

California Marine Life Protection Act Initiative

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To: MLPA North Central Coast Regional Stakeholder Group (NCCRSG)
From: MLPA Initiative Staff
Subject: Evaluation of MLPA NCCRSG draft options for MPA arrays and draft external MPA proposals relative to MLPA Goal 3
Date: December 6, 2007 DRAFT

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 California Department of Fish and Game staff evaluated NCCRSG draft options for marine protected area (MPA) arrays and draft external MPA proposals for their fulfillment of MLPA Goal 3. Access is a key issue for recreational, education and study opportunities; the evaluation focused on proximity of MPAs 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.

All draft options for MPA arrays developed by the NCCRSG work groups, and draft external MPA proposals submitted external to the work groups, provided better recreational, educational, and study opportunities than the existing MPAs (Proposal 0). To summarize the evaluation:

- *Number of 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 each draft MPA array and draft external MPA proposal ranged from 82 to 154.
- *Distance of proposed MPAs to boat ramps/launches/ports.* Draft MPA arrays and draft external MPA proposals each had 11 to 23 proposed MPAs within 5 miles of a boat ramp, launch, or port (excluding major ports).
- *Distance of proposed MPAs from the region’s major ports.* All draft MPA arrays and draft external proposals each had 4 or 5 proposed MPAs within 5 miles of a major port.
- *Distance of proposed MPAs from major marine research institutions.* Draft MPA arrays and draft external MPA proposals had 3 to 9 proposed MPAs of all protection levels within 15 miles of a major research institution. For MPAs with very high and high protection levels, there was a greater variance, with 1-6 MPAs within 15 miles of a research institution.
- *Number of established long-term marine research monitoring sites.* The Partnership for Interdisciplinary Research of the Coastal Ocean (PISCO) has 15 monitoring sites within

the study region. Across all arrays, there were 5-8 monitoring sites within proposed MPAs of all protection levels.

- *Replication of habitats within the study region.* Every habitat is replicated at least twice in proposed MPAs in each array except soft bottom habitat (30-100m) in draft MPA arrays TA and TB. For the other habitats, replication ranged from 2-17 replicates across proposed MPAs of all protection levels. Rocky intertidal and hard bottom habitats (30-100m) had the greatest replication.

In the next iteration of the MPA planning process for the MLPA North Central Coast Study Region, the California Department of Fish and Game will evaluate the potential impacts of draft MPA proposals on recreational abalone harvest and will task Ecotrust with evaluating potential impacts to areas of importance to recreational fishing modes.

Methodology

MLPA Initiative and California Department of Fish and Game staff used simple metrics and available data within geographic information systems (GIS) to evaluate the extent to which draft MPA arrays and draft external MPA proposals address MLPA Goal 3. The evaluation compared draft arrays and draft external proposals relative to one another, including:

- Proposal 0 (existing MPAs) or “no action” alternative
- Draft external proposal A
- Draft external proposal B
- Draft external proposal C
- Draft external proposal D
- Draft option Emerald A (EA)
- Draft option Emerald B (EB)
- Draft option Jade A (JA)
- Draft option Jade B (JB)
- Draft option Turquoise A (TA)
- Draft option Turquoise B (TB)

The 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 state marine reserves (SMRs) and high protection state marine conservation areas (SMCAs), and b) proposed moderate and low protection MPAs. Only shoreline MPAs were considered in the evaluation of access.
- *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 0-5mi distance reflects potential use of MPAs by users with small 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 the 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 the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO) within a) proposed SMRs and high protection SMCAs, and b) within proposed MPAs of all protection levels.
- *Replication of habitats within the study region.* Replication of 8 habitats within proposed MPAs was evaluated: sandy beaches, rocky shores, seagrass, kelp, hard substrate (0-30m), hard substrate (30-100m), soft substrate (0-30m), and soft substrate (30-100m). A habitat was considered to be present within an MPA if a threshold amount of that habitat was present, based on the MLPA Master Plan Science Advisory Team evaluation. Habitat replication was considered for a) proposed high protection MPAs (very high, high, and moderate-high) and b) for all proposed MPAs.

