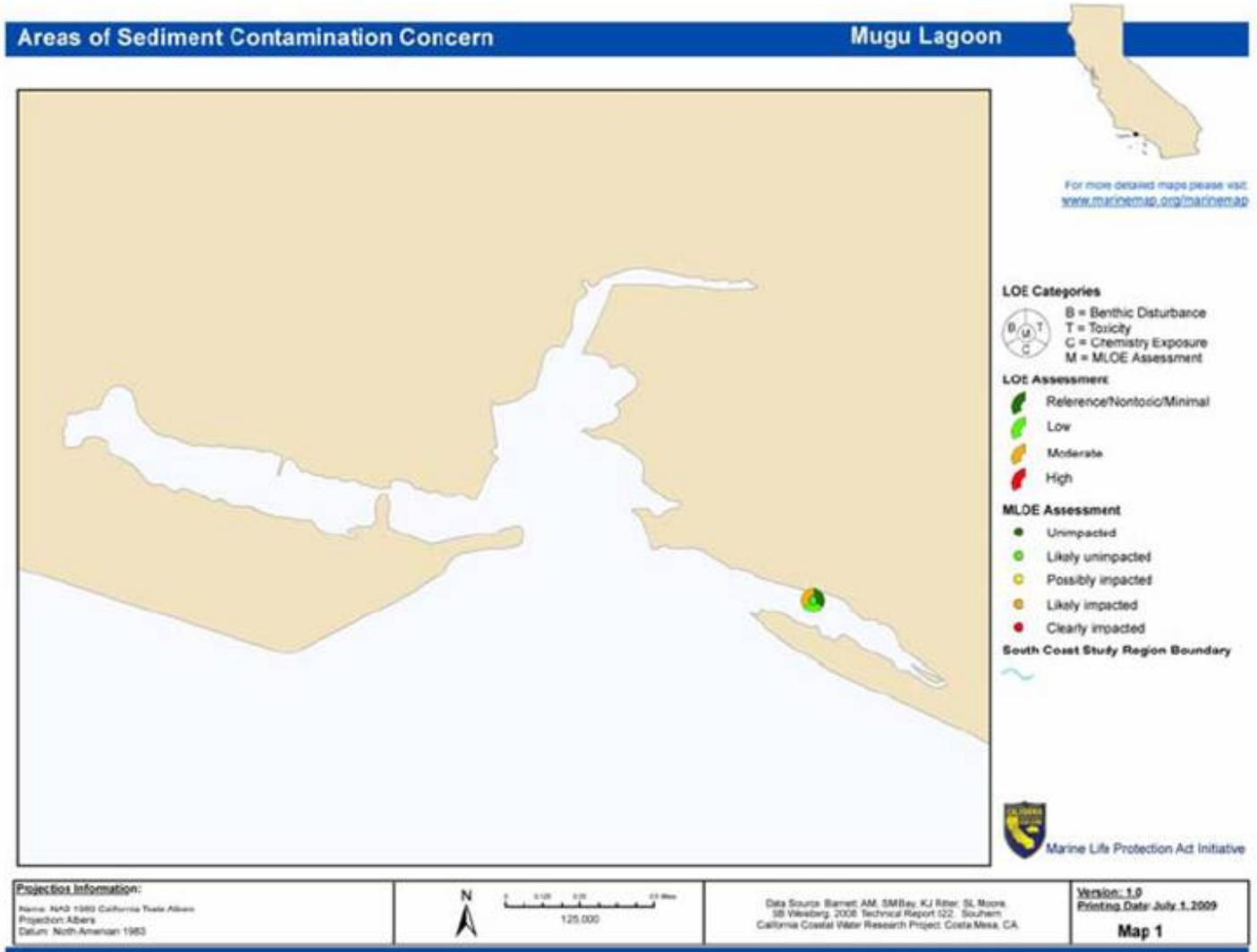
*California Marine Life Protection Act (MLPA) Initiative, South Coast Study Region (SCSR)  
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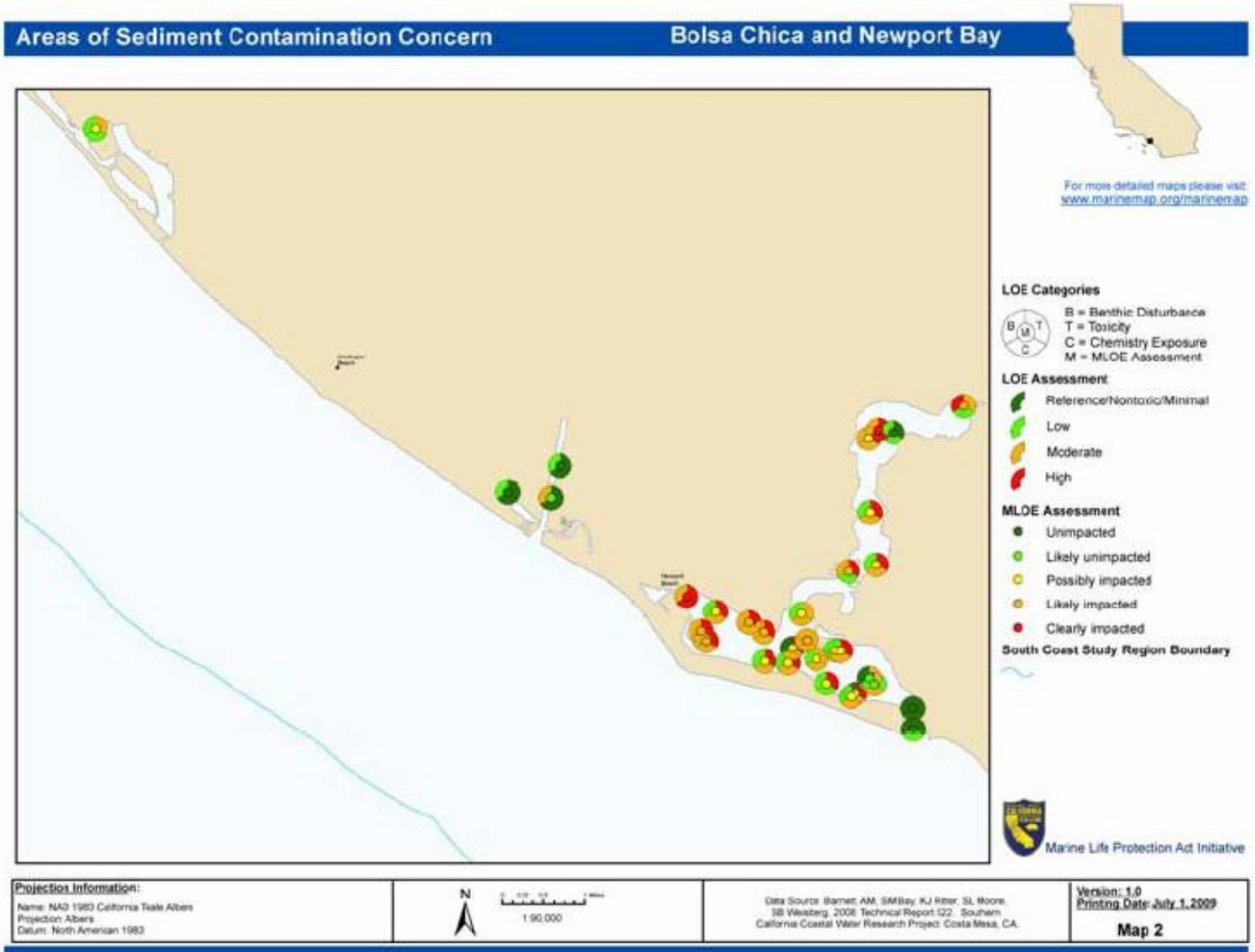
Charles F Holder Catalina SMCA	0.73
Big Sycamore SMR	0.75
La Jolla SMCA	0.97
San Diego-Scripps SMCA	1.00
San Clemente Pending Military Closure 1	1.00
San Clemente Pending Military Closure 2	1.00
Begg Rock SMR	1.00
Arrow Pt to Lionhead SMCA	1.00
Big Sycamore SMP	1.00

