



California Marine Life Protection Act Initiative

c/o California Resources Agency
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To: MLPA South Coast Regional Stakeholder Group (SCRSG)
From: MLPA Initiative Staff
Subject: Evaluation of Existing MPAs, South Coast Regional Stakeholder Group Draft MPA Proposals, and Revised External MPA Proposals relative to MLPA Goal 3
Date: July 20, 2009

1.0 Summary

Goal 3 of the Marine Life Protection Act (MLPA) is:

“To improve recreational, educational, and study opportunities provided by marine ecosystems that are subject to minimal human disturbance, and to manage these uses in a manner consistent with protecting biodiversity.”

MLPA Initiative staff evaluated existing MPAs (Proposal 0), South Coast Regional Stakeholder Group (SCRSG) draft marine protected area (MPA) proposals, and revised external proposals for their fulfillment of the MLPA’s Goal 3. In total, 7 proposals were evaluated, including existing MPAs.

Access is a key issue for recreational, educational and study opportunities; the Goal 3 evaluation focuses on proximity of MPAs to access points, boat and kayak launch sites, state parks adjacent to the ocean, and marine research institutions. The number of long-term monitoring sites inside MPAs and the replication of habitats within MPAs were also tabulated as a measure of study opportunities.

For the most part, the draft SCRSG MPA proposals and revised external proposals provide better recreational, educational and study opportunities than Proposal 0. The following is a summary (excluding Proposal 0) of the seven parameters included in the Goal 3 analysis:

1. *Coastal access points within and near proposed MPAs.* Access points located inside MPA boundaries and within 2 miles of MPAs were counted. The number of total access points included in draft and revised proposals ranged from 177 to 257.
2. *Boat and kayak launch sites within or near proposed MPAs.* Launch sites located within MPA boundaries or within 2 miles of MPAs were counted. The total number of launch sites captured within Round 2 proposals ranged from 47 to 68. This is an increase over Proposal 0 and Round 1 results. In general, the SCRSG proposals captured more launch sites within all MPAs, while external proposals tended to capture more sites within state marine conservation areas and state marine parks rather than state marine reserves.
3. *Ports and harbors within given distances of proposed MPAs.* Draft and revised proposals had 12 to 13 ports and harbors within 5 miles of proposed MPAs. This is a slight increase

over Proposal 0 and relatively similar results to Round 1. Most Round 2 proposals include an MPA within at least 15 miles of all ports and harbors in the study region.

4. *Terrestrial California State Parks located adjacent to proposed onshore MPAs.* In general, draft and revised proposals did not increase in this parameter compared to Round 1. Considering MPAs at all levels of protection, there are 3 to 16 terrestrial state parks adjacent to proposed onshore MPAs.
5. *Major marine research and educational institutions within given distances of proposed MPAs.* Draft and revised proposals provided some increase over Proposal 0 and had mixed results compared to Round 1. Considering MPAs at all levels of protection, there are 30 to 37 institutions within 15 miles of proposed MPAs. All the proposals had at least one MPA within 50 miles of each institution.
6. *Long-term marine research monitoring sites located within proposed MPAs.* The number of established, long-term monitoring sites located within the boundaries of proposed MPAs was counted. Round 2 proposals increased research and study opportunities compared to Proposal 0. In most cases, Round 2 proposals did not increase opportunities compared to Round 1. There are between 107 and 151 monitoring sites within proposed MPAs at all levels of protection.
7. *Replication of habitats within the study region.* Replication provided by the draft and revised proposals ranged from 1 to 18 replicates across proposed MPAs at all protection levels.

Three additional evaluations (not outlined in this document) that take Goal 3 of the MLPA into consideration are:

The California Department of Fish and Game's feasibility analysis

The California Department of Parks and Recreation evaluation

The Ecotrust evaluation of potential impacts to areas of importance to recreational fishing

2.0 Methodology

MLPA Initiative staff used simple metrics and the best-readily available data within a geographic information system (GIS) to evaluate the extent to which draft and revised MPA proposals address Goal 3 of the MLPA. This evaluation compared draft and revised MPA proposals relative to one another and to existing MPAs. MPA proposals evaluated include:

- Proposal 0 (existing MPAs),
- four SCRSG draft MPA proposals (Lapis 1, Lapis 2, Opal and Topaz), and
- two revised external MPA proposals (external proposals A and B)

Evaluation of recreational opportunities focused on accessibility of different types of MPAs, specifically:

Number of coastal access points within and near proposed MPAs. In total, there are 486 mapped access points in or adjacent to the south coast study region. Existing data on access points come from the *California Coastal Access Guide* and a revised dataset was

used in the Round 2 evaluation. Approximately 80 additional access points were added and the increase in access points contributed to the increase in recreational opportunities in Round 2 results. For this parameter, these data were evaluated to determine the number of access points located inside MPA boundaries or within 2 miles for proposed MPAs. Access points captured in very high level of protection MPAs may result in more numerous non-consumptive opportunities. Access points in very high protection MPAs may limit take of marine resources and may result in fewer consumptive recreational opportunities. Taking this into account, this evaluation was conducted at four different thresholds for MPA level of protection (LOP), including: a) very high LOP; b) high and moderate-high LOP; c) moderate, moderate-low and low LOP; and d) all levels of protection. Only shoreline MPAs are considered in the evaluation of access. Access points that are within the boundary of an MPA and within 2 miles of another MPA are only counted once.

Number of boat and kayak launch sites within or near proposed MPAs. There are 116 launch sites mapped in the study region and they include boat ramps, kayak launch sites and boat launch sites. For this parameter, launch sites were counted if located inside MPA boundaries, within 2 miles, or within 2-5 miles of proposed MPAs. This parameter was also evaluated for proposed MPAs with: a) very high LOP; b) high and moderate-high LOP; c) moderate, moderate-low, lower LOP; and d) all levels of protection. The distance of 5 miles reflects potential use of MPAs by users with small water craft.

Number of ports and harbors within given distances of proposed MPAs. Eighteen ports and harbors exist in the study region. Each proposed MPA was evaluated to determine the number of ports and harbors within: 0-5 miles, 5-15 miles, or 15-50 miles of that MPA. Proposed MPAs were separated out by those with: a) very high level of protection (LOP), b) high and moderate high LOP, c) moderate and lower LOP, and d) all levels of protection.

Number of terrestrial California State Parks located adjacent to proposed nearshore MPAs. There are thirty-two state parks located adjacent to the Pacific Ocean in the south coast study region. Data for this evaluation are provided by California State Parks with individual park information from the various districts in the region. State parks were counted if they were adjacent to onshore MPAs and their associated boundaries. This parameter was evaluated for proposed MPAs with: a) very high level of protection (LOP), b) high and moderate high LOP, and c) moderate LOP or lower.

Evaluation of educational and study opportunities focused on:

Number of major marine research and educational institutions within given distances of proposed MPAs. The evaluation is limited to the 49 major research and educational institutions in the region. These institutions include: aquariums, research and educational institutes, education only institutes, and research only institutes. For this parameter, it is determined how many institutes are within 15 miles or within 15-50 miles of proposed MPAs by the following level of protections: a) very high, b) high and moderate high, c) moderate and lower LOP, and d) all levels of protection.

Number of long-term marine research monitoring sites located within proposed MPAs. This parameter considers the key, long-term monitoring sites in the study region and includes nearly 1,400 sites. This parameter is evaluated by counting the number of monitoring sites

located within proposed MPAs with: a) very high level of protection, b) high and moderate high LOP, c) moderate and lower LOP, and d) all levels of protection.

Number of habitat replicates, for each habitat, within the study region. There are nineteen habitats under consideration in the MLPA South Coast process, including: beaches, rocky shores, surfgrass, kelp persistence, max kelp, hard substrate (0-30 m), hard substrate (30-100 m), hard substrate (100-3000 m), soft substrate (0-30 m), soft substrate (30-100 m), soft substrate (100-200 m), soft substrate (200-3000 m), soft (all depths), depth (30-100 m), depth (100-200 m), and depth (200-3000 m), estuary, coastal marsh, and eelgrass. A habitat is considered to be present within a MPA if at least a critical amount of that habitat is present, based on the Master Plan Science Advisory Team (SAT) evaluation methods. The number of habitat replicates is counted within an MPA proposal. Habitat replication is considered for proposed MPAs at a) Moderate-high LOP or higher, and b) all levels of protection.

3.0 Evaluation Results

Recreational Opportunities

Access to MPAs is important for both consumptive and non-consumptive users of the marine environment (Figure1). Therefore, one parameter in the Goal 3 analysis determined how many access points were captured within or near (2 miles) draft and revised MPA proposals. Note an improved access point data layer was used for the Round 2 analysis and as a result, there were approximately 80 additional access points added to the evaluation. This new data layer contributed to the increase in access opportunities experienced across the proposals; however, the increase in access for this parameter is not limited to these new points. Overall, there is an increase in the number of access points captured in Round 2 proposals relative to existing MPAs and Round 1 results.

In total, there are 486 coastal access points within the study region. Topaz MPA Proposal (257 access points) and Lapis 1 MPA Proposal (231 access points) had the greatest overall accessibility when considering MPAs of all protection levels; whereas, Topaz and Revised External Proposal B had the greatest number of access points within or near MPAs at a high LOP or lower. In addition, all the Round 2 proposals included at least fifty access points within MPAs with a high LOP or lower, which was an increase of access compared to Round 1. Revised External Proposal A provided the least access with 177 access points within or near proposed MPAs of all levels of protection, though that is an increase in access from Round 1. In terms of access within MPAs, there are fewer access points within MPA boundaries compared to within 2 miles. However, there was a slight increase in the number of access points within MPAs when comparing Round 1 results to Round 2. Within MPA boundaries, there is a range of 5 to 15 access points with Round 2 proposals. Topaz (15), External Proposal B (13), and Opal (10) had the greatest number of access points within MPA boundaries.

Another parameter used to measure access to recreational opportunities is access from boat and kayak launch sites. Round 2 proposals improved access from launch sites compared to Proposal 0

and compared to Round 1 arrays and proposals. In total, there are 116 kayak and boat launch sites within the study region. Considering MPAs at all levels of protection, the Topaz proposal provides the greatest access with 68 launch sites within or near (2 miles) proposed MPAs, followed by Lapis 1 (64) and Lapis 2 (60) (Figures 2). External Proposal A provided the least access with only 47 sites within or near all MPAs, but it does provide the greatest access within 2 miles of non-SMR MPAs (31). For state marine reserves (SMRs), which have a very high LOP, the number of launch sites only slightly varied from 30 (External Proposal B) to 39 (Lapis 2). The number of launch sites within MPA boundaries is notably smaller than those within 2 miles of MPAs. Topaz (23), Lapis 1 (18), and Opal and External Proposal B (16) capture the most launch sites within MPAs.