Evaluation Results

Recreational Opportunities

Access to MPAs is important for both consumptive and non-consumptive users of the marine environment (Figure 1). However, an increased number of access points in SMRs and high protection SMCAs that limit take of marine resources may mean fewer consumptive recreation opportunities. Relative to the other draft arrays and draft external proposals, D, EA, EB, JA and TB had proposed MPAs that are most accessible when considering proposed MPAs of all protection levels; these draft arrays and draft external proposals each had 105-154 general access points that are either within, or within 2 miles of an MPA, of which 77-88 access points are in very high or high protection level MPAs. Draft proposals A and draft arrays EA, EB, TA, and TB included the greatest access to moderate, moderate-low, and low protection MPAs, with each having 51-67 access points within or near MPAs of these protection levels. Draft proposals B and C, which had lowest overall accessibility, with 67, 82 and 90 access points, respectively.

Draft proposals C and D and draft arrays EA, EB, and JA provided the greatest access to boat launches, ramps, and smaller ports. Each draft proposal had 16-23 MPAs that are near (within 5 miles) these features. Of these MPAs, 10-12 are high level protection MPAs (SMRs and SMCA-high). Draft proposals A, and draft arrays EA, EB, JA, and TB had the greatest number of moderate and low protection MPAs (7-13 MPAs) near boat ramps, launches, and smaller ports (Figure 2).

A measure of distance of MPAs from major ports showed that all draft arrays and draft external proposals had 4-5 MPAs within 5 miles of major ports. All arrays and proposals had a similar number of high protection MPAs (2-3 MPAs) and moderate and low protection MPAs (1-3 MPAs) within 5 miles of major ports, although draft proposals C and D and draft arrays EA, EB, JA, and TB had more MPAs within 15 miles of major ports (Figure 3).

Educational and Study Opportunities

Educational and study opportunities are improved by the presence of proposed MPAs near research institutions and MPAs that include established long term monitoring sites. Habitat replication is also an essential consideration in the design of MPA arrays, given the importance of replicate sites for robust design of scientific studies (Figure 4).

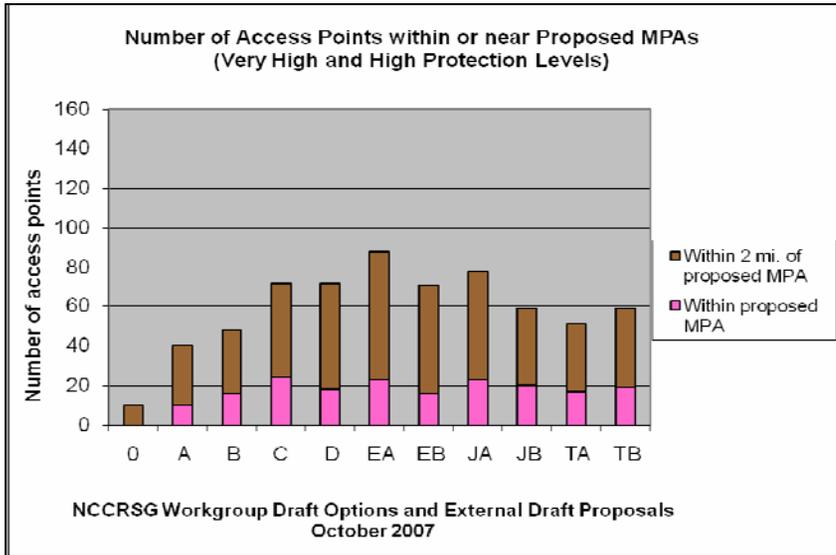
Draft proposals C, D, EA, EB, JA, and TB had the greatest number of proposed MPAs near a major marine research institution on the north central coast, with 4-9 MPAs near (defined as within 15 miles) either UC Davis's Bodega Bay Marine Lab or San Francisco State University's Romberg Tiburon Center for Environmental Studies. With the exception of draft proposal TB, these draft proposals also had the most proposed very high and high protection MPAs near marine institutions. For example, draft proposals C and D had 3 very high or high protection MPAs near a major research institution, and draft array EB had 6 very high or high protection MPAs near a research institution (Figure 4).

There are 15 long term monitoring sites in the study region monitored by the Partnership for Interdisciplinary Studies of Coastal Oceans (PISCO). All draft MPA proposals included at least 4 sites within SMRs or high SMCAs that are monitored by PISCO. Draft proposals A, B, C, and D, and draft arrays JA, and JB had 6 to 8 monitoring sites within SMRs and high protection SMCAs. Draft proposals A and C, and draft arrays EA, EB, JA, and JB had 7 or 8 monitoring sites within MPAs of all protection levels (Figure 5).