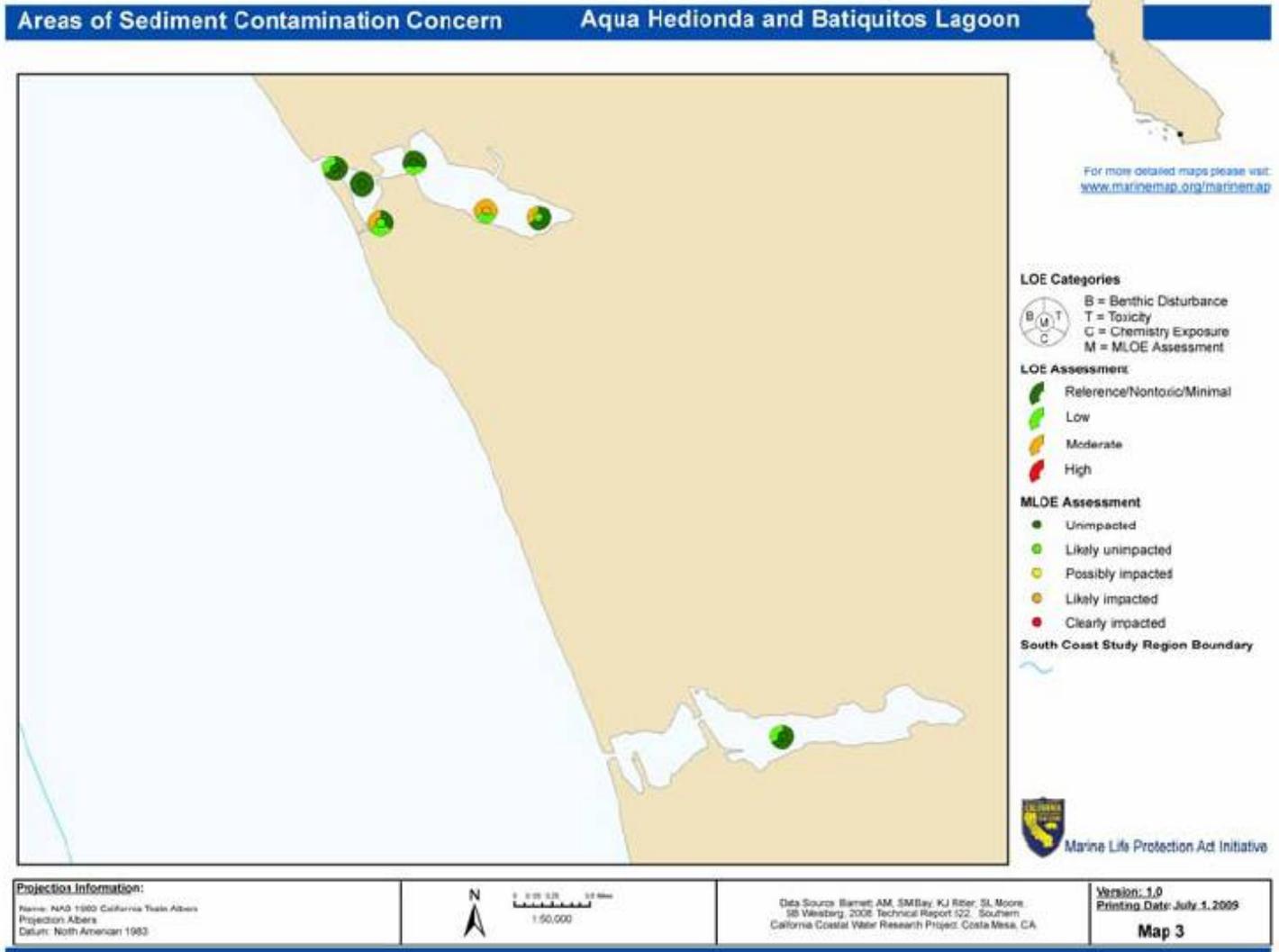
*Does not include NCI MPAs. See appendix H for the breakdown of these scores.*

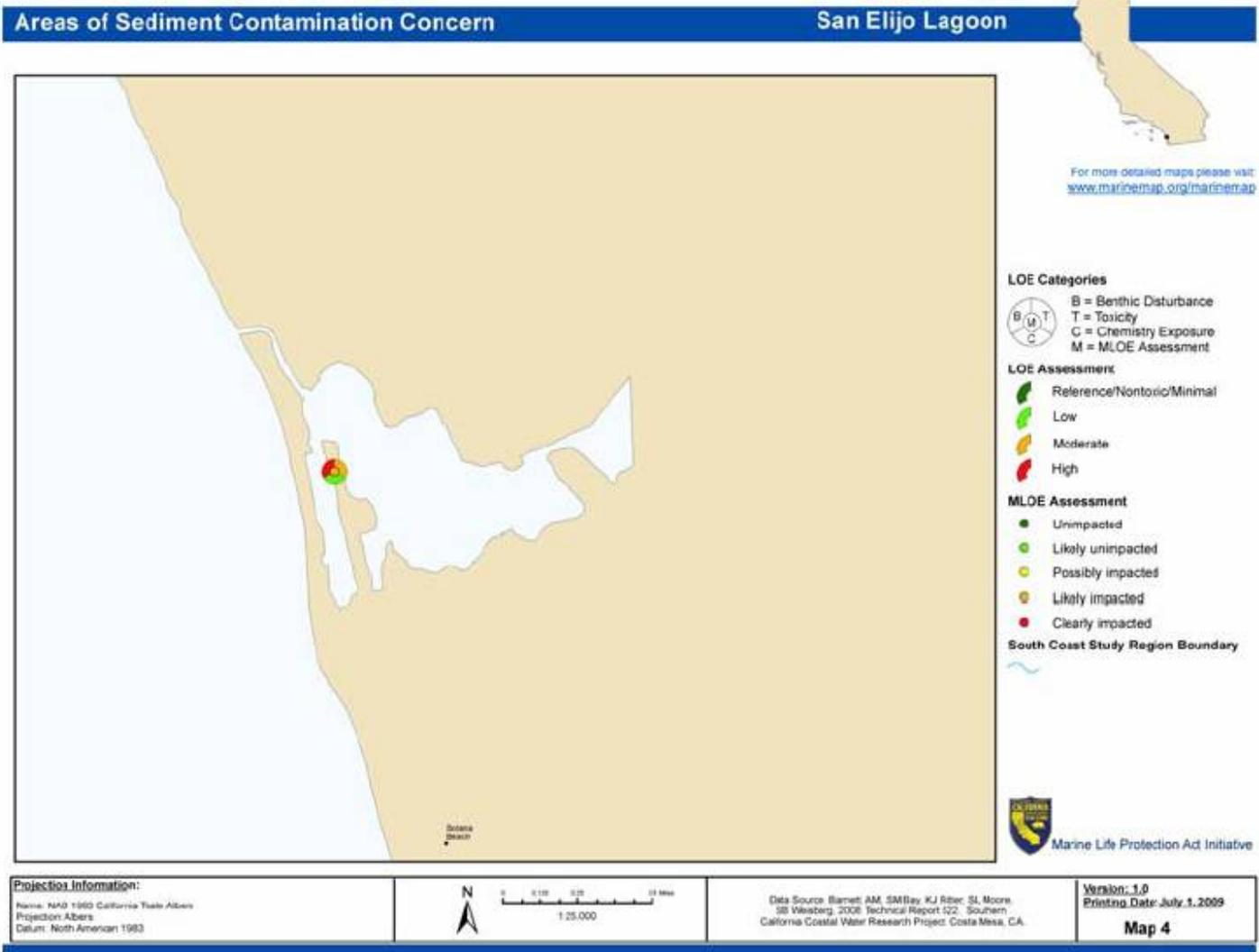
## Appendix A. Maps (1 through 5) of the Available Sediment Quality Sample Results in Those Embayments Included In The MPA Proposals