The third parameter used to measure recreational opportunities is the number of ports and harbors within given distances of proposed MPAs. There are 18 ports and harbors in the study region, which were included in this analysis. The evaluation found that draft SCRSG proposals and revised external proposals captured more than half of south coast study region ports and harbors within 5 miles of proposed MPAs and nearly all ports and harbors were captured within 5-15 miles of proposed MPAs (see Figure 3). Lapis 1 had 13 ports and harbors within 5 miles of proposed MPAs of all levels of protection, while all other proposals, excluding Proposal 0, had 12. All proposals captured the 18 ports and harbors within 15 to 50 miles of MPAs at all levels of protection and all but one (External Proposal B) captured them within 15 miles. Considering the number of ports and harbors captured within MPAs with certain LOPs, there is little change between Rounds 1 and 2. However, Round 2 has more MPAs with moderate or lower LOPs that capture ports and harbors than Round 1.

The final recreational parameter counts the number of terrestrial state parks that are adjacent to onshore MPAs (see Figure 4). In total there are 32 terrestrial state parks located on the coast of Southern California. The number of state parks adjacent to proposed onshore MPAs ranged from 3 (External Proposal B) to 16 state parks (Topaz). Topaz (7), Lapis 1 (6), and Lapis 2 (5) have the most state parks adjacent to state marine reserves; this finding is important as state marine reserves will restrict consumptive recreational activities within state waters. Opal is the only Round 2 proposal to place an MPA with a high or moderate high LOP next to a terrestrial state park. Considering MPAs with a moderate or lower LOP, Topaz has the greatest number of state parks adjacent to MPAs with eight and External Proposal A is the closest behind Topaz with only 2 state parks adjacent MPAs with moderate or lower LOPs.

Educational and study opportunities

Educational and study opportunities may be improved by the presence of proposed MPAs near research institutions and MPAs that include established long term monitoring sites. Therefore, these parameters were used to evaluate such opportunities (Figures 5 and 6). In addition, habitat replication within the study region is also an essential consideration in the design of MPA proposals for educational and study opportunities, given the importance of replicate sites for robust design of scientific studies (Figure 7).

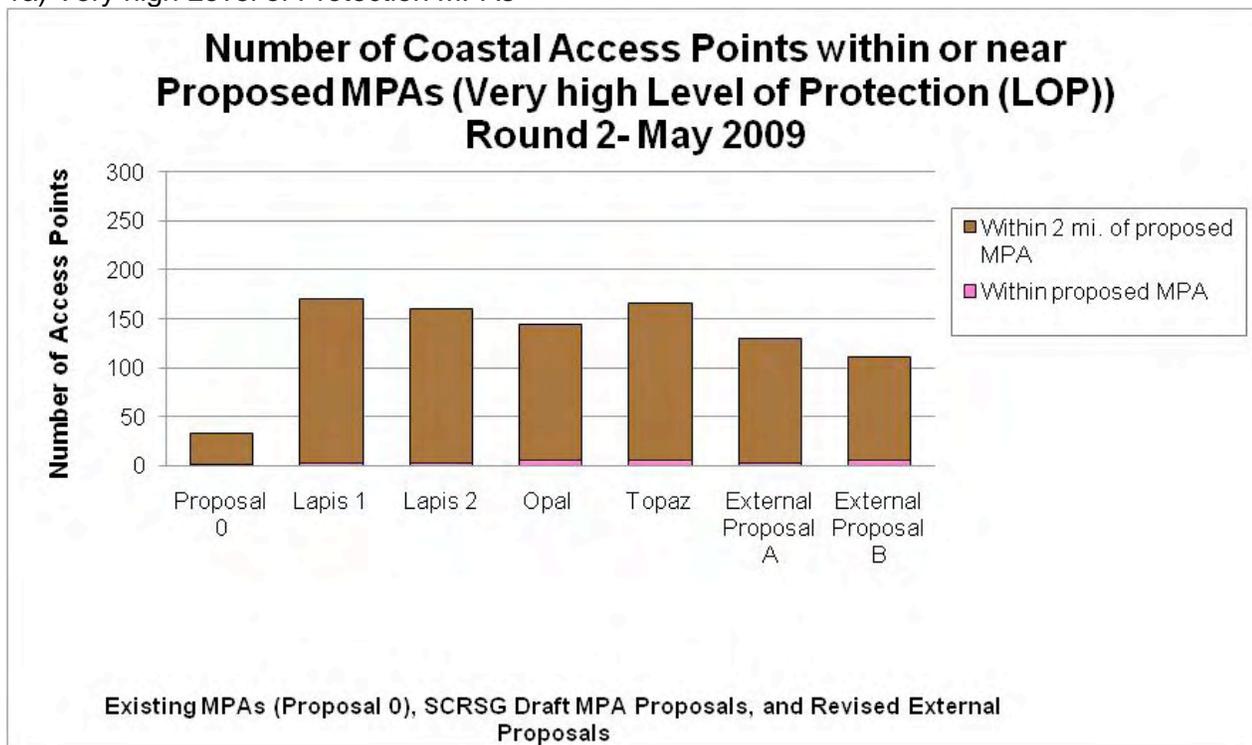
In total, 49 major research and educational institutions were included in this evaluation; this sample population does not represent all the institutions in the study region, but instead represents important institutions to provide a relative comparison. Results focus on MPAs within 0 to 15 miles given that all institutions are captured within 50 miles of proposed MPAs. When considering MPAs at all levels of protection, there appears to be minimal change between the rounds. Differences between proposals and rounds exist when looking at non-SMR MPAs. Between 4 (Lapis 1 and 2) and 36 (External Proposal A) institutions are within 15 miles of SMCAs and SMPs. Following External Proposal A, the proposals that capture the most institutions in this category are External Proposal B (27) and Topaz (15). The proposal that has the greatest number of institutions within 15 miles of SMRs is Lapis 2.

There are 1,394 long-term monitoring sites in the study region. Round 2 proposals do increase access to research and study opportunities relative to Proposal 0 when considering the monitoring sites parameter (Figure 6). Comparing results from Rounds 1 and 2, the range between proposals is narrowed. Topaz includes the most monitoring sites (151) within all MPAs. External Proposal A (143) and Lapis 2 (137) follow in ranking order. In addition, Topaz includes the greatest number of sites within SMRs (132), while External Proposal A captures the most sites within non-SMR MPAs.

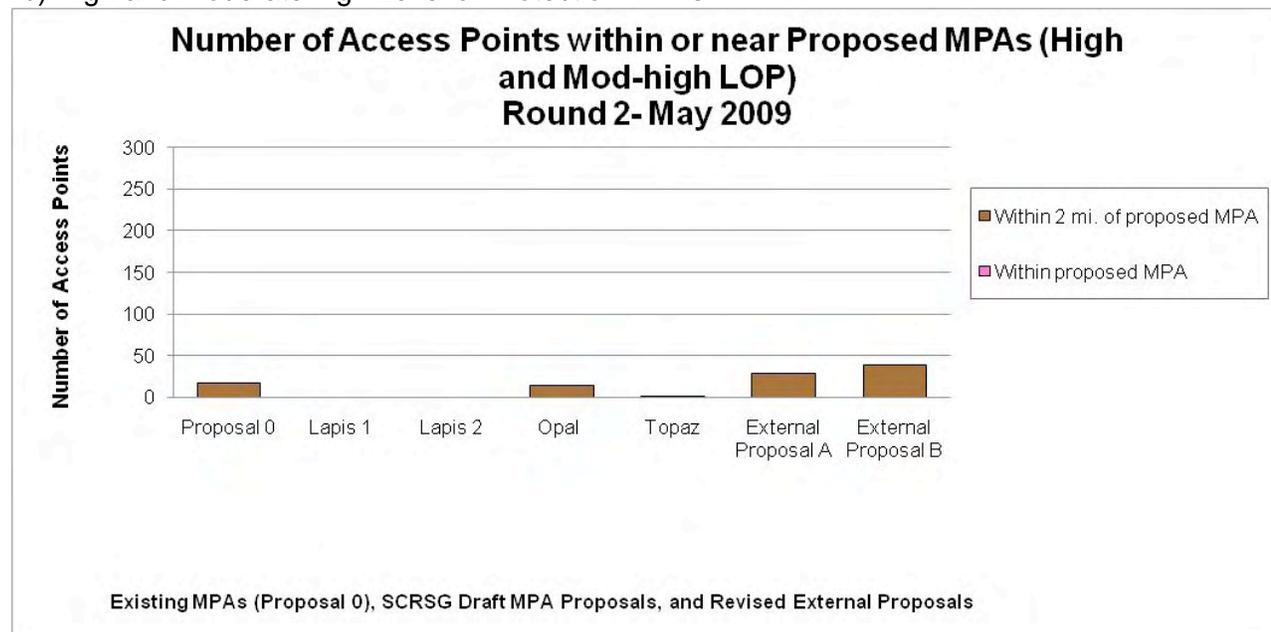
The draft and revised proposals provided varying replication across habitats (see Figures 7). Some habitat may have fewer replicates due to patchy data or poor representation, such as surfgrass. In comparison to Round 1, the range in replication across proposals narrowed, with the upper and lower limits of the range shifting closer to the middle. The greatest habitat replication for MPAs at all protection levels occurred for depth habitats (30-100m and 100-200m) with 15-18 replicates and rocky shores (14-17 replicates), excluding Proposal 0.