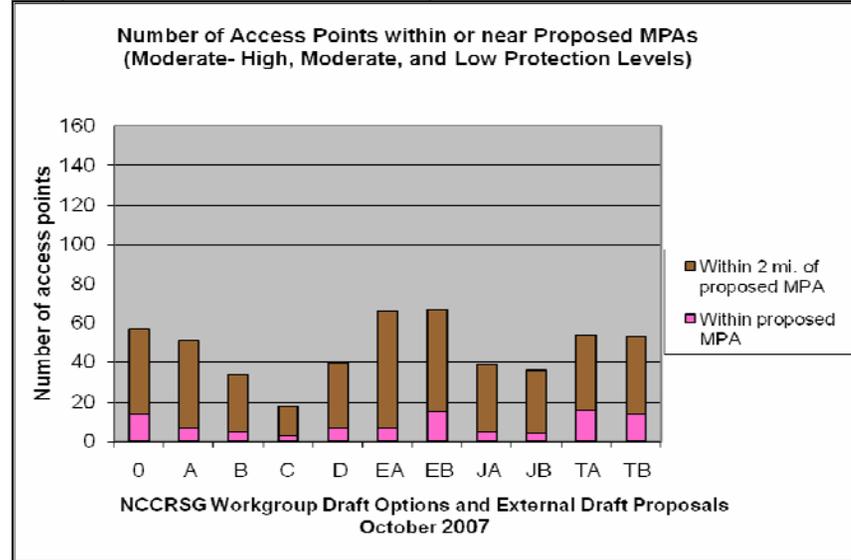
The north central coast draft MPA arrays and draft external MPA proposals each provided two or more replicates of most habitats with the exception of draft arrays TA and TB, which had little or no replication of soft habitat between 30-100m. For all MPAs there was greatest replication for rocky intertidal habitats (6-17 replicates) and hard bottom habitats between 30-100m depth (5-15 replicates), (Figures 6g and 6h). All draft proposals and draft arrays included some replication in very high protection level MPAs for most habitats, except soft bottom habitat of 30-100m; only draft proposal C provides 2 or more high protection replicate MPAs in this habitat type (Figures 6a and 6b).

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

1a) High Protection MPAs (SMRs, SMCA-High)



1b) Lower Protection MPAs (SMP-low, SMCA-mod, SMCA-low)



1c.) All proposed MPAs

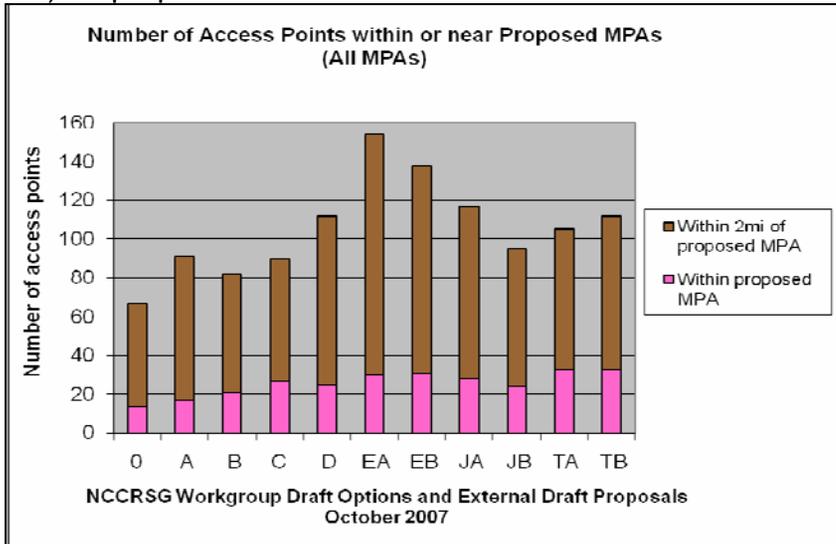
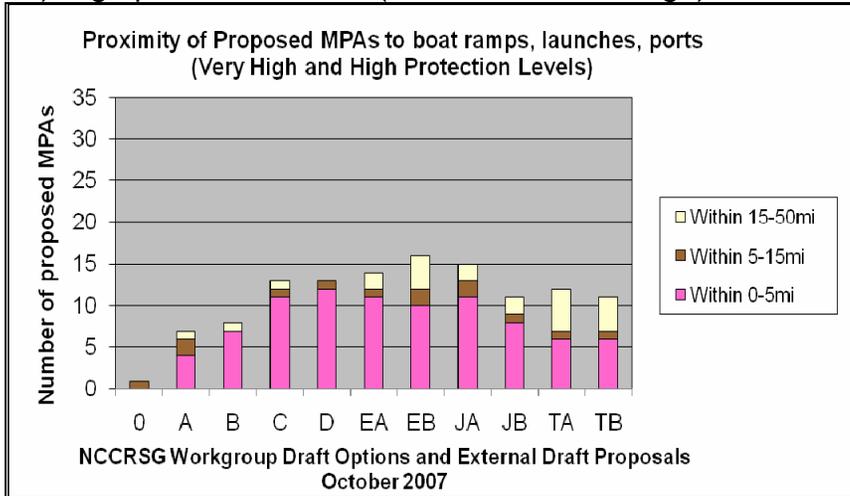
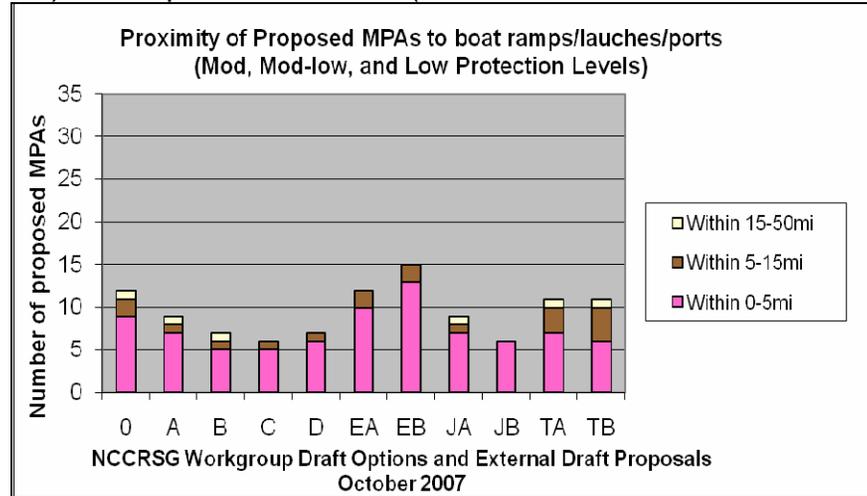