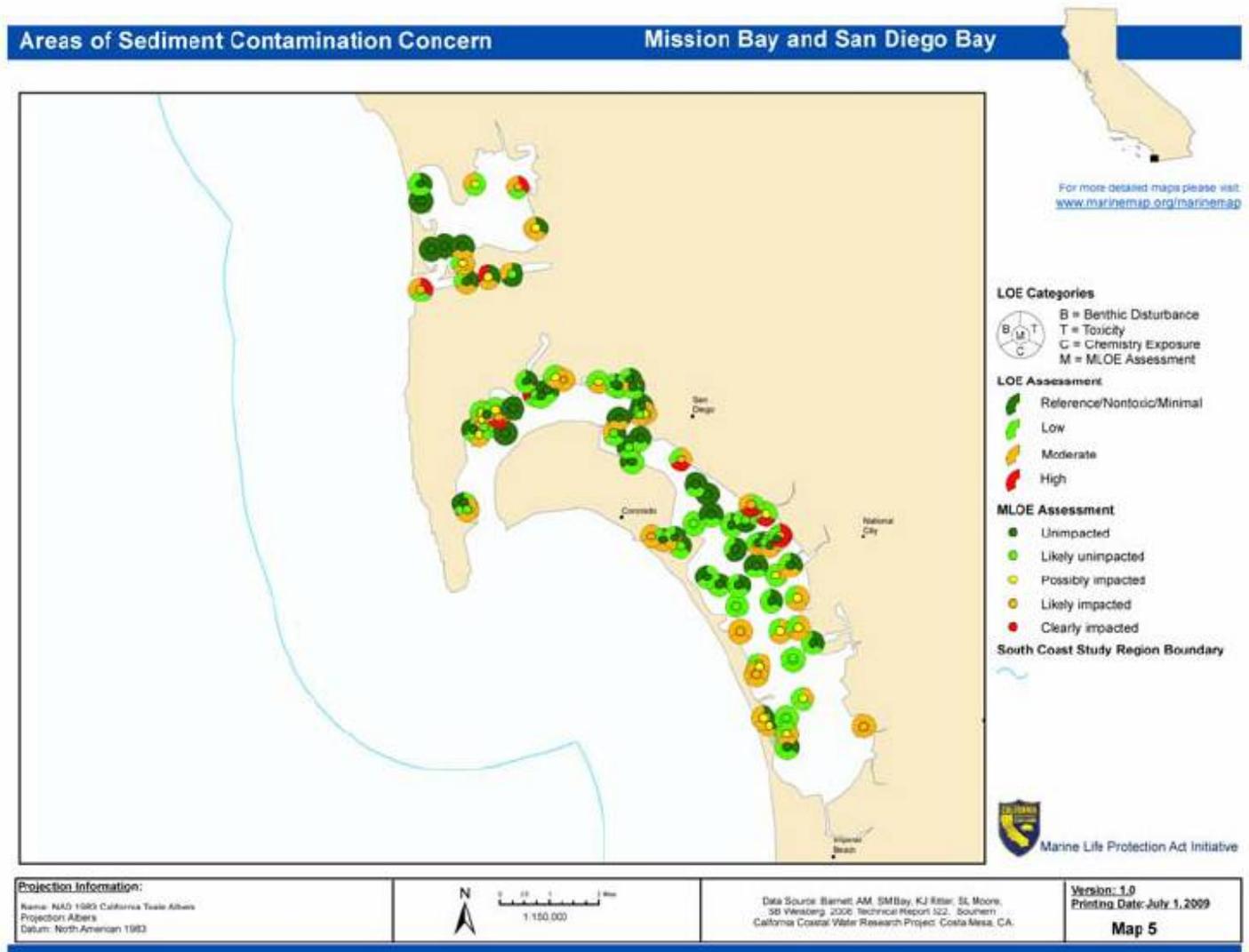
Each station result provides information on the relative status of sediment toxicity, sediment chemistry, and benthic community condition.











## Appendix B. Raw Scoring Table for Proposal 0 Based on SAT Water Quality Evaluation Methods

	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co-Located with an ASBS	Average Category Score	Weighted Score
<b>Coastal MPAs</b>							
Cardiff-San Elijo SMP	2.22	1.00	0.00	1.00	0.00	0.50	0.01
Doheny Beach SMCA	1.33	1.00	0.00	1.00	0.00	0.50	0.01
Doheny SMCA	1.39	1.00	0.00	1.00	0.00	0.50	0.01
Abalone Cove SMP	1.13	1.00	1.00	1.00	0.00	0.75	0.01
Catalina Marine Science Center SMR	1.19	1.00	1.00	1.00	0.00	0.75	0.01
Dana Point SMCA	0.88	1.00	1.00	1.00	0.00	0.75	0.01
Farnsworth Bank SMCA	1.16	1.00	1.00	1.00	0.00	0.75	0.01
Lover's Cove SMCA	0.37	1.00	1.00	1.00	0.00	0.75	0.00
Mia J Tegner SMCA	0.68	1.00	1.00	1.00	0.00	0.75	0.01
Niguel SMCA	2.31	1.00	1.00	1.00	0.00	0.75	0.02
Point Fermin SMP	0.51	1.00	1.00	1.00	0.00	0.75	0.00
Refugio SMCA	2.61	1.00	1.00	1.00	0.00	0.75	0.02
South Laguna Beach SMCA	0.47	1.00	1.00	1.00	0.00	0.75	0.00
Encinitas SMCA	0.46	1.00	1.00	1.00	0.00	0.75	0.00
Laguna Beach SMCA	5.05	1.00	1.00	1.00	0.09	0.77	0.05
Heisler Park SMR	0.40	1.00	1.00	1.00	0.88	0.97	0.00
La Jolla SMCA	1.94	1.00	1.00	1.00	0.88	0.97	0.02
Anacapa Island SMCA	2.45	1.00	1.00	1.00	1.00	1.00	0.03
Anacapa Island SMR	4.19	1.00	1.00	1.00	1.00	1.00	0.05
Big Sycamore Canyon SMR	2.27	1.00	1.00	1.00	1.00	1.00	0.03
Carrington Point SMR	5.94	1.00	1.00	1.00	1.00	1.00	0.07
Crystal Cove SMCA	3.28	1.00	1.00	1.00	1.00	1.00	0.04
Footprint SMR	4.70	1.00	1.00	1.00	1.00	1.00	0.06
Gull Island SMR	3.28	1.00	1.00	1.00	1.00	1.00	0.04
Harris Point SMR	8.17	1.00	1.00	1.00	1.00	1.00	0.10
Irvine Coast SMCA	3.26	1.00	1.00	1.00	1.00	1.00	0.04
Judith Rock SMR	1.84	1.00	1.00	1.00	1.00	1.00	0.02
Painted Cave SMCA	2.82	1.00	1.00	1.00	1.00	1.00	0.03
Richardson Rock SMR	6.50	1.00	1.00	1.00	1.00	1.00	0.08
Robert E Badham SMCA	0.69	1.00	1.00	1.00	1.00	1.00	0.01
San Diego-Scripps SMCA	0.49	1.00	1.00	1.00	1.00	1.00	0.01
Santa Barbara Island SMR	1.08	1.00	1.00	1.00	1.00	1.00	0.01
Scorpion SMR	3.83	1.00	1.00	1.00	1.00	1.00	0.05
Skunk Point SMR	2.52	1.00	1.00	1.00	1.00	1.00	0.03