Figures 1: Coastal access points within and near proposed MPAs

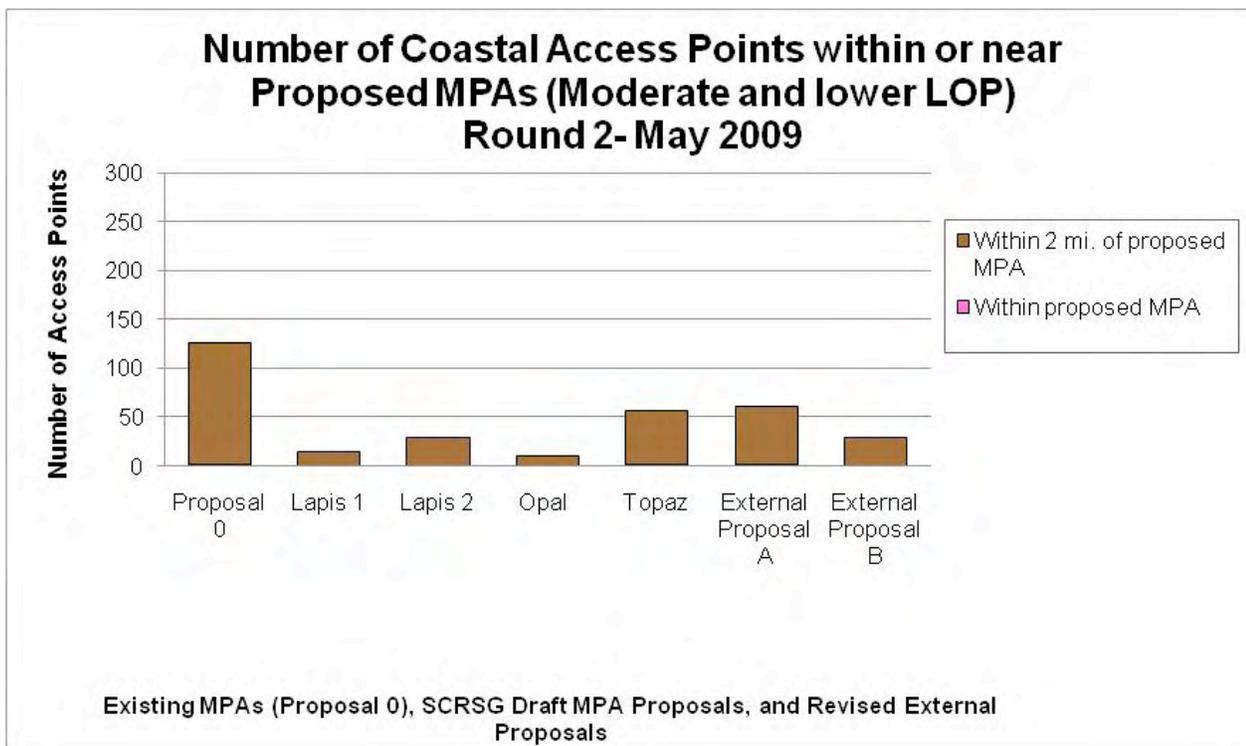
1a) Very high Level of Protection MPAs



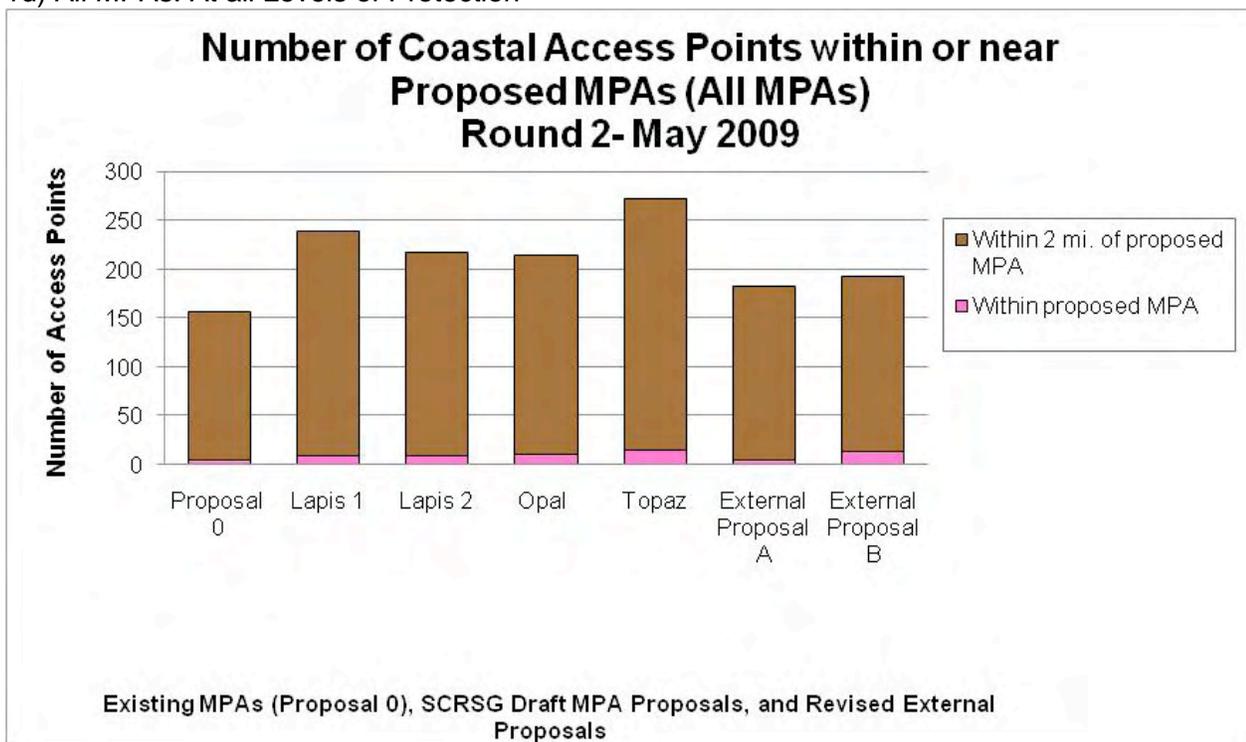
1b) High and Moderate-high Level of Protection MPAs



1c) Moderate or lower Level of Protection MPAs

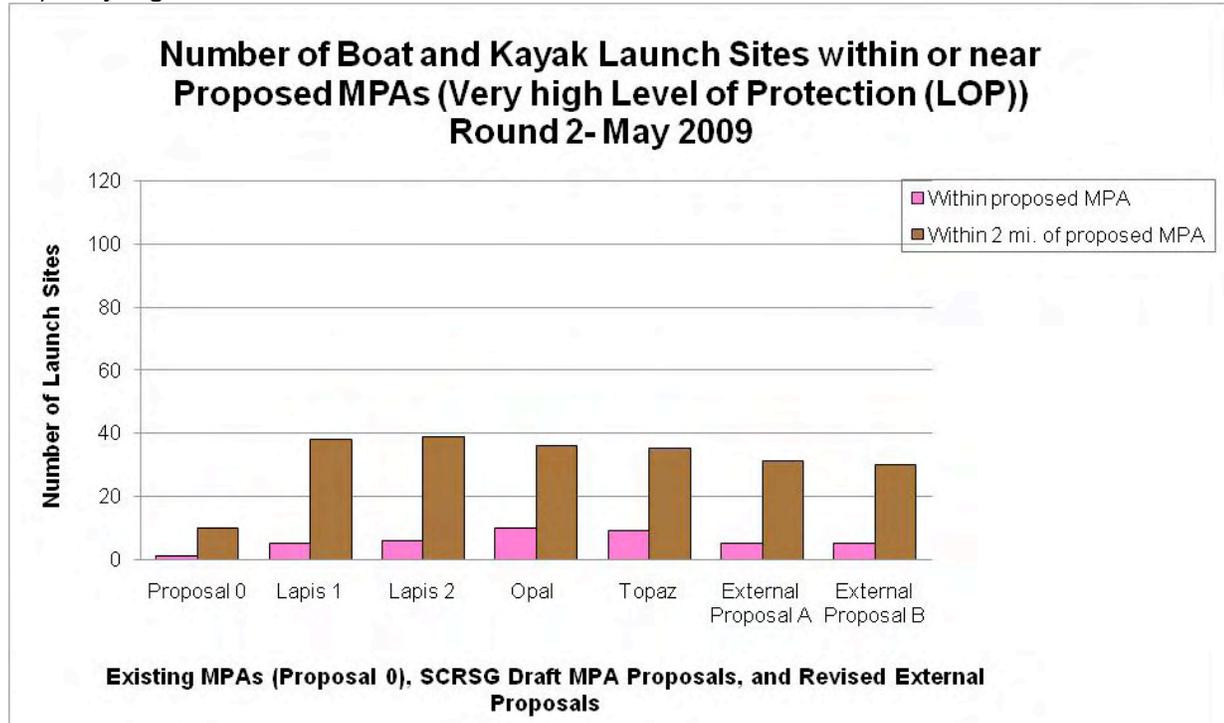


1d) All MPAs: At all Levels of Protection

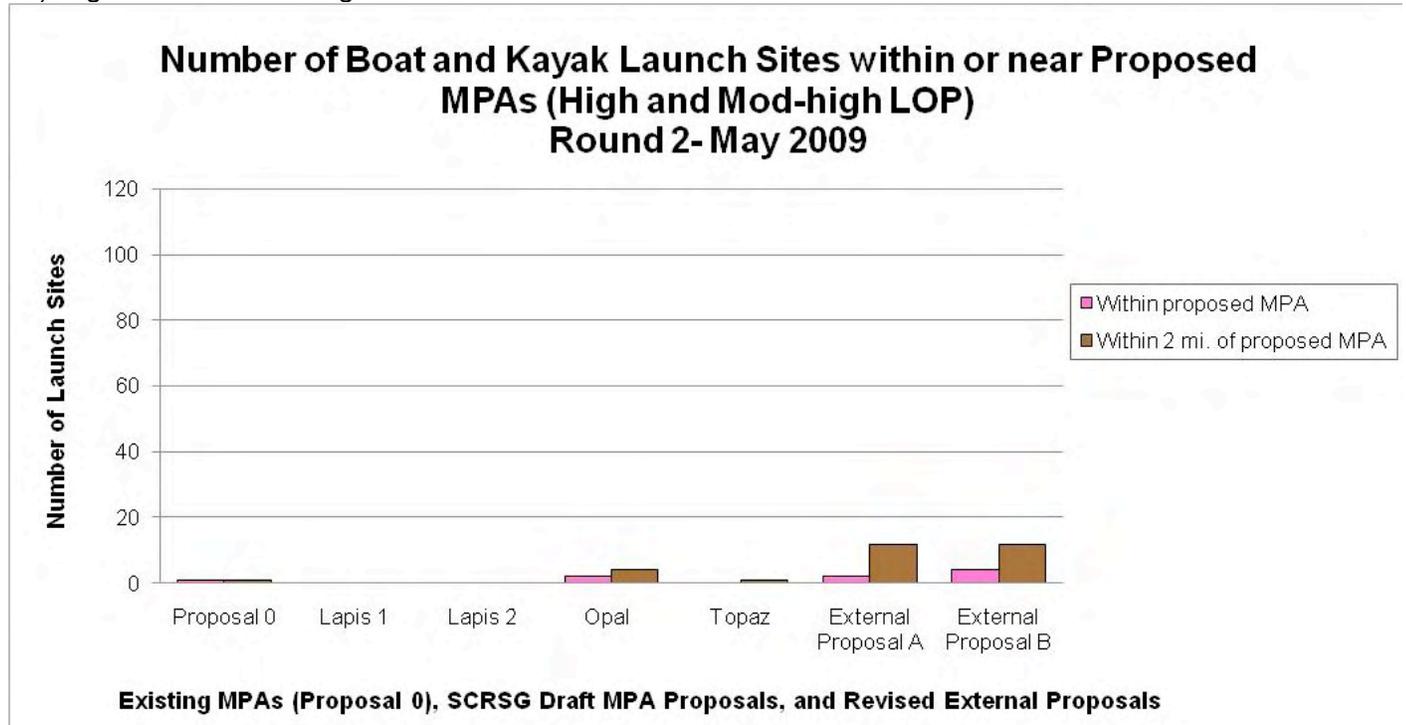


Figures 2: Boat and kayak launch sites within or near proposed MPAs.

