California Marine Life
Protection Act Initiative
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To: **MLPA Blue Ribbon Task Force and the California Fish and Game Commission**
From: **MLPA Initiative Staff**
Subject: **Evaluation of North Central Coast Regional Stakeholder Group MPA proposals 1-3, 2-XA, & 4, and the Integrated Preferred Alternative relative to MLPA Goal 3**
Date: **June 5, 2008**

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 and Department of Fish and Game (DFG) staff evaluated North Central Coast Regional Stakeholder Group (NCCRSG) marine protected area (MPA) proposals 1-3, 2-XA and 4, as well as the Integrated Preferred Alternative (IPA) for their fulfillment of MLPA's Goal 3. The NCCRSG proposals were developed by stakeholders during the third, and final, round of proposal refinement in March 2008. The IPA was adopted by the Blue Ribbon Task Force (BRTF) on April 23, 2008.

The Goal 3 evaluation focused on access to recreational, educational, and study opportunities. Specifically, the evaluation addressed the proximity of MPAs within each proposal to access points, boat launches and ports, and marine research institutions. The number of long-term monitoring sites inside MPAs and the replication of habitats within MPAs were also tabulated.

Overall, all four MPA proposals provided better recreational, educational, and study opportunities than the existing MPAs (Proposal 0).[1]

To summarize the evaluation of the three NCCRSG-generated proposals and the Integrated Preferred Alternative Proposal:

- *Number of access points within and near proposed MPAs.* Access points located inside MPA boundaries or within 2 miles of MPAs were counted. The total number of access points for the four proposals ranged from 94 (Proposal 2-XA) to 134 (Proposal 4).
- *Distance of proposed MPAs from the region's major ports*. All of the proposals included at least 5 MPAs within 5 miles of a major port. For Proposal 4, only one of those MPAs was not a very high or high level of protection (LOP) MPA.

[1] There are more access points within or near moderate-high and lower protection level MPAs in Proposal 0 than in the NCCRSG proposals and IPA. Proposal 0 also has more MPAs of moderate-high and lower protection levels near boat ramps and launches. These results are influenced by the high number of MPAs with lower protection levels within Proposal 0 compared to the NCCRSG proposals and IPA.

- *Distance of proposed MPAs to boat ramps/launches/ports.* The proposals had 16 (Proposal 2-XA) to 20 (Proposals 4) proposed MPAs within 5 miles of a boat ramp, launch, or port (excluding major ports). However, all the proposals had a similar number of MPAs at very high or high LOP within 5 miles of a boat ramp, with a range from 10 to 11 MPAs.
- *Distance of proposed MPAs from major marine research institutions.* The proposals had 7 (Proposal 1-3, 2-XA, and IPA) or 8 (Proposal 4) MPAs of all protection levels within 15 miles of a major research institution. Proposal 4 had 5 MPAs at very high or high levels of protection (LOP) within 15 miles of a research institution, while the other proposals all had 4 MPAs.
- *Number of established long term marine research monitoring sites.* The Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) has 15 monitoring sites within the study region. Across all proposals, there were 5 (Proposal 2-XA) to 9 (Proposal 4) monitoring sites within proposed MPAs of all protection levels.
- *Replication of habitats within the study region.* Replication of habitats in MPAs within the study region ranged from 2-10 replicates for all habitats, across proposed MPAs considering all protection levels. Rocky intertidal, hard bottom, and deep soft habitat (30-100m) had the greatest replication, with each proposal having at least 6 replicates of these habitats. In most of the habitats, Proposal 4 had the greatest number of replicates; in some instances Proposal 1-3 had the same number of replicates.

Two additional evaluations consider how the three NCCRSG-generated proposals and the Integrated Preferred Alternative address goal 3 of the MLPA:

- The California Department of Fish and Game evaluation of the potential impacts of the NCCRSG proposals and the Integrated Preferred Alternative on recreational abalone harvest
- The Ecotrust evaluation of potential impacts to areas of importance to recreational fishing modes

These additional evaluations are not included in this document, but are provided in supplemental materials.[2]

2.0 Methodology

MLPA Initiative and DFG staff used simple metrics and available geographic information system (GIS) data to evaluate the extent to which MPA proposals address Goal 3 of the MLPA. This evaluation compared NCCRSG MPA proposals relative to one another, to the existing MPAs and to the Integrated Preferred Alternative. The following are all the proposals included in this evaluation:

- Proposal 0 (existing MPAs) no action alternative
- Proposal 1-3
- Proposal 2-XA
- Proposal 4
- Integrated Preferred Alternative

[2] The separate evaluation documents are: "Department of Fish and Game Evaluation of the Potential Impact MPA Proposals May Pose for Abalone Management and Abalone Recreational Fisheries In the MLPA North Central Coast Study Region" (Revised May 29, 2008) and "Summary of potential impacts of the Integrated Preferred Alternative and the North Central Coast Regional Stakeholder Group (NCCRSG) MPA proposals on commercial and recreational fisheries in the North Central Coast Study Region" (May 13, 2008).