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	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co-Located with an ASBS	Average Category Score	Weighted Score
South Point SMR	4.73	1.00	1.00	1.00	1.00	1.00	0.06
<b>Average Score</b>		<b>1.00</b>	<b>0.91</b>	<b>1.00</b>	<b>0.57</b>	<b>0.87</b>	<b>0.98</b>
<b><u>Bays and Estuaries MPAs</u></b>							
Agua Hedionda Lagoon SMR	0.39	-0.50	1.00	1.00	0.00	0.38	0.01
San Dieguito Lagoon SMP	1.40	1.00	0.00	1.00	0.00	0.50	0.04
San Elijo Lagoon SMP	3.40	1.00	0.00	1.00	0.00	0.50	0.09
Batiquitos Lagoon SMP	2.07	1.00	1.00	1.00	0.00	0.75	0.08
Upper Newport Bay SMP	4.32	1.00	1.00	1.00	0.00	0.75	0.17
Goleta Slough SMP	4.42	1.00	1.00	1.00	0.00	0.75	0.18
Bolsa Chica SMP	2.87	1.00	1.00	1.00	0.00	0.75	0.03
<b>Average Category Score</b>		<b>0.79</b>	<b>0.71</b>	<b>1.00</b>	<b>0.00</b>	<b>0.63</b>	<b>0.59</b>

**Appendix C. Raw Scoring Table for the Lapis 1 Proposal Based on SAT Water Quality Evaluation Methods**

	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co-Located with an ASBS	Average Score	Weighted Score
<b>Proposed Coastal MPAs</b>							
Swami's-San Elijo SMCA	3.17	1.00	0.00	0.50	0.00	0.38	0.01
Doheny SMCA	1.55	1.00	0.00	1.00	0.00	0.50	0.01
Tijuana River Mouth SMCA	1.08	1.00	0.00	1.00	0.00	0.50	0.01
Point Loma SMCA	2.92	1.00	0.00	1.00	0.00	0.50	0.01
Begg Rock SMR	3.00	1.00	1.00	1.00	0.00	0.75	0.02
Footprint	6.04	1.00	1.00	1.00	0.00	0.75	0.03
Richardson Rock	3.39	1.00	1.00	1.00	0.00	0.75	0.04
Avalon Dive Park SMR	4.64	1.00	1.00	1.00	0.00	0.75	0.00
Lover's Cove SMR	1.93	1.00	1.00	1.00	0.00	0.75	0.00
Point Fermin SMP	0.49	1.00	1.00	1.00	0.00	0.75	0.00
Dana Point SMR	4.70	1.00	1.00	1.00	0.00	0.75	0.01
Palos Verdes SMR	6.50	1.00	1.00	1.00	0.00	0.75	0.01
Blue Cavern SMCA	0.23	1.00	1.00	1.00	0.00	0.75	0.01
Coal Oil Point SMR	0.38	1.00	1.00	1.00	0.00	0.75	0.02
Blue Cavern SMR	0.51	1.00	1.00	1.00	0.00	0.75	0.02
La Jolla SMR 2	1.59	1.00	1.00	1.00	0.00	0.75	0.02
SoLag Dana SMCA	1.80	1.00	1.00	1.00	0.00	0.75	0.02
Point Conception/Humqag SMR	2.22	1.00	1.00	1.00	0.00	0.75	0.03
Laguna Beach SMR	3.09	1.00	1.00	1.00	0.07	0.77	0.04
Farnsworth Bank SMR	3.32	1.00	1.00	1.00	0.33	0.83	0.02
Newport Beach SMCA	3.61	1.00	1.00	1.00	0.86	0.96	0.04
La Jolla SMR 1	4.09	1.00	1.00	1.00	0.88	0.97	0.01
San Diego-Scripps SMCA	5.44	1.00	1.00	1.00	1.00	1.00	0.00
Santa Barbara Island	1.08	1.00	1.00	1.00	1.00	1.00	0.01
San Clemente Pending Military Closure 1	1.69	1.00	1.00	1.00	1.00	1.00	0.01
Judith Rock	1.84	1.00	1.00	1.00	1.00	1.00	0.01
Anacapa Island SMCA	2.45	1.00	1.00	1.00	1.00	1.00	0.02
Skunk Point	2.52	1.00	1.00	1.00	1.00	1.00	0.02
Painted Cave	2.82	1.00	1.00	1.00	1.00	1.00	0.02
Lachusa SMCA	3.09	1.00	1.00	1.00	1.00	1.00	0.02
Gull Island	3.28	1.00	1.00	1.00	1.00	1.00	0.03
Scorpion	3.83	1.00	1.00	1.00	1.00	1.00	0.03
Arrow Point SMCA	4.06	1.00	1.00	1.00	1.00	1.00	0.03
Anacapa Island SMR	4.19	1.00	1.00	1.00	1.00	1.00	0.03

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	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co-Located with an ASBS	Average Score	Weighted Score
South Point	4.73	1.00	1.00	1.00	1.00	1.00	0.04
Point Dume SMR	4.82	1.00	1.00	1.00	1.00	1.00	0.04
Carrington Point	5.94	1.00	1.00	1.00	1.00	1.00	0.05
San Clemente Pending Military Closure 2	6.09	1.00	1.00	1.00	1.00	1.00	0.05
Harris Point	8.17	1.00	1.00	1.00	1.00	1.00	0.07
<b>Average Score</b>		<b>1.00</b>	<b>0.90</b>	<b>0.99</b>	<b>0.49</b>	<b>0.84</b>	<b>0.86</b>
<b>Proposed Bay and Estuary MPAs</b>							
Ha Sil (South San Diego Bay) SMP	9.62	-0.50	0.00	1.00	0.00	0.13	0.02
Agua Hedionda Lagoon SMR	0.34	-0.50	1.00	1.00	0.00	0.38	0.00
Famosa Slough SMR	0.71	1.00	0.00	1.00	0.00	0.50	0.01
San Dieguito Lagoon SMR	1.41	1.00	0.00	1.00	0.00	0.50	0.01
Peñasquitos Lagoon SMR	1.90	1.00	0.00	1.00	0.00	0.50	0.02
San Diego River SMCA	2.04	1.00	0.00	1.00	0.00	0.50	0.02
San Elijo Lagoon SMR	3.44	1.00	0.00	1.00	0.00	0.50	0.03
Tijuana Estuary SMR	6.33	1.00	0.00	1.00	0.00	0.50	0.06
Mugu Lagoon SMRMA	12.06	1.00	0.00	1.00	0.00	0.50	0.11
Malibu Creek Estuary SMR	0.71	1.00	1.00	1.00	0.00	0.75	0.01
Batiquitos Lagoon SMR	2.07	1.00	1.00	1.00	0.00	0.75	0.03
Carpinteria Estuary SMR	2.27	1.00	1.00	1.00	0.00	0.75	0.03
Bolsa Chica SMP	2.87	1.00	1.00	1.00	0.00	0.75	0.04
Goleta Slough SMR	4.45	1.00	1.00	1.00	0.00	0.75	0.06
Upper Newport Bay SMP	4.57	1.00	1.00	1.00	0.00	0.75	0.06
<b>Average Score</b>		<b>0.80</b>	<b>0.47</b>	<b>1.00</b>	<b>0.00</b>	<b>0.57</b>	<b>0.51</b>