Figure 2: Proximity of proposed MPAs to boat ramps/launches/ports

2a) High protection MPAs (SMR and SMCA-High)



2b) Lower protection MPAs (SMP-low, SMCA-mod, SMCA-low)



2c) All proposed MPAs

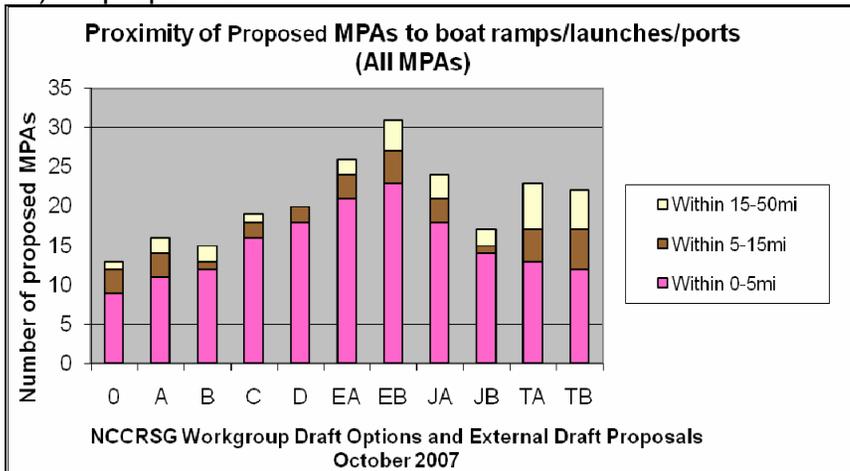
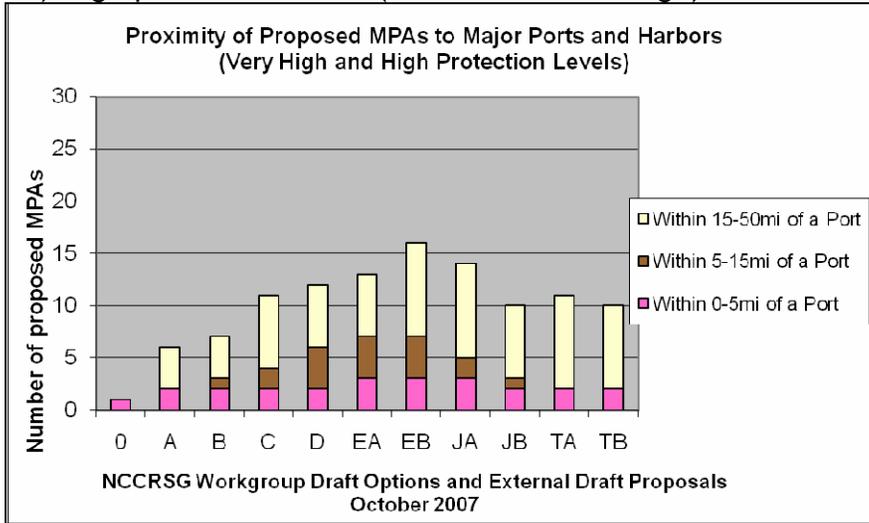
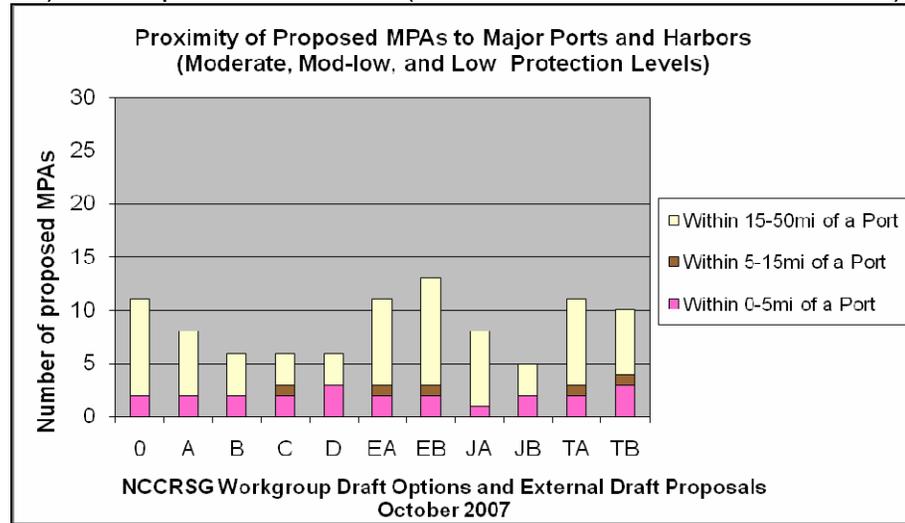


Figure 3: Proximity of proposed MPAs to major ports and harbors (Bodega Bay, San Francisco, and Half Moon Bay)