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

- *Number of access points within and near proposed MPAs.* The number of access points inside or within 2 miles of a) proposed MPAs with very high or high levels of protection (LOP), b) proposed MPAs with moderate-high or lower LOP, and c) proposed MPAs at all levels of protection. Only shoreline MPAs were considered in the evaluation of access. Access points that were within the border of a MPA and within 2 miles of another MPA were only counted once. Existing data on access points from the State Coastal Conservancy were used in this analysis.
- *Distance of proposed MPAs to boat ramps/launches/ports.* The number of MPAs within 0-5, 5-15, and 15-50 miles of a boat ramp, launch, or port (excluding major ports). The 0-5 mi distance reflects potential use of MPAs by users with small water craft.
- *Distance of proposed MPAs from the region's major ports.* The number of MPAs within 0-5, 5-15, and 15-50 miles of a major port (i.e. San Francisco, Bodega, or Half Moon Bay).

Evaluation of educational and study opportunities focused on:

- *Distance of proposed MPAs from major marine research institutions.* The number of MPAs within 0-15 and 15-50 miles of major marine research institutions in the study region (i.e., Bodega Bay Marine Lab of University of California, Davis and Romberg Tiburon Center for Environmental Studies of San Francisco State University).
- *Number of established long-term marine research monitoring sites.* The number of sites monitored by PISCO within a) proposed MPAs with very high or high LOP, and b) within proposed MPAs at all levels of protection.
- *Replication of habitats within the study region.* Replication of 12 habitats within proposed MPAs in this study region was evaluated: sandy or gravel beaches, rocky intertidal and cliff, surfgrass, soft substrate (0-30 m), soft substrate (30-100 m), hard substrate (0-30 m), hard substrate (30-100 m), average kelp, coastal marsh, tidal flats, eelgrass, and estuary. A habitat was considered to be present within an MPA if a threshold amount of that habitat was present, based on the Master Plan Science Advisory Team (SAT) evaluation.[3] Habitat replication was considered for a) proposed MPAs at very high, high, or moderate-high level of protection, and b) for proposed MPAs at all levels of protection.

3.0 Evaluation Results

3.1 *Recreational Opportunities*

Access to MPAs is important for both consumptive and non-consumptive users of the marine environment. However, an increased number of access points in MPAs at very high and high levels of protection limit take of marine resources and may result in fewer consumptive recreational opportunities. Proposal 4 had the greatest overall accessibility when considering

[3] SAT considers a habitat to be "present" within a MPA if that MPA contains enough habitat to capture 90% of the local biodiversity. The method used to measure this threshold varies by habitat. See the document, *Methods Used to Evaluate MPA Proposals in the North Central Coast Study Region (DRAFT) - May 30, 2008 ,* for more detail.

MPAs at all levels of protection (Figure 1c); this proposal had 134 general access points that are either within, or within 2 miles of a MPA. Proposal 2-XA had the fewest access points within or near an MPA, with 94 access points.

All four proposals increased access to MPAs compared to the existing MPAs (Proposal 0), particularly within or near MPAs with very high or high levels of protection (Figure 1a). Proposal 4 had the greatest number of access points (82) but all four proposals had at least 57 access points (Proposal 1-3). Whereas, Proposal 0 only had 10 access points within or near MPAs with at least a high LOP. Proposal 0 had the most access points (64) within or near MPAs with moderate-high or lower LOPs. Amongst the four proposals, Proposal 4 also provided the greatest access (52 access points) to lower protection MPAs (Figure 1b), while Proposal 2-XA provided the fewest (35 access points).

For access to boat launches, ramps, and smaller ports, all four proposals provided similar but improved access compared to Proposal 0. Proposal 4 offered the greatest access (20 MPAs) but all had at least 16 MPAs within 5 miles of these features (Figure 2c). The number of the MPAs at very high or high protection near boat launches ranges from 10 to 11 (Figure 2a), except Proposal 0 which has none. The proposals had 5 (Proposal 2-XA) to 9 (Proposal 0 and 4) moderate-high and lower protection MPAs near boat ramps, launches, and smaller ports (Figure 2b).

A measure of distance of MPAs from major ports found that the NCCRSG proposals and the IPA had 5 MPAs near (within 5 miles) major ports (Figure 3c), while Proposal 0 had 3. Proposals 1-3, 2-XA and IPA had more MPAs (2 MPAs) of moderate-high protection or lower near major ports than Proposal 4 (Figure 3b). However, Proposal 4 had more MPAs (4 MPAs) of very high or high protection near major ports; Proposal 0 had 1 and the other proposals had 3 MPAs (Figure 3a).

3.2 *Educational and study opportunities*

Educational and study opportunities are improved by the presence of proposed MPAs near (defined as within 15 miles) research institutions and MPAs that include established long term monitoring sites (Figures 4 and 5). Research institutions included: UC Davis's Bodega Bay Marine Lab or San Francisco State University's Romberg Tiburon Center for Environmental Studies. Habitat replication within the study region is also an essential consideration in the design of MPA proposals, given the importance of replicate sites for robust design of scientific studies (Figure 6).

Proposal 4 had the greatest number of proposed MPAs near a major marine research institution on the north central coast, with a total of 8 MPAs near research institutions (Figure 4b); five of these were very high or high protection MPAs (Figure 4a). Proposals 2-XA, 1-3, and IPA had a total of 7 MPAs, of which 4 were MPAs at a very high or high level of protection. Proposal 0 offered the least access to educational or study opportunities with 3 MPAs near a major research institution and only 1 MPA at a very high or high level of protection (Figure 4a).