## Appendix D. Raw Scoring Table for the Lapis 2 Proposal Based on SAT Water Quality Evaluation Methods

	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co-Located with an ASBS	Average Score	Weighted Score
<b>Proposed Coastal MPAs</b>							
Doheny SMCA	1.55	1.00	0.00	1.00	0.00	0.50	0.01
Tijuana River Mouth SMCA	2.17	1.00	0.00	1.00	0.00	0.50	0.01
Point Loma SMCA	2.92	1.00	0.00	1.00	0.00	0.50	0.01
Del Mar SMR	2.99	1.00	0.00	1.00	0.00	0.50	0.01
Laguna SMR	3.44	1.00	1.00	0.50	0.13	0.66	0.02
Point Vicente SMR	0.05	1.00	1.00	1.00	0.00	0.75	0.00
Avalon Dive Park SMR	0.23	1.00	1.00	1.00	0.00	0.75	0.00
Lover's Cove SMR	0.38	1.00	1.00	1.00	0.00	0.75	0.00
Point Fermin SMP	0.51	1.00	1.00	1.00	0.00	0.75	0.00
Dana Point SMR	1.59	1.00	1.00	1.00	0.00	0.75	0.01
Newport Beach SMCA 2	1.92	1.00	1.00	1.00	0.00	0.75	0.01
Blue Cavern SMCA	2.22	1.00	1.00	1.00	0.00	0.75	0.01
Malibu SMR	2.95	1.00	1.00	1.00	0.00	0.75	0.02
Coal Oil Point SMR	3.09	1.00	1.00	1.00	0.00	0.75	0.02
Blue Cavern SMR	3.32	1.00	1.00	1.00	0.00	0.75	0.02
SoLag Dana SMCA	4.12	1.00	1.00	1.00	0.00	0.75	0.02
Abalone Cove SMCA	4.84	1.00	1.00	1.00	0.00	0.75	0.03
Point Conception/Humqag SMR	5.44	1.00	1.00	1.00	0.00	0.75	0.03
Farnsworth Bank SMR	3.39	1.00	1.00	1.00	0.32	0.83	0.02
Newport Beach SMCA 1	4.77	1.00	1.00	1.00	0.83	0.96	0.04
La Jolla SMR	1.94	1.00	1.00	1.00	0.88	0.97	0.02
Begg Rock SMR	3.00	1.00	1.00	1.00	1.00	1.00	0.02
Footprint SMR	4.70	1.00	1.00	1.00	1.00	1.00	0.04
Richardson Rock SMR	6.50	1.00	1.00	1.00	1.00	1.00	0.05
San Diego-Scripps SMCA	0.49	1.00	1.00	1.00	1.00	1.00	0.00
Santa Barbara Island	1.08	1.00	1.00	1.00	1.00	1.00	0.01
San Clemente Pending Military Closure 1	1.69	1.00	1.00	1.00	1.00	1.00	0.01
Judith Rock SMR	1.84	1.00	1.00	1.00	1.00	1.00	0.01
Anacapa Island SMCA	2.45	1.00	1.00	1.00	1.00	1.00	0.02
Skunk PointSMR	2.52	1.00	1.00	1.00	1.00	1.00	0.02
Painted Cave SMCA	2.82	1.00	1.00	1.00	1.00	1.00	0.02
Gull Island SMR	3.28	1.00	1.00	1.00	1.00	1.00	0.03
Scorpion SMR	3.83	1.00	1.00	1.00	1.00	1.00	0.03
Big Sycamore Canyon SMR	3.96	1.00	1.00	1.00	1.00	1.00	0.03

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	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharg e Zone	Municipal/ Industrial Discharg e Zone	Co-Located with an ASBS	Average Score	Weighted Score
Arrow Point SMCA	4.06	1.00	1.00	1.00	1.00	1.00	0.03
Anacapa Island SMR	4.19	1.00	1.00	1.00	1.00	1.00	0.03
South Point SMR	4.73	1.00	1.00	1.00	1.00	1.00	0.04
Carrington Point SMR	5.94	1.00	1.00	1.00	1.00	1.00	0.05
San Clemente Pending Military Closure 2	6.09	1.00	1.00	1.00	1.00	1.00	0.05
Harris Point SMR	8.17	1.00	1.00	1.00	1.00	1.00	0.07
<b>Average Scores</b>		<b>1.00</b>	<b>0.90</b>	<b>0.99</b>	<b>0.49</b>	<b>0.84</b>	<b>0.88</b>
<b><u>Proposed Bay and Estuary MPAs</u></b>							
Agua Hedionda Lagoon SMR	0.34	-0.50	1.00	1.00	0.00	0.38	0.00
Ha Sil (South San Deigo Bay) SMP	9.62	-0.50	0.00	1.00	0.00	0.13	0.02
Famosa Slough SMR	0.71	1.00	0.00	1.00	0.00	0.50	0.01
San Dieguito Lagoon SMR	1.41	1.00	0.00	1.00	0.00	0.50	0.01
Peñasquitos Lagoon SMR	1.90	1.00	0.00	1.00	0.00	0.50	0.02
San Diego River SMCA	3.44	1.00	0.00	1.00	0.00	0.50	0.03
San Elijo Lagoon SMR	2.89	1.00	0.00	1.00	0.00	0.50	0.03
Tijuana Estuary SMR	6.71	1.00	0.00	1.00	0.00	0.50	0.06
Mugu Lagoon SMRMA	12.06	1.00	0.00	1.00	0.00	0.50	0.11
Malibu Creek Estuary SMR	0.71	1.00	1.00	1.00	0.00	0.75	0.01
Batiquitos Lagoon SMR	2.07	1.00	1.00	1.00	0.00	0.75	0.03
Carpinteria Estuary SMR	2.27	1.00	1.00	1.00	0.00	0.75	0.03
Bolsa Chica SMP	2.87	1.00	1.00	1.00	0.00	0.75	0.04
Goleta Slough SMR	4.45	1.00	1.00	1.00	0.00	0.75	0.06
Upper Newport Bay SMP	4.57	1.00	1.00	1.00	0.00	0.75	0.06
<b>Average Scores</b>		<b>0.80</b>	<b>0.47</b>	<b>1.00</b>	<b>0.00</b>	<b>0.57</b>	<b>0.50</b>