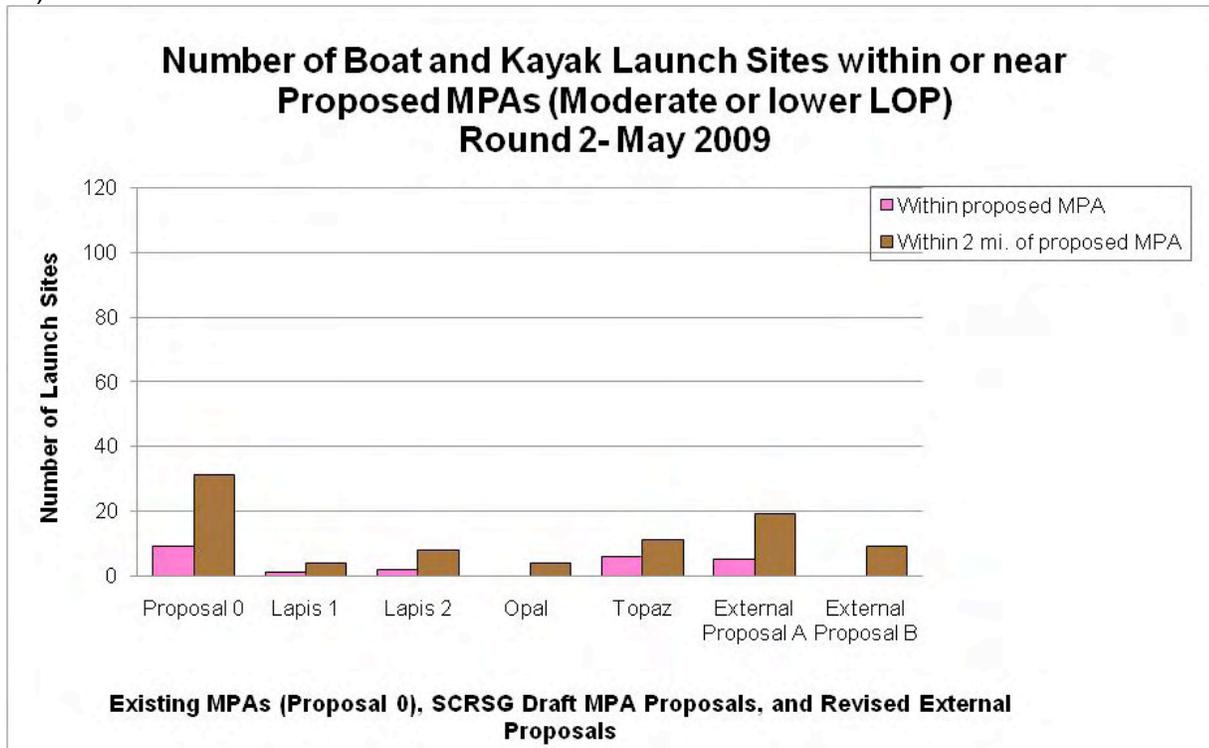
2a) Very high Level of Protection MPAs



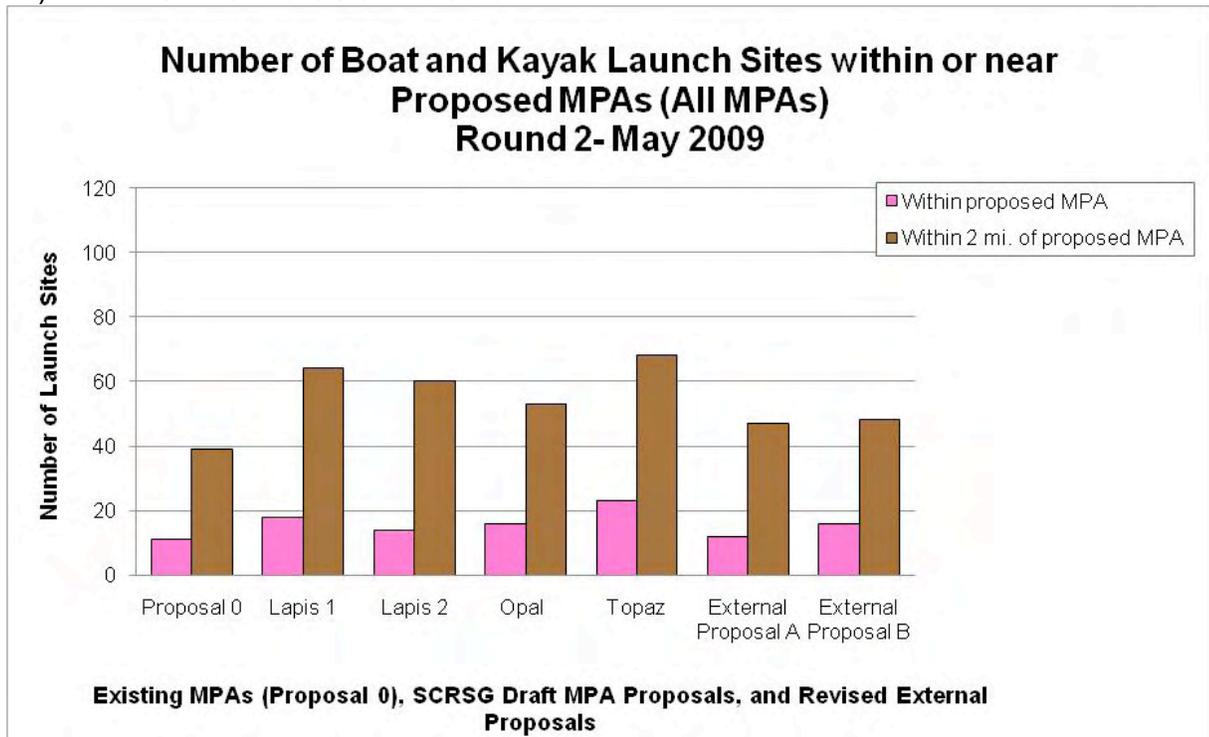
2b) High and Moderate-high Level of Protection MPAs



2c) Moderate or lower Level of Protection MPAs

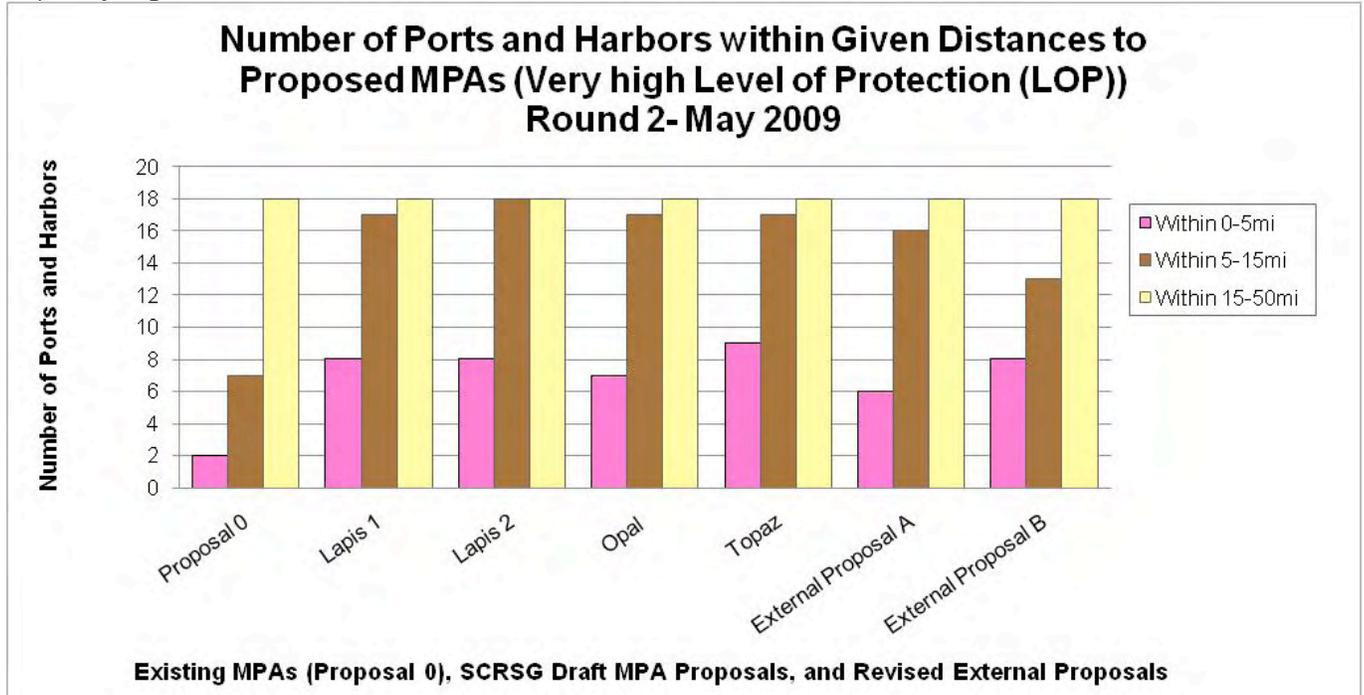


2d) All MPAs: At all Levels of Protection

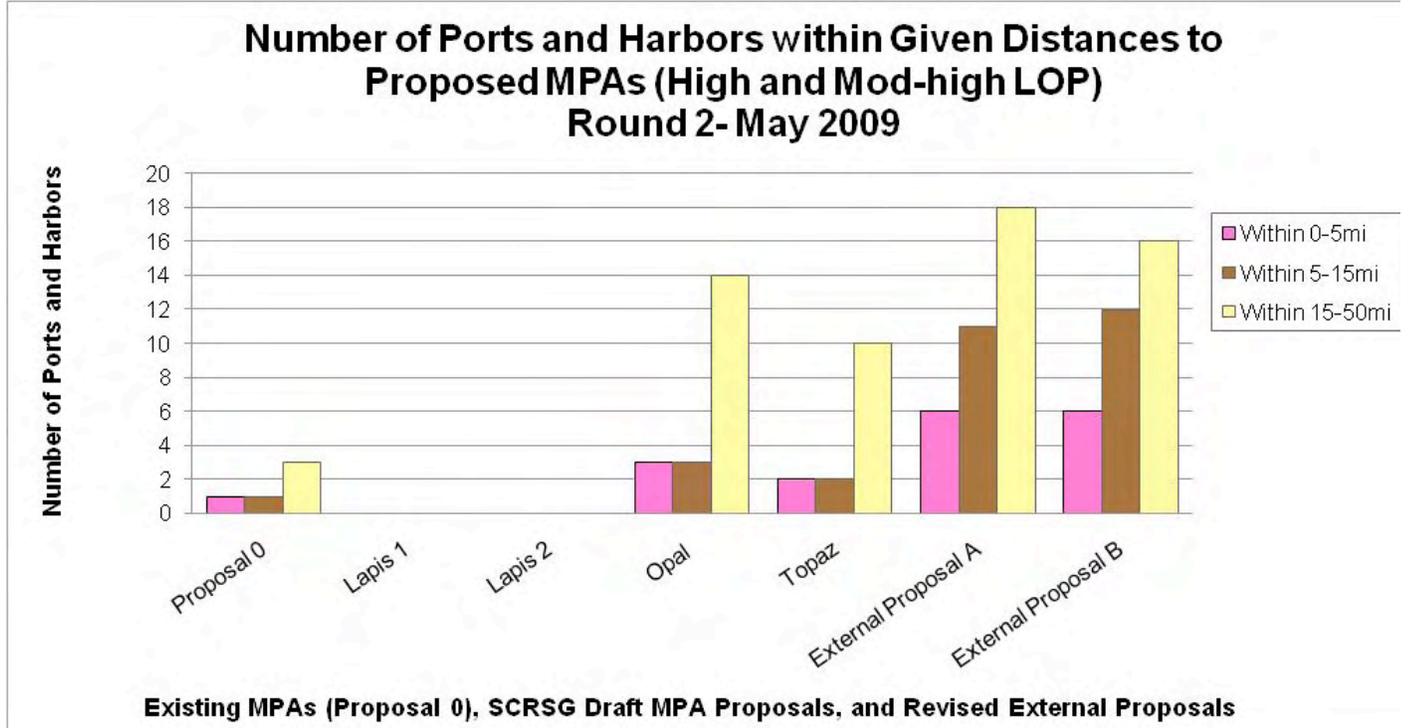


Figures 3: Ports and harbors within given distances of proposed MPAs.

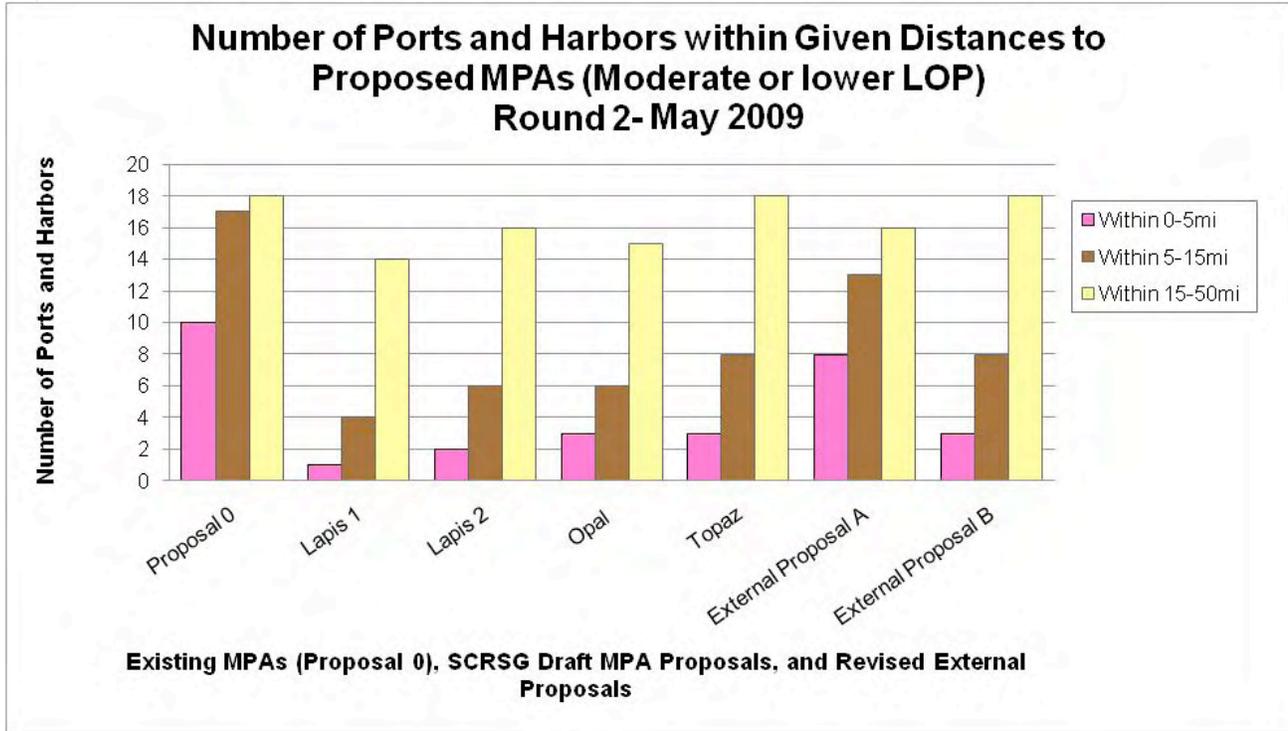
3a) Very high Level of Protection MPAs



3b) High and Moderate-high Level of Protection MPAs



3c) Moderate or lower Level of Protection MPAs



3d) All MPAs: At all Levels of Protection

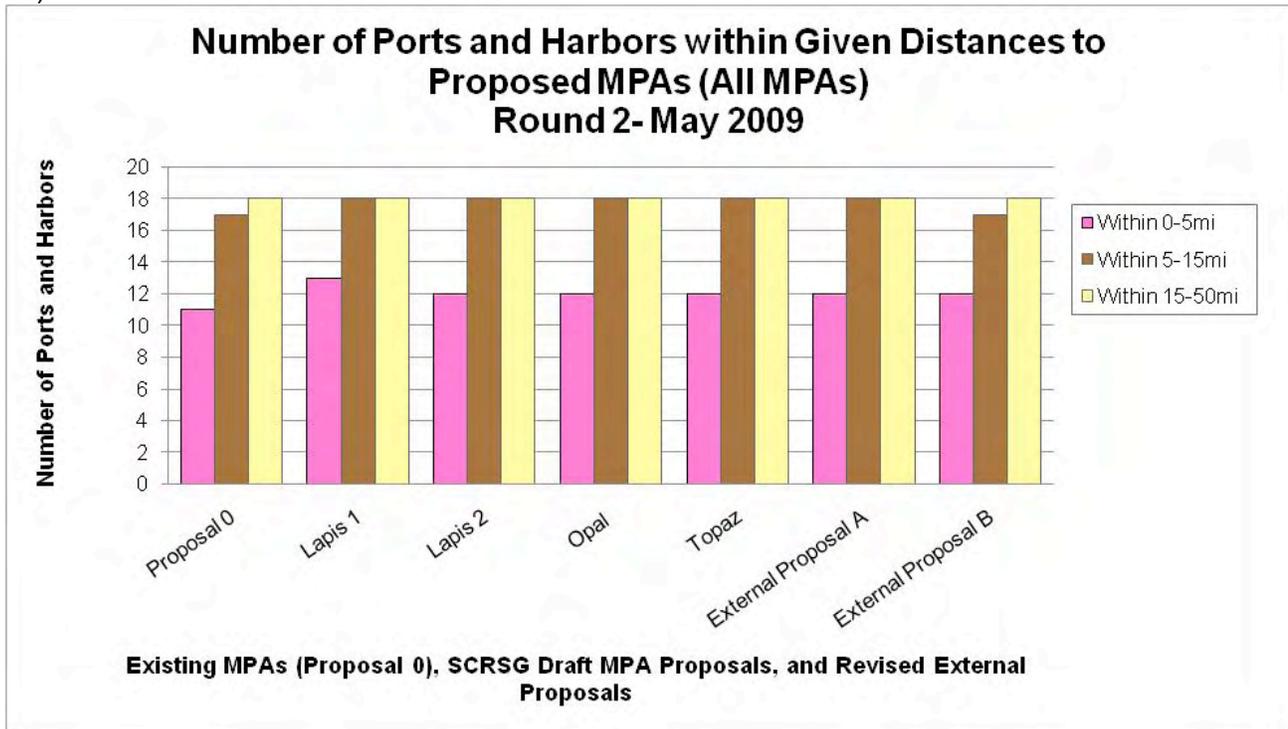
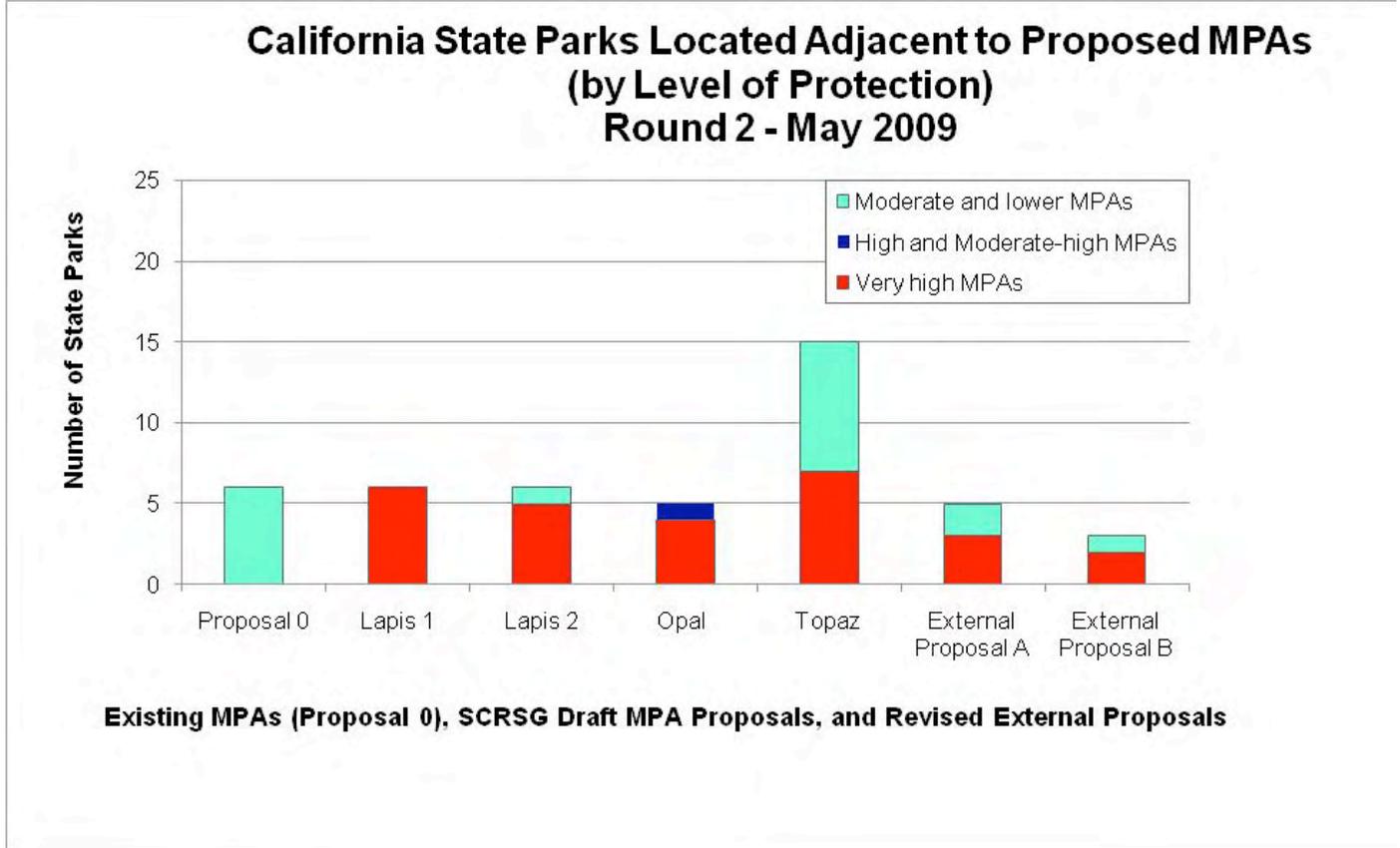


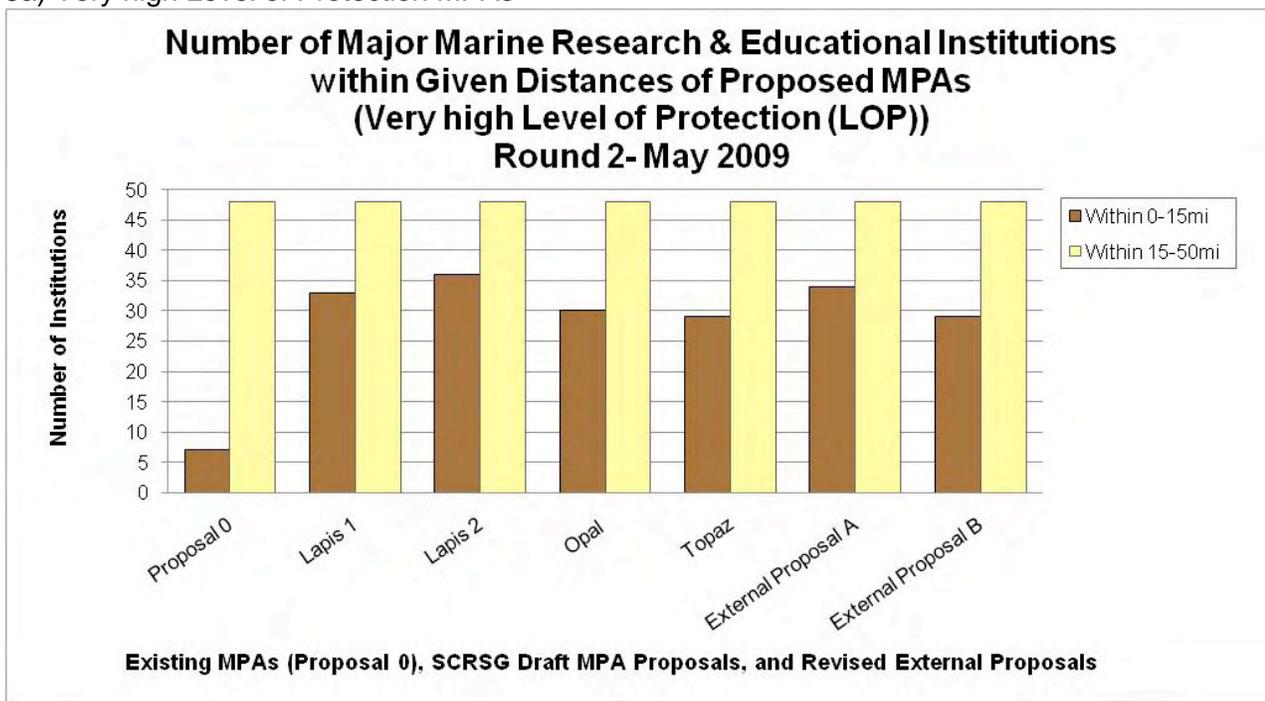
Figure 4: California State Parks located adjacent to MPA boundaries.

4a) All MPAs: At all Levels of Protection

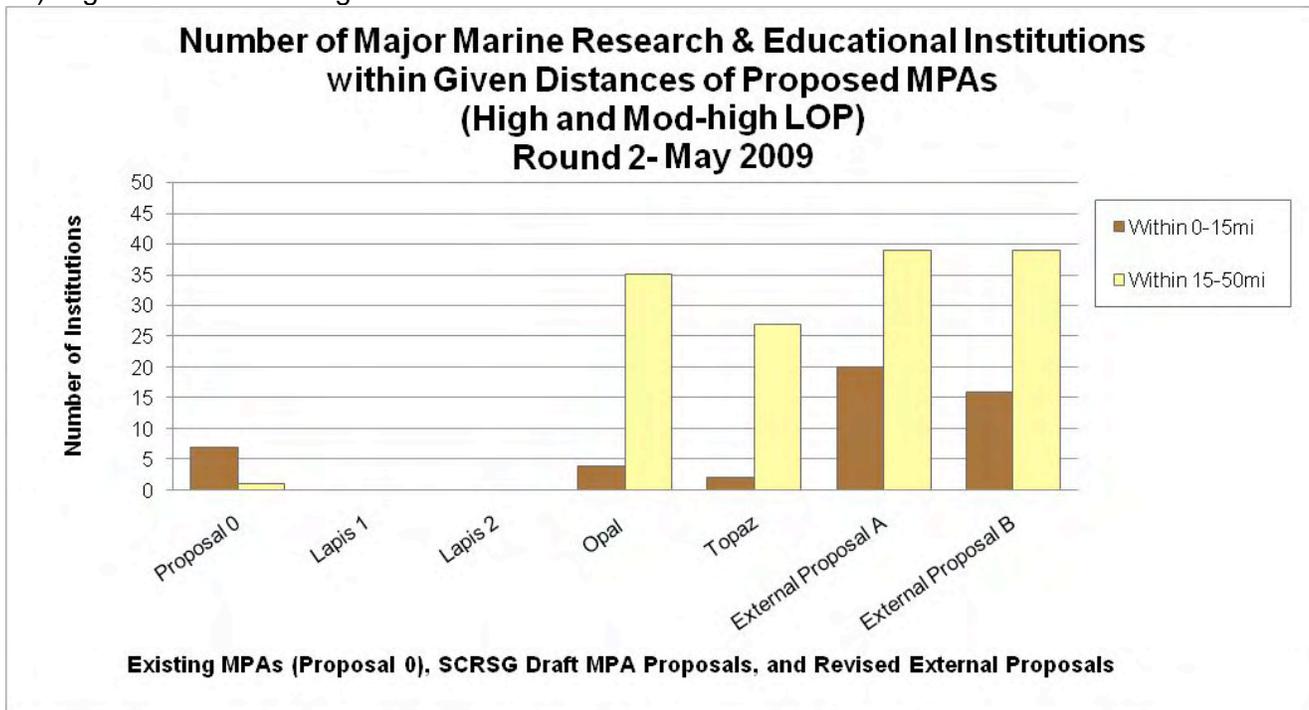


Figures 5: Major marine research and educational institutions within given distances of proposed MPAs.