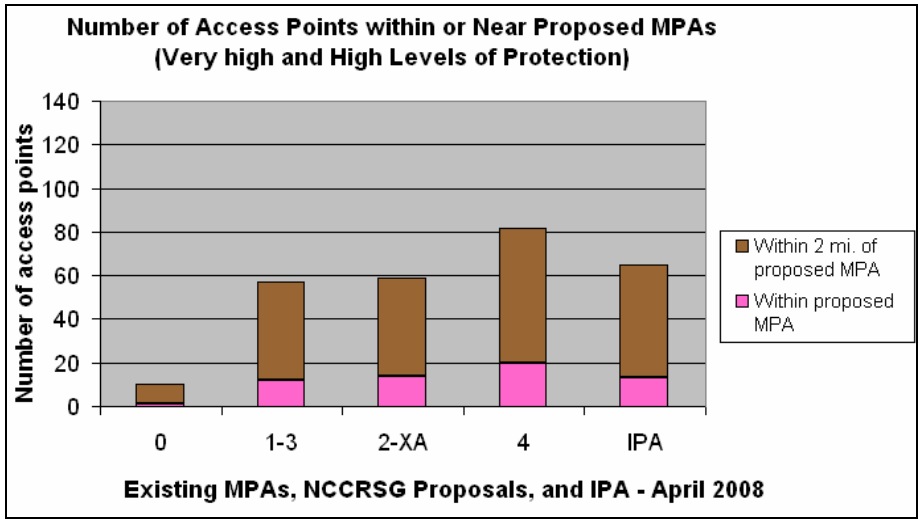
There are 15 long-term monitoring sites in the study region monitored by PISCO. Proposal 4 included the most PISCO monitoring sites (9 sites) within MPAs of all protection levels; five of these sites were within MPAs of very high or high protection levels. Proposals 1-3, 2-XA, and IPA had at fewer PISCO monitoring sites (5 or 6) within MPAs of all protection levels; most of these sites were within MPAs of very high or high levels of protection (Figure 5).

Unlike Proposal 0, the NCCRSG proposals and the IPA all include at least 2 replicates of each habitat across proposed MPAs of all levels of protection (Figure 6d). Considering all MPAs (excluding Proposal 0), the greatest replication was for the following habitats: rocky intertidal (7-9 replicates), hard bottom at all depths (7-10 replicates), and soft bottom, 30-100m (6-7 replicates) (Figure 6d). The proposals also included at least 2 replicates of each habitat for MPAs with a high (Figure 6b) or moderate-high (Figure 6c) level of protection. For MPAs with a very high level of protection, the number of replicates drops (Figure 6a). The NCCRSG proposals and IPA have only 1 replicate for average kelp.[4] In addition, Proposal 2-XA provided just one replicate of deep soft habitat at the very high protection level, while Proposals 1-3, 4 and IPA had 2 to 3 replicates of this habitat.

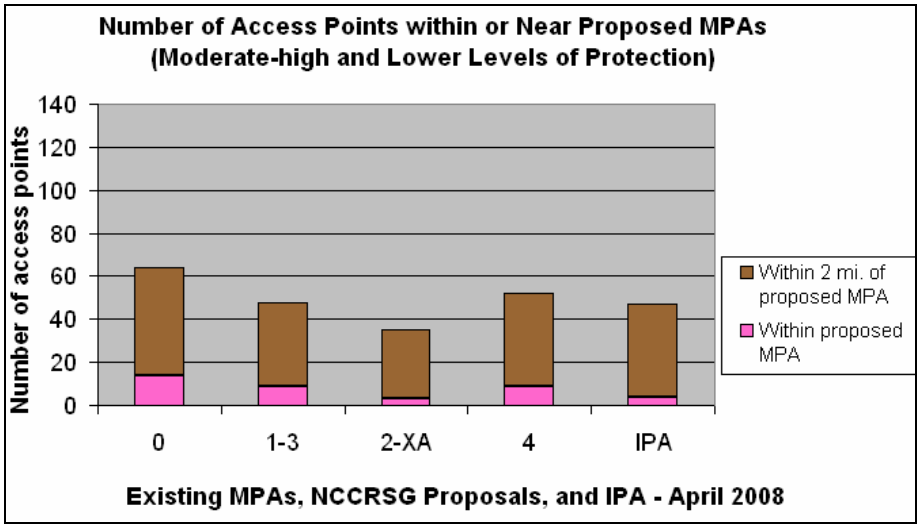
[4] This may reflect a lack of accurate kelp mapping data.