## Appendix E. Raw Scoring Table for the Opal Proposal Based on SAT Water Quality Evaluation Methods

	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/Industrial Discharge Zone	Co-located with an ASBS	Average Score	Weighted Score
<b>Proposed Coastal MPAs</b>							
Ocean Beach SMCA	0.49	1.00	0.00	1.00	0.00	0.50	0.00
Tijuana Reef SMCA	1.15	1.00	0.00	1.00	0.00	0.50	0.00
Tijuana River Mouth SMR	1.08	1.00	0.00	1.00	0.00	0.5	0.01
Sunset Cliffs SMR	3.11	1.00	0.00	1.00	0.00	0.50	0.01
Del Mar SMR	3.73	1.00	0.00	1.00	0.00	0.50	0.01
Laguna SMR	3.35	1.00	1.00	0.50	0.10	0.66	0.02
Casino Point SMR	0.09	1.00	1.00	1.00	0.00	0.75	0.00
Lovers Cove SMCA	0.45	1.00	1.00	1.00	0.00	0.75	0.00
Point Fermin SMP	0.51	1.00	1.00	1.00	0.00	0.75	0.00
Encinitas SMCA	0.92	1.00	1.00	1.00	0.00	0.75	0.00
Cabrillo SMR	1.40	1.00	1.00	1.00	0.00	0.75	0.01
Little Bird Rock SMR	1.61	1.00	1.00	1.00	0.00	0.75	0.01
Long Point SMR	2.97	1.00	1.00	1.00	0.00	0.75	0.02
Coal Oil Point SMR	3.09	1.00	1.00	1.00	0.00	0.75	0.02
Point Vicente SMR	3.45	1.00	1.00	1.00	0.00	0.75	0.02
Long Point SMCA	4.10	1.00	1.00	1.00	0.00	0.75	0.02
Point Conception SMR	6.25	1.00	1.00	1.00	0.00	0.75	0.03
China Point SMR	6.67	1.00	1.00	1.00	0.00	0.75	0.04
Laguna South SMCA	7.74	1.00	1.00	1.00	0.00	0.75	0.04
Farnsworth Bank SMCA	8.18	1.00	1.00	1.00	0.00	0.75	0.04
Santa Catalina Marine Science Center SMR	3.50	1.00	1.00	1.00	0.00	0.76	0.02
Laguna North SMCA	4.63	1.00	1.00	1.00	0.80	0.96	0.03
La Jolla SMR	1.94	1.00	1.00	1.00	0.90	0.97	0.01
Begg Rock SMR	3.00	1.00	1.00	1.00	1.00	1.00	0.02
Footprint SMR	4.70	1.00	1.00	1.00	1.00	1.00	0.03
Richardson Rock SMR	6.50	1.00	1.00	1.00	1.00	1.00	0.05
San Diego-Scripps SMCA	0.49	1.00	1.00	1.00	1.00	1.00	0.00
Santa Barbara Island	1.08	1.00	1.00	1.00	1.00	1.00	0.01
Lechuza SMR	1.47	1.00	1.00	1.00	1.00	1.00	0.01
San Clemente Pending Military Closure 1	1.69	1.00	1.00	1.00	1.00	1.00	0.01
Judith Rock	1.84	1.00	1.00	1.00	1.00	1.00	0.01
Anacapa Island SMCA	2.45	1.00	1.00	1.00	1.00	1.00	0.02
Anacapa Island SMR	2.45	1.00	1.00	1.00	1.00	1.00	0.02
Skunk Point SMR	2.52	1.00	1.00	1.00	1.00	1.00	0.02
Painted Cave SMCA	2.82	1.00	1.00	1.00	1.00	1.00	0.02
Gull Island SMR	3.28	1.00	1.00	1.00	1.00	1.00	0.02

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	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co- Located with an ASBS	Average Score	Weighted Score
Arrow Point-Lion's Head SMCA	3.52	1.00	1.00	1.00	1.00	1.00	0.02
Scorpion SMR	3.83	1.00	1.00	1.00	1.00	1.00	0.03
South Point SMR	4.73	1.00	1.00	1.00	1.00	1.00	0.03
Point Dume SMCA	5.07	1.00	1.00	1.00	1.00	1.00	0.04
Carrington Point	5.94	1.00	1.00	1.00	1.00	1.00	0.04
San Clemente Pending Military Closure 2	6.09	1.00	1.00	1.00	1.00	1.00	0.04
Harris Point SMR	8.17	1.00	1.00	1.00	1.00	1.00	0.06
<b>Average Score</b>		<b>1.00</b>	<b>0.88</b>	<b>0.99</b>	<b>0.51</b>	<b>0.85</b>	<b>0.90</b>
<b><u>Proposed Bay and Estuary MPAs</u></b>							
South San Diego Bay SMCA	4.02	-0.50	0.00	1.00	0.00	0.10	0.01
Agua Hedionda Lagoon SMR	0.30	-0.50	1.00	1.00	0.00	0.40	0.00
Peñasquitos SMR	1.90	1.00	0.00	1.00	0.00	0.50	0.02
Point Mugu Estuary SMRMA	2.21	1.00	0.00	1.00	0.00	0.50	0.03
San Digueito SMR	3.48	1.00	0.00	1.00	0.00	0.50	0.04
Tijuana River Estuary SMR	6.71	1.00	0.00	1.00	0.00	0.50	0.08
Devereux Lagoon SMR	1.22	1.00	1.00	1.00	0.00	0.80	0.02
Catalina Harbor SMCA	1.51	1.00	1.00	1.00	0.00	0.80	0.03
Sweetwater Marsh SMR	1.66	1.00	1.00	1.00	0.00	0.80	0.03
Bolsa Chica SMP	2.87	1.00	1.00	1.00	0.00	0.80	0.05
Batiquitos Lagoon SMR	4.29	1.00	1.00	1.00	0.00	0.80	0.08
Upper Newport Bay SMP	4.38	1.00	1.00	1.00	0.00	0.80	0.08
Goleta Slough SMR	4.42	1.00	1.00	1.00	0.00	0.80	0.08
<b>Average Score</b>		<b>0.77</b>	<b>0.62</b>	<b>1.00</b>	<b>0.00</b>	<b>0.60</b>	<b>0.59</b>

## Appendix F. Raw Scoring Table for the Topaz Proposal Based on SAT Water Quality Evaluation Methods

	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co-Located with an ASBS	Average Score	Weighted Score
<b>Proposed Coastal MPAs</b>							
Swamis SMCA	2.73	1.00	0.00	0.50	0.00	0.38	0.01
Ocean Beach SMCA	0.84	1.00	0.00	1.00	0.00	0.50	0.00
Doheny Beach SMCA	1.38	1.00	0.00	1.00	0.00	0.50	0.00
Imperial Beach SMCA	2.17	1.00	0.00	1.00	0.00	0.50	0.01
Ocean Beach SMR	2.26	1.00	0.00	1.00	0.00	0.50	0.01
Del Mar SMR	3.06	1.00	0.00	1.00	0.00	0.50	0.01
Lover's Cove SMCA	0.51	1.00	1.00	0.50	0.00	0.63	0.00
Laguna SMR	7.00	1.00	1.00	0.50	0.21	0.68	0.03
Casino Point SMR	0.091	1.00	1.00	1.00	0.00	0.75	0.00
Point Fermin SMP	0.68	1.00	1.00	1.00	0.00	0.75	0.00
La Jolla South SMR	0.71	1.00	1.00	1.00	0.00	0.75	0.00
La Jolla South SMCA	0.88	1.00	1.00	1.00	0.00	0.75	0.00
Silver Canyon SMR	1.35	1.00	1.00	1.00	0.00	0.75	0.01
Cabrillo SMR	1.40	1.00	1.00	1.00	0.00	0.75	0.01
Naples SMCA	2.07	1.00	1.00	1.00	0.00	0.75	0.01
Catalina Isthmus SMCA	2.22	1.00	1.00	1.00	0.00	0.75	0.01
Refugio SMCA	2.30	1.00	1.00	1.00	0.00	0.75	0.01
Farnsworth SMCA	2.56	1.00	1.00	1.00	0.00	0.75	0.01
Dana Point SMCA	3.01	1.00	1.00	1.00	0.00	0.75	0.02
Three Arch Bay SMCA	3.06	1.00	1.00	1.00	0.00	0.75	0.02
Blue Cavern SMR	3.27	1.00	1.00	1.00	0.00	0.75	0.02
Palos Verdes SMR	3.28	1.00	1.00	1.00	0.00	0.75	0.02
Long Point SMR	3.75	1.00	1.00	1.00	0.00	0.75	0.02
Helo SMR	4.20	1.00	1.00	1.00	0.00	0.75	0.02
Point Conception SMR	5.44	1.00	1.00	1.00	0.00	0.75	0.03
Crystal Cove SMCA	3.42	1.00	1.00	1.00	0.85	0.96	0.02
La Jolla North SMR	2.09	1.00	1.00	1.00	0.89	0.97	0.01
Begg Rock SMR	3.00	1.00	1.00	1.00	1.00	1.00	0.02
Footprint SMR	4.70	1.00	1.00	1.00	1.00	1.00	0.03
Richardson Rock SMR	6.50	1.00	1.00	1.00	1.00	1.00	0.05
Santa Barbara Island	1.08	1.00	1.00	1.00	1.00	1.00	0.01
San Clemente Pending Military Closure 1	1.69	1.00	1.00	1.00	1.00	1.00	0.01
Judith Rock SMR	1.84	1.00	1.00	1.00	1.00	1.00	0.01
Sequit SMCA	2.03	1.00	1.00	1.00	1.00	1.00	0.01
Anacapa Island SMCA	2.46	1.00	1.00	1.00	1.00	1.00	0.02