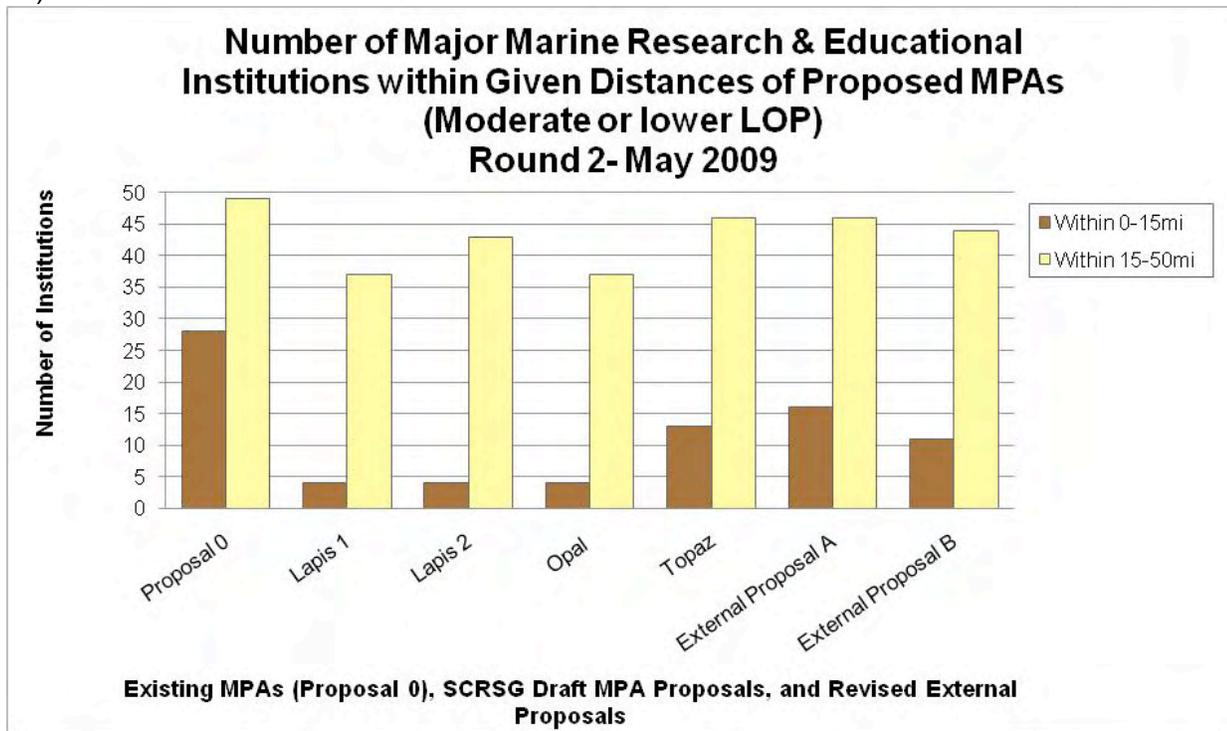
5a) Very high Level of Protection MPAs



5b) High and Moderate-high Level of Protection MPAs



5c) Moderate or lower Level of Protection MPAs



5d) All MPAs: At all Levels of Protection

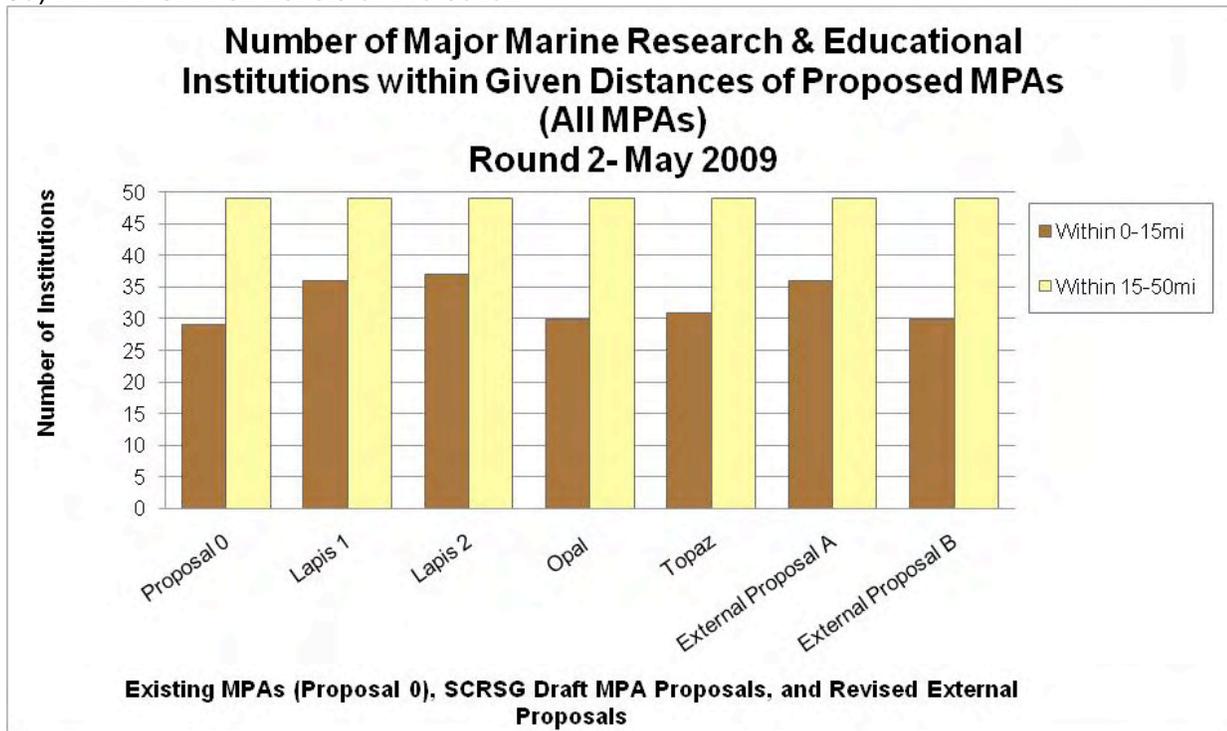
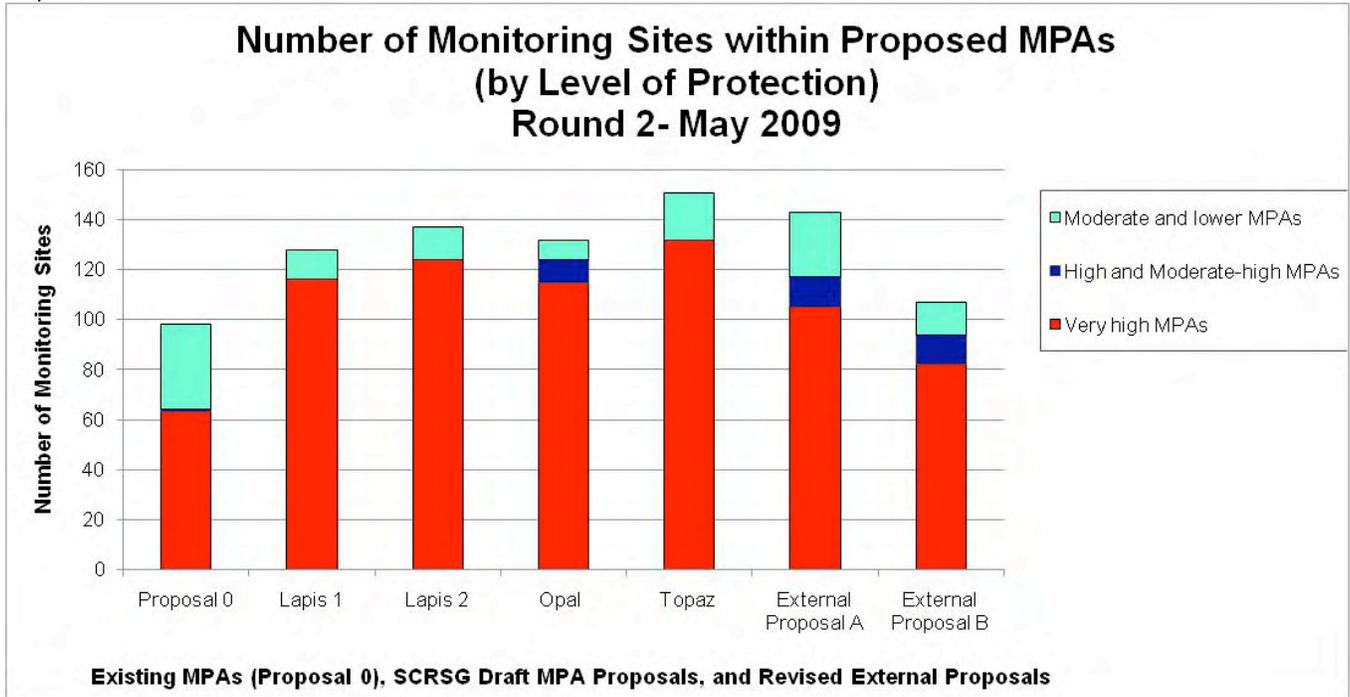


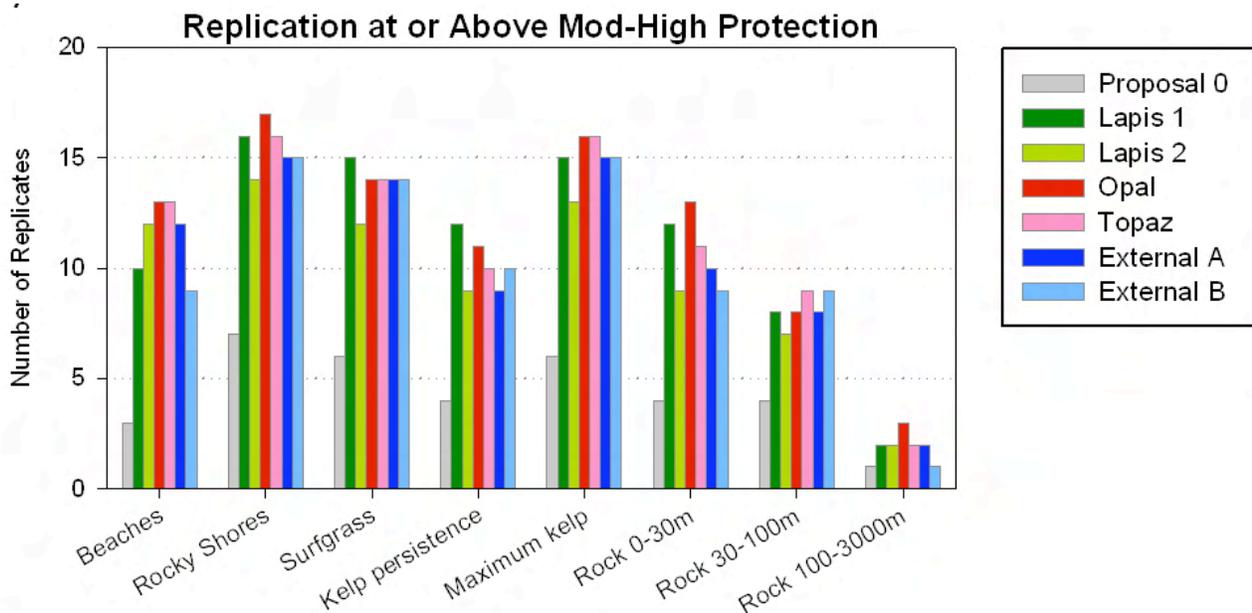
Figure 6: Long-term marine research monitoring sites located within proposed MPAs.

6a) All MPAs: At all Levels of Protection

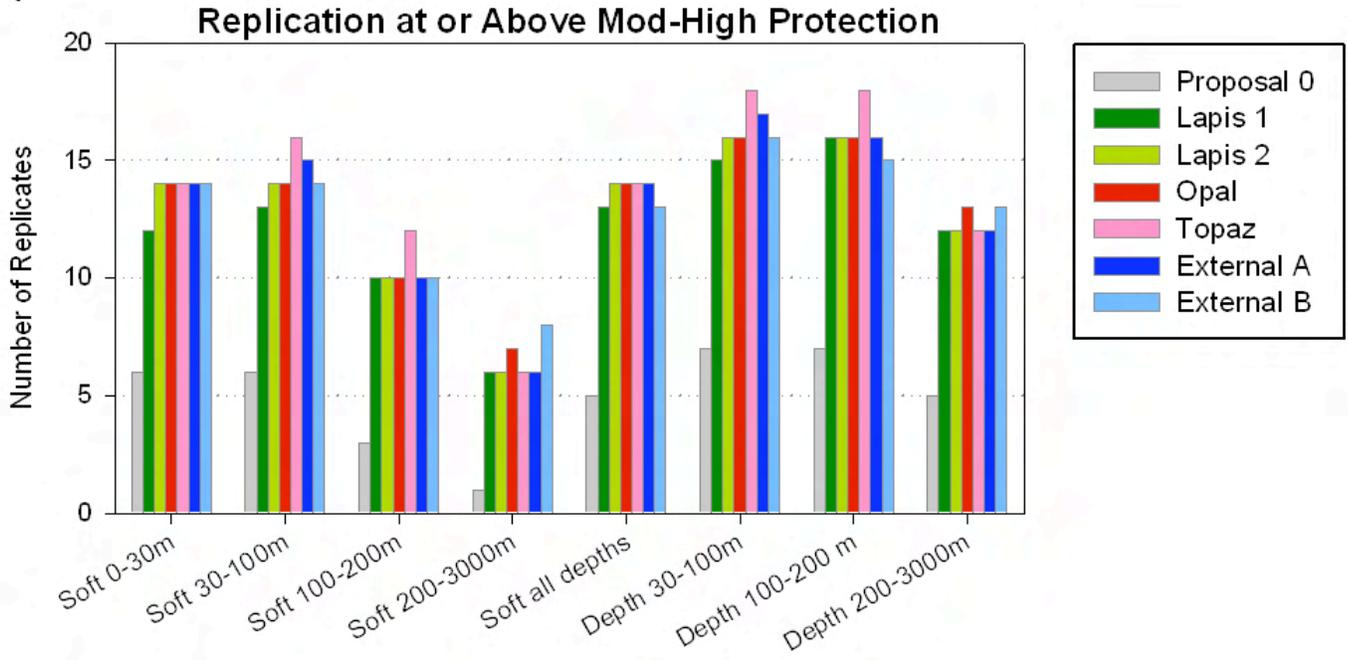


Figures 7: Habitat replication within study region in proposed MPAs

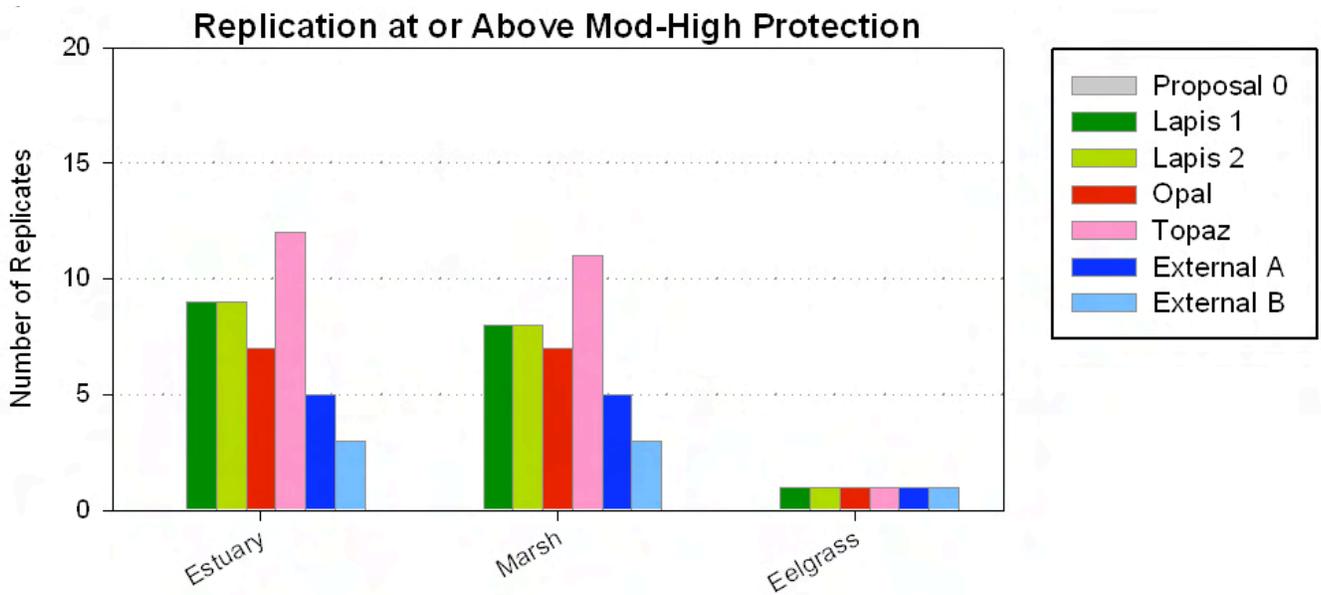
7a) Moderate-high or above Level of Protection MPAs: Hard bottom habitats



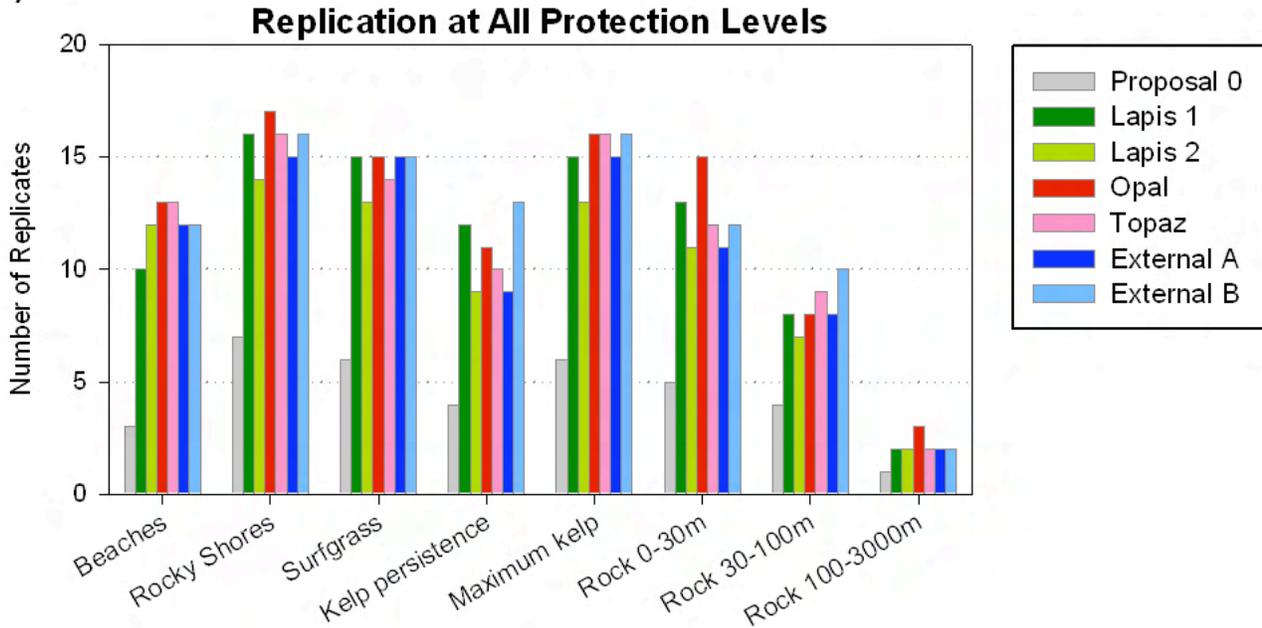
7b) Moderate-high or above Level of Protection MPAs: Soft bottom habitats



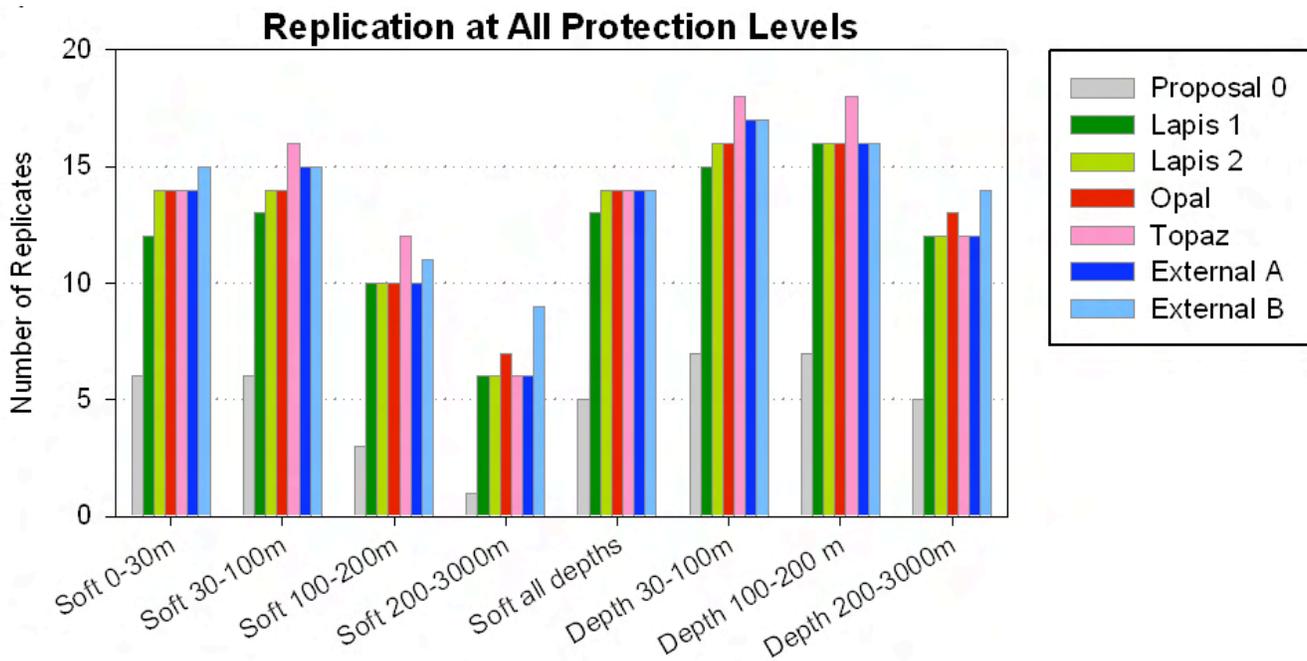
7c) Moderate-high or above Level of Protection MPAs: Estuarine habitats



7d) All MPAs: At all Levels of Protection: Hard bottom habitats



7e) All MPAs: At all Levels of Protection: Soft Bottom Habitats



7f) All MPAs: At all Levels of Protection: Estuarine Habitats