Figure 1: Number of access points within or near proposed MPAs

1a) High Protection MPAs: Very high & High Level of Protection



1b) Low Protection MPAs: Moderate-high & Lower Level of Protection



1c) All MPAs: At all Levels of Protection

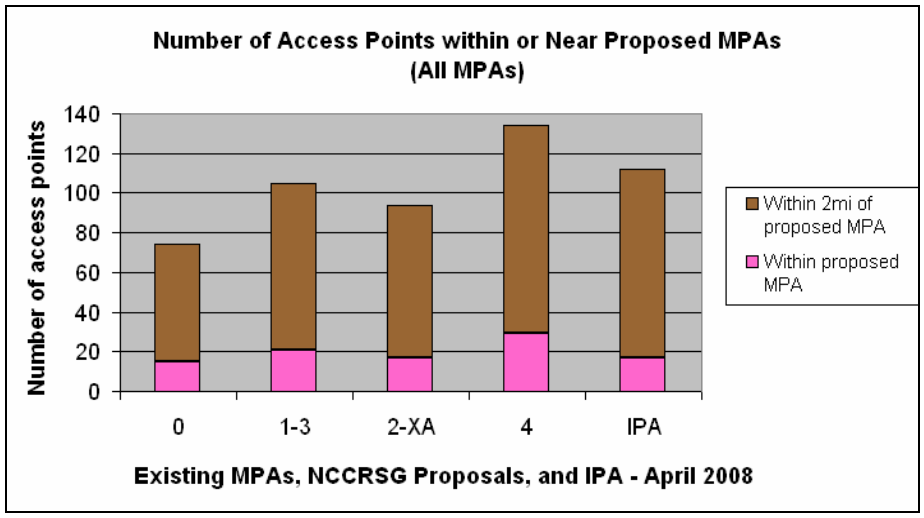
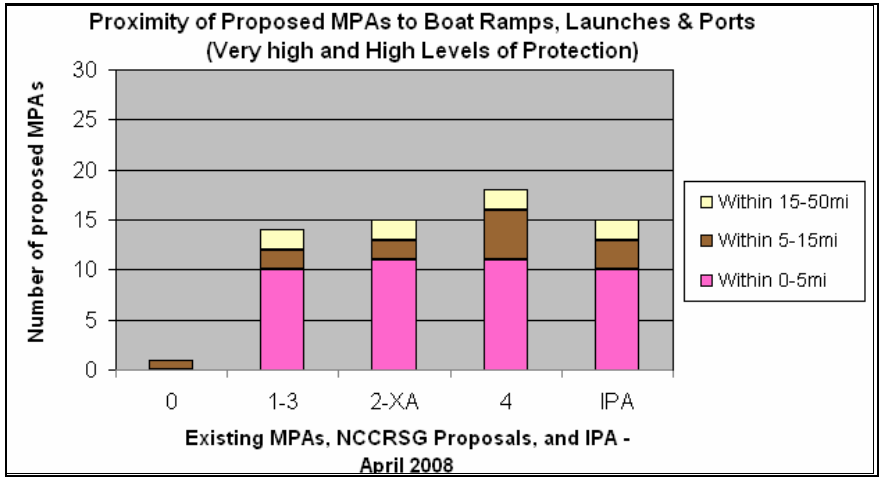
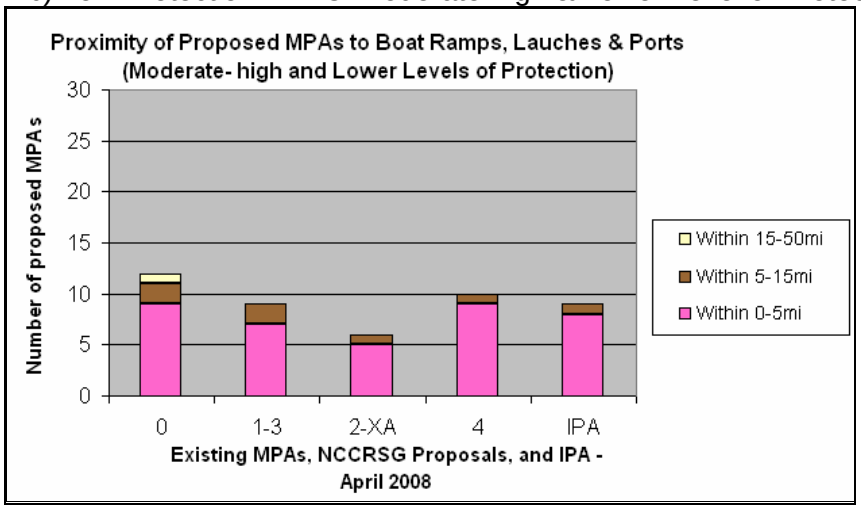


Figure 2: Proximity of proposed MPAs to boat ramps, launches, & ports

2a) High Protection MPAs: Very high & High Level of Protection



2b) Low Protection MPAs: Moderate-high & Lower Level of Protection



2c) All MPAs: At all Levels of Protection

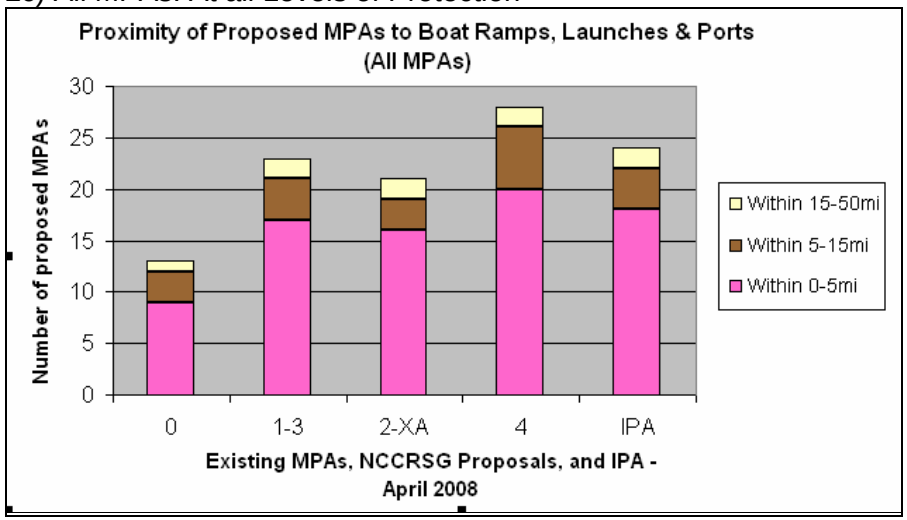
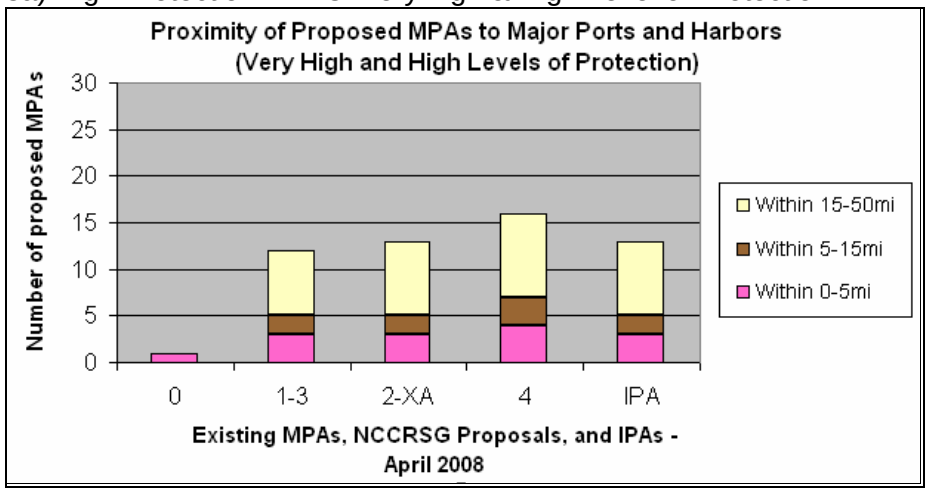
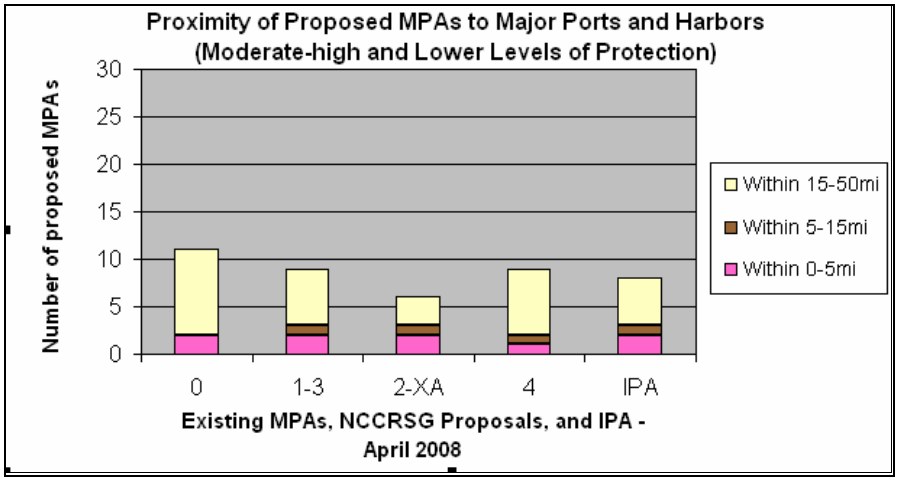


Figure 3: Proximity of proposed MPAs to major ports and harbors (Bodega Bay, San Francisco, and Half Moon Bay)

3a) High Protection MPAs: Very high & High Level of Protection



3b) Low Protection MPAs: Moderate-high & Lower Level of Protection



3c) All MPAs: At all Levels of Protection

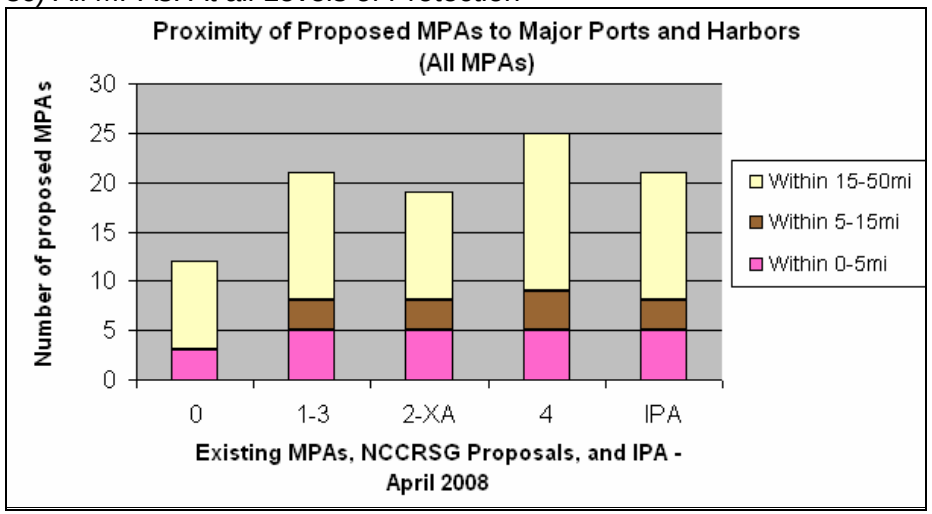
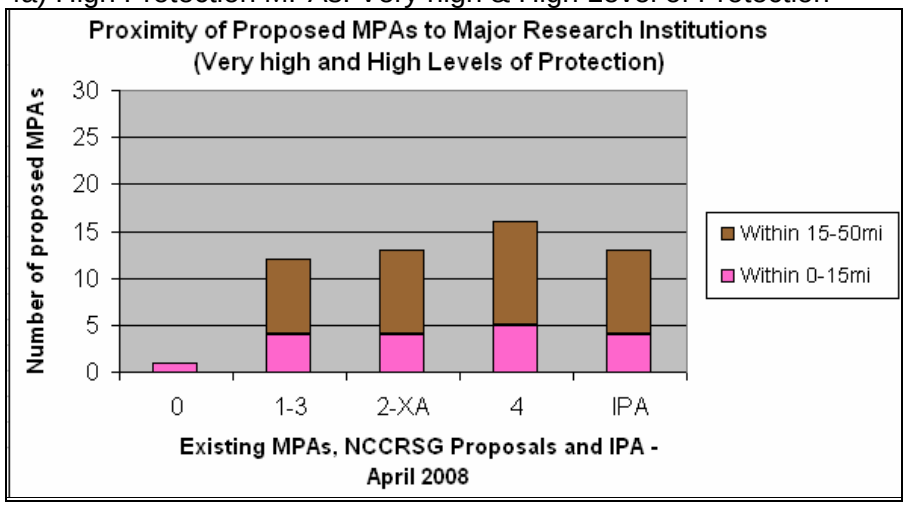


Figure 4: Proximity of proposed MPAs to major marine research institutions (Bodega Bay Marine Lab & Romberg Tiburon Center)

4a) High Protection MPAs: Very high & High Level of Protection



4b) All MPAs: At all Levels of Protection

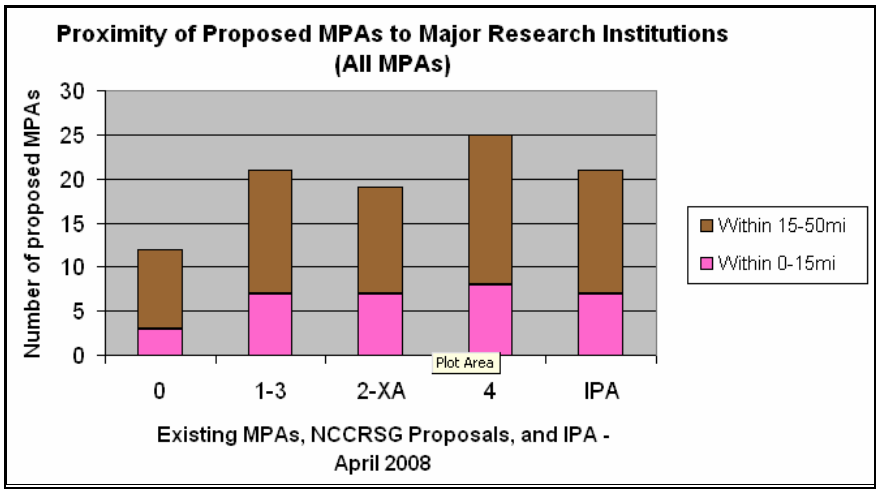


Figure 5: Number of long-term monitoring sites in proposed MPAs

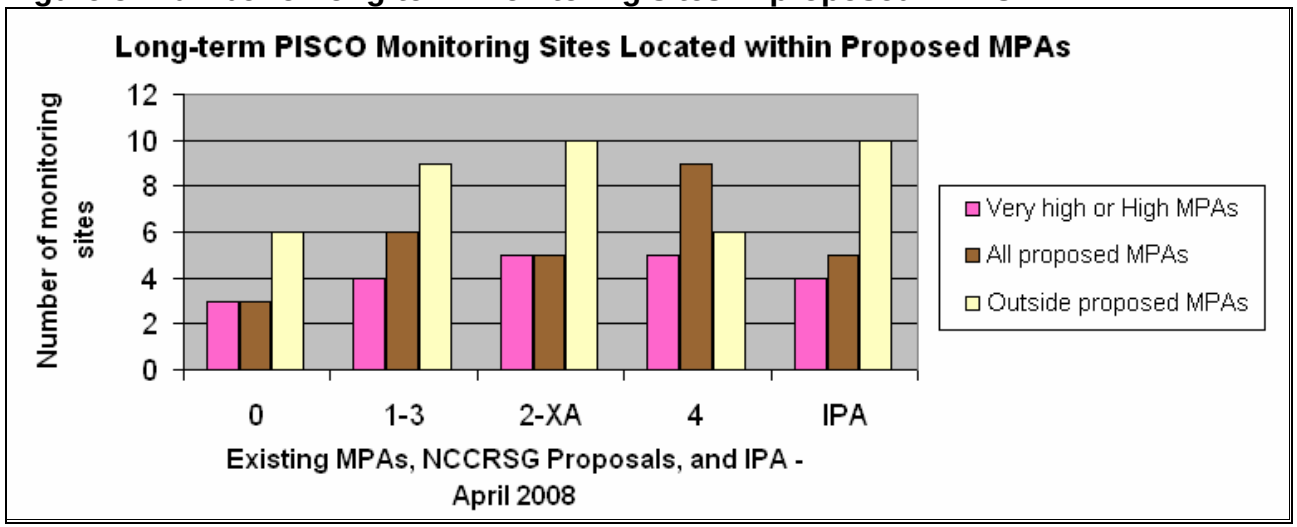
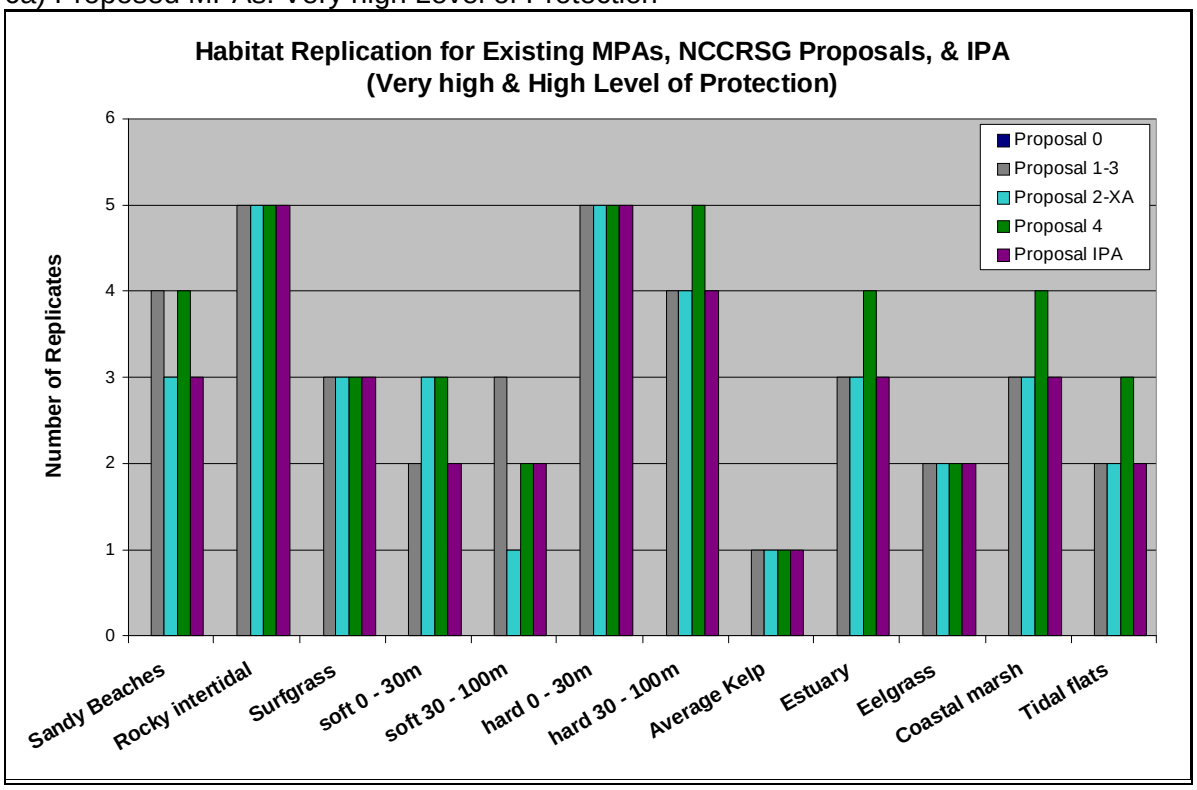
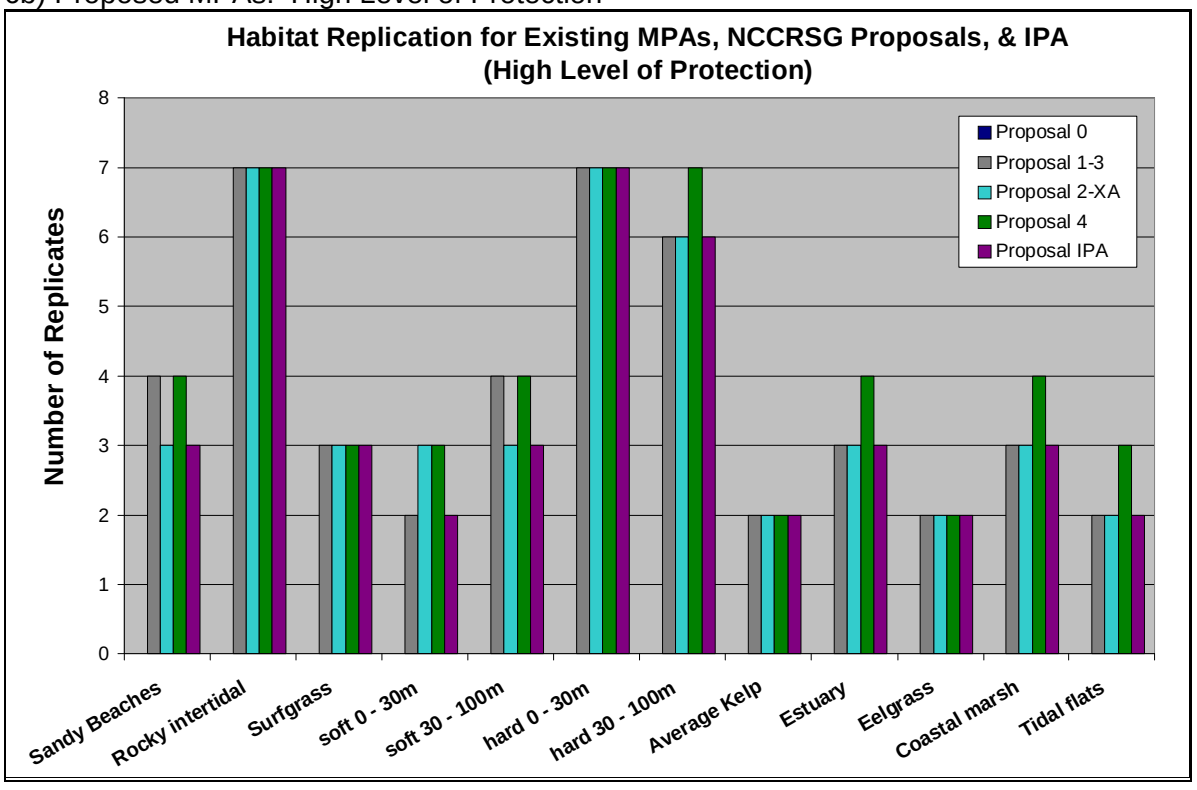


Figure 6: Habitat replication within study region in proposed MPAs

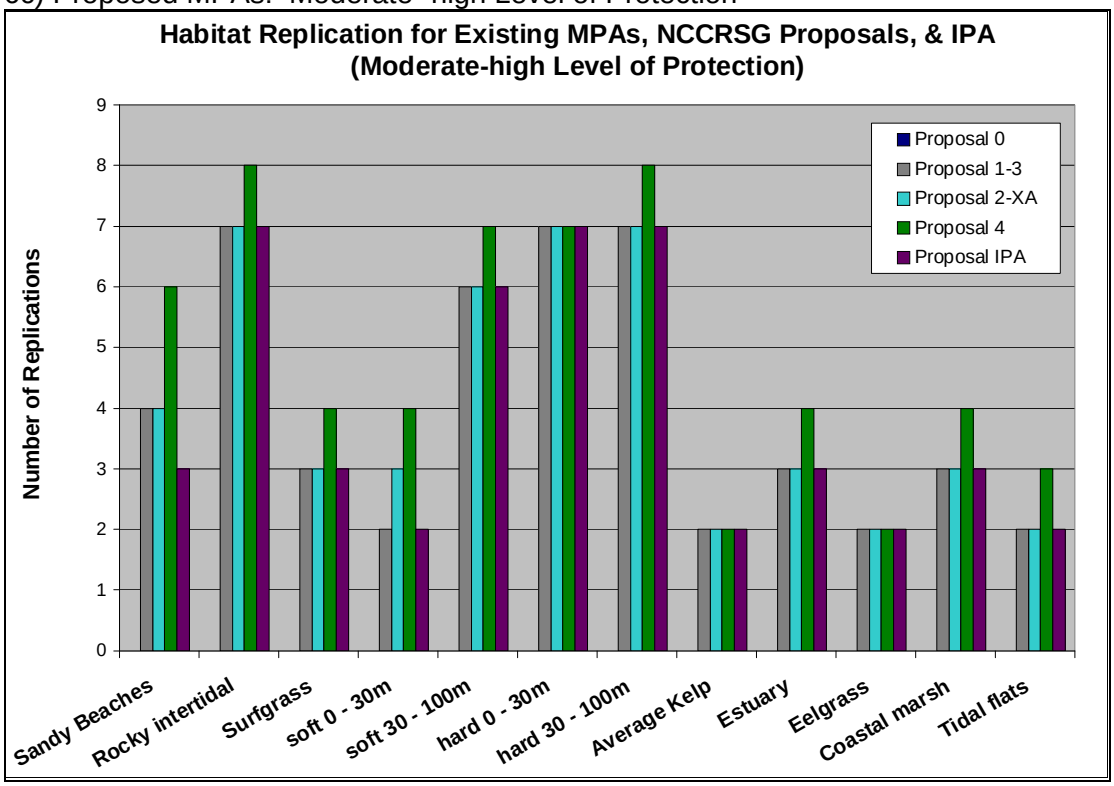
6a) Proposed MPAs: Very high Level of Protection



6b) Proposed MPAs: High Level of Protection



6c) Proposed MPAs: Moderate- high Level of Protection



6d) Proposed MPAs: All MPAs: At all Levels of Protection