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	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co-Located with an ASBS	Average Score	Weighted Score
Point Dume SMCA	2.50	1.00	1.00	1.00	1.00	1.00	0.02
Skunk Point SMR	2.52	1.00	1.00	1.00	1.00	1.00	0.02
Point Dume SMR	2.73	1.00	1.00	1.00	1.00	1.00	0.02
Deer Creek SMCA	2.74	1.00	1.00	1.00	1.00	1.00	0.02
Painted Cave SMCA	2.82	1.00	1.00	1.00	1.00	1.00	0.02
Gull Island SMR	3.28	1.00	1.00	1.00	1.00	1.00	0.02
Emerald Bay SMCA	3.53	1.00	1.00	1.00	1.00	1.00	0.02
Scorpion SMR	3.83	1.00	1.00	1.00	1.00	1.00	0.03
Anacapa Island SMR	4.19	1.00	1.00	1.00	1.00	1.00	0.03
South Point SMR	4.73	1.00	1.00	1.00	1.00	1.00	0.03
Carrington Point	5.94	1.00	1.00	1.00	1.00	1.00	0.04
San Clemente Pending Military Closure 2	6.09	1.00	1.00	1.00	1.00	1.00	0.04
Harris Point SMR	8.17	1.00	1.00	1.00	1.00	1.00	0.06
<b>Average Score</b>		<b>1.00</b>	<b>0.88</b>	<b>0.97</b>	<b>0.48</b>	<b>0.83</b>	<b>0.86</b>
<b><u>Proposed Bay and Estuary MPA</u></b>							
South San Diego Bay SMCA	10.45	-0.50	0.00	1.00	0.00	0.13	0.02
Agua Hedionda Lagoon SMR	1.02	-0.50	1.00	1.00	0.00	0.38	0.01
Santa Clara Rivermouth SMCA	1.21	1.00	0.00	1.00	0.00	0.50	0.01
Los Peñasquitos Marsh SMCA	1.90	1.00	0.00	1.00	0.00	0.50	0.01
San Elijo Lagoon SMR	3.44	1.00	0.00	1.00	0.00	0.50	0.03
San Diego River/Famosa Slough SMCA	3.59	1.00	0.00	1.00	0.00	0.50	0.03
San Dieguito Lagoon SMR	3.74	1.00	0.00	1.00	0.00	0.50	0.03
Tijuana Estuary SMR	6.70	1.00	0.00	1.00	0.00	0.50	0.05
Magu/ Muwu Lagoon SMRMA	9.22	1.00	0.00	1.00	0.00	0.50	0.07
Devereux Lagoon SMR	1.23	1.00	1.00	1.00	0.00	0.75	0.01
Cat Harbor SMCA	1.53	1.00	1.00	1.00	0.00	0.75	0.02
Carpinteria Salt Marsh SMR	2.25	1.00	1.00	1.00	0.00	0.75	0.03
Bolsa Chica SMP	2.87	1.00	1.00	1.00	0.00	0.75	0.03
Batiquitos Lagoon SMR	4.30	1.00	1.00	1.00	0.00	0.75	0.05
Upper Newport Bay SMP	4.38	1.00	1.00	1.00	0.00	0.75	0.05
Goleta Slough SMR	4.41	1.00	1.00	1.00	0.00	0.75	0.05
Ventura River Mouth SMCA	0.33	1.00	0.00	1.00	0.00	0.50	0.00
Kendal Frost SMCA	1.34	1.00	0.00	1.00	0.00	0.50	0.01
<b>Average Score</b>		<b>0.83</b>	<b>0.44</b>	<b>1.00</b>	<b>0.00</b>	<b>0.57</b>	<b>0.52</b>

## Appendix G. Raw Scoring Table for the External A Proposal Based on SAT Water Quality Evaluation Methods

	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co-Located with an ASBS	Average Score	Weighted Score
<b>Proposed Coastal MPAs</b>							
Doheny Beach SMCA	1.26	1.00	0.00	1.00	0.00	0.50	0.01
Sunset Cliffs SMR	2.39	1.00	0.00	1.00	0.00	0.50	0.01
Del Mar SMR	3.01	1.00	0.00	1.00	0.00	0.50	0.01
Lover's Cove_SMCA	0.61	1.00	1.00	0.50	0.00	0.63	0.00
Portuguese Bend SMCA	4.94	1.00	1.00	0.50	0.00	0.63	0.03
Laguna SMR	2.66	1.00	1.00	0.50	0.16	0.67	0.02
Point Vicente SMR	0.05	1.00	1.00	1.00	0.00	0.75	0.00
Casino Point_SMR	0.09	1.00	1.00	1.00	0.00	0.75	0.00
Point Fermin SMP	0.51	1.00	1.00	1.00	0.00	0.75	0.00
Farnsworth Bank_SMCA	1.16	1.00	1.00	1.00	0.00	0.75	0.01
Cabrillo SMR	1.40	1.00	1.00	1.00	0.00	0.75	0.01
Bird Rock SMCA	2.21	1.00	1.00	1.00	0.00	0.75	0.01
Malibu SMR	2.94	1.00	1.00	1.00	0.00	0.75	0.02
Laguna Coast SMCA	2.98	1.00	1.00	1.00	0.00	0.75	0.02
Dana Point SMCA	3.07	1.00	1.00	1.00	0.00	0.75	0.02
Campus Point SMR	3.11	1.00	1.00	1.00	0.00	0.75	0.02
Ocean Beach SMCA	3.21	1.00	1.00	1.00	0.00	0.75	0.02
Blue Cavern SMR	3.28	1.00	1.00	1.00	0.00	0.75	0.02
Point Conception SMR	4.45	1.00	1.00	1.00	0.00	0.75	0.03
La Jolla SMR	1.94	1.00	1.00	1.00	0.88	0.97	0.02
Crystal Cove SMCA	3.90	1.00	1.00	1.00	0.94	0.99	0.03
Begg Rock SMR	3.00	1.00	1.00	1.00	1.00	1.00	0.03
Footprint SMR	4.70	1.00	1.00	1.00	1.00	1.00	0.04
Richardson Rock SMR	6.50	1.00	1.00	1.00	1.00	1.00	0.06
Santa Barbara Island SMR	1.08	1.00	1.00	1.00	1.00	1.00	0.01
Deer Creek SMCA	1.56	1.00	1.00	1.00	1.00	1.00	0.01
Pending Military Closures SCI 1	1.69	1.00	1.00	1.00	1.00	1.00	0.01
Judith Rock SMR	1.84	1.00	1.00	1.00	1.00	1.00	0.02
Anacapa Island SMCA	2.45	1.00	1.00	1.00	1.00	1.00	0.02
Skunk Point SMR	2.52	1.00	1.00	1.00	1.00	1.00	0.02
Painted Cave SMCA	2.82	1.00	1.00	1.00	1.00	1.00	0.02
Gull Island SMR	3.28	1.00	1.00	1.00	1.00	1.00	0.03
Big Sycamore Canyon SMR	3.81	1.00	1.00	1.00	1.00	1.00	0.03
Scorpion SMR	3.83	1.00	1.00	1.00	1.00	1.00	0.03
Anacapa Island SMR	4.19	1.00	1.00	1.00	1.00	1.00	0.04
South Point SMR	4.73	1.00	1.00	1.00	1.00	1.00	0.04
Carrington Point SMR	5.94	1.00	1.00	1.00	1.00	1.00	0.05