3a) High protection MPAs (SMR and SMCA-high)



3b) Lower protection MPAs (SMR-low, SMCA-mod, SMCA-low)



3c) All proposed MPAs

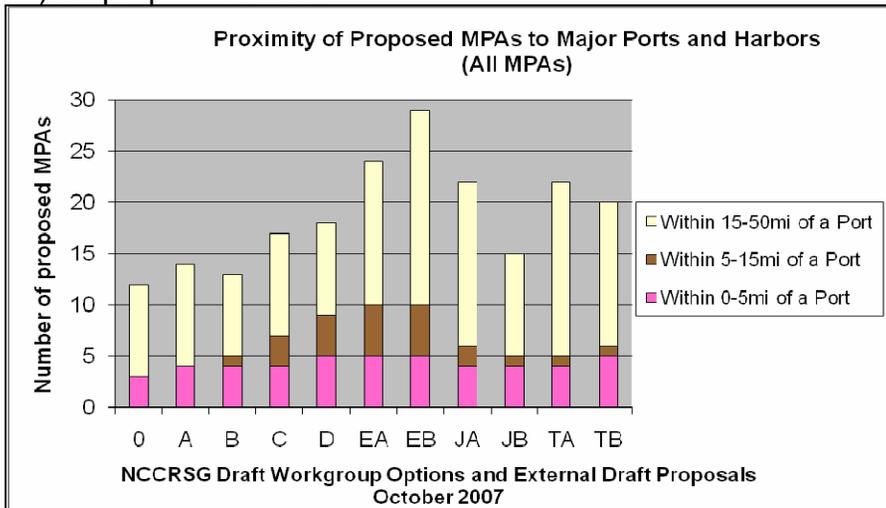


Figure 4: Proximity of proposed MPAs to major marine research institutions (Bodega Bay Marine Lab and Romberg Tiburon Center)
 4a) High protection MPAs (SMR and SMCA-high) 4b) All proposed MPAs