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Pending Military Closures SCI 2	6.09	1.00	1.00	1.00	1.00	1.00	0.05
Harris Point SMR	8.17	1.00	1.00	1.00	1.00	1.00	0.07
<b>Average Score</b>		<b>1.00</b>	<b>0.92</b>	<b>0.96</b>	<b>0.51</b>	<b>0.85</b>	<b>0.88</b>
<b><u>Proposed Bay and Estuary MPAs</u></b>							
San Elijo Lagoon SMR	3.40	1.00	0.00	1.00	0.00	0.50	0.06
San Dieguito Lagoon SMR	3.74	1.00	0.00	1.00	0.00	0.50	0.06
Oneonta Slough SMR	6.49	1.00	0.00	1.00	0.00	0.50	0.11
Cat Harbor SMCA	1.53	1.00	1.00	1.00	0.00	0.75	0.04
Bolsa Chica SMP	2.87	1.00	1.00	1.00	0.00	0.75	0.07
Batiquitos Lagoon SMR	4.07	1.00	1.00	1.00	0.00	0.75	0.10
Upper Newport Bay SMCA	4.32	1.00	1.00	1.00	0.00	0.75	0.11
Goleta Slough SMR	4.42	1.00	1.00	1.00	0.00	0.75	0.11
<b>Average Score</b>		<b>1.00</b>	<b>0.63</b>	<b>1.00</b>	<b>0.00</b>	<b>0.66</b>	<b>0.64</b>

## Appendix H. Raw Scoring Table for External B Proposal Based on SAT Water Quality Evaluation Methods

	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co-Located with an ASBS	Average Score	Weighted Score
<b>Proposed Coastal MPAs</b>							
Sunset Cliffs SMR	2.39	1.00	0.00	1.00	0.00	0.50	0.01
Del Mar SMR	3.07	1.00	0.00	1.00	0.00	0.50	0.01
Laguna Coast SMCA	3.00	1.00	1.00	0.50	0.00	0.63	0.01
Palos Verdes SMCA	3.09	1.00	1.00	0.50	0.00	0.63	0.01
Laguna SMR	2.76	1.00	1.00	0.50	0.16	0.66	0.01
Charles F Holder Catalina SMCA	63.55	1.00	1.00	0.50	0.42	0.73	0.25
Big Sycamore SMR	5.47	1.00	0.00	1.00	1.00	0.75	0.02
Lover's Cove SMCA	0.37	1.00	1.00	1.00	0.00	0.75	0.00
Mia J Tegner SMCA	0.72	1.00	1.00	1.00	0.00	0.75	0.00
Point Fermin SMP	0.93	1.00	1.00	1.00	0.00	0.75	0.00
Bird Rock SMCA	2.22	1.00	1.00	1.00	0.00	0.75	0.01
Farnsworth ptB SMCA	2.37	1.00	1.00	1.00	0.00	0.75	0.01
Goleta SMCA	2.80	1.00	1.00	1.00	0.00	0.75	0.01
Del Mar SMCA	2.96	1.00	1.00	1.00	0.00	0.75	0.01
Goleta SMR	3.03	1.00	1.00	1.00	0.00	0.75	0.01
Farnsworth ptA SMCA	3.10	1.00	1.00	1.00	0.00	0.75	0.01
Ocean Beach SMCA	3.21	1.00	1.00	1.00	0.00	0.75	0.01
Catalina Marine Science Center SMR	3.40	1.00	1.00	1.00	0.00	0.75	0.01
Portuguese Bend SMCA	5.95	1.00	1.00	1.00	0.00	0.75	0.02
La Jolla SMCA	1.93	1.00	1.00	1.00	0.88	0.97	0.01
Begg Rock SMR	3.00	1.00	1.00	1.00	1.00	1.00	0.02
Footprint SMR	4.70	1.00	1.00	1.00	1.00	1.00	0.03
Richardson Rock	6.50	1.00	1.00	1.00	1.00	1.00	0.03
San Diego-Scripps SMCA	0.49	1.00	1.00	1.00	1.00	1.00	0.00
Santa Barbara Island SMR	1.08	1.00	1.00	1.00	1.00	1.00	0.01
Pending Military Closure SCI 1	1.69	1.00	1.00	1.00	1.00	1.00	0.01
Judith Rock SMR	1.84	1.00	1.00	1.00	1.00	1.00	0.01
Anacapa Island SMCA	2.51	1.00	1.00	1.00	1.00	1.00	0.01
Skunk Point SMR	2.52	1.00	1.00	1.00	1.00	1.00	0.01
Big Sycamore SMP	2.75	1.00	1.00	1.00	1.00	1.00	0.01
Painted Cave SMCA	2.82	1.00	1.00	1.00	1.00	1.00	0.02
Gull Island SMR	3.28	1.00	1.00	1.00	1.00	1.00	0.02
Arrow Pt to Lionhead SMCA	3.51	1.00	1.00	1.00	1.00	1.00	0.02
Scorpion SMR	3.83	1.00	1.00	1.00	1.00	1.00	0.02
Anacapa Island SMR	4.19	1.00	1.00	1.00	1.00	1.00	0.02
South Point SMR	4.73	1.00	1.00	1.00	1.00	1.00	0.03

*California Marine Life Protection Act (MLPA) Initiative, South Coast Study Region (SCSR)  
Summary of SAT Evaluation of Round 2 MPA Proposals: Water and Sediment Quality  
Revised July 13, 2009*

	MPA Shoreline Length (Miles)	Power Plant Intake Zone	Stormwater Discharge Zone	Municipal/ Industrial Discharge Zone	Co-Located with an ASBS	Average Score	Weighted Score
Carrington Point SMR	5.94	1.00	1.00	1.00	1.00	1.00	0.03
Pending Military Closure SCI 2	6.09	1.00	1.00	1.00	1.00	1.00	0.03
Harris Point SMR	8.17	1.00	1.00	1.00	1.00	1.00	0.04
<b>Average Score</b>		<b>1.00</b>	<b>0.92</b>	<b>0.95</b>	<b>0.55</b>	<b>0.86</b>	<b>0.83</b>
<b>Proposed Bay and Estuary MPAs</b>							
South San Diego Bay SMP	3.55	-0.50	0.00	1.00	0.00	0.13	0.01
Agua Hedionda Lagoon SMR	0.30	-0.50	1.00	1.00	0.00	0.38	0.00
San Elijo Lagoon SMP	3.39	1.00	0.00	1.00	0.00	0.50	0.05
Mugu Lagoon SMRMA	3.66	1.00	0.00	1.00	0.00	0.50	0.06
San Dieguito Lagoon SMR	3.74	1.00	0.00	1.00	0.00	0.50	0.06
Devereux Lagoon SMR	1.23	1.00	1.00	1.00	0.00	0.75	0.03
Sweetwater Marsh SMR	1.60	1.00	1.00	1.00	0.00	0.75	0.04
Bolsa Chica SMP	2.87	1.00	1.00	1.00	0.00	0.75	0.07
Batiquitos Lagoon SMP	3.92	1.00	1.00	1.00	0.00	0.75	0.09
Upper Newport Bay SMP	4.38	1.00	1.00	1.00	0.00	0.75	0.10
Goleta Slough SMP	4.42	1.00	1.00	1.00	0.00	0.75	0.10
<b>Average Score</b>		<b>0.73</b>	<b>0.64</b>	<b>1.00</b>	<b>0.00</b>	<b>0.59</b>	<b>0.60</b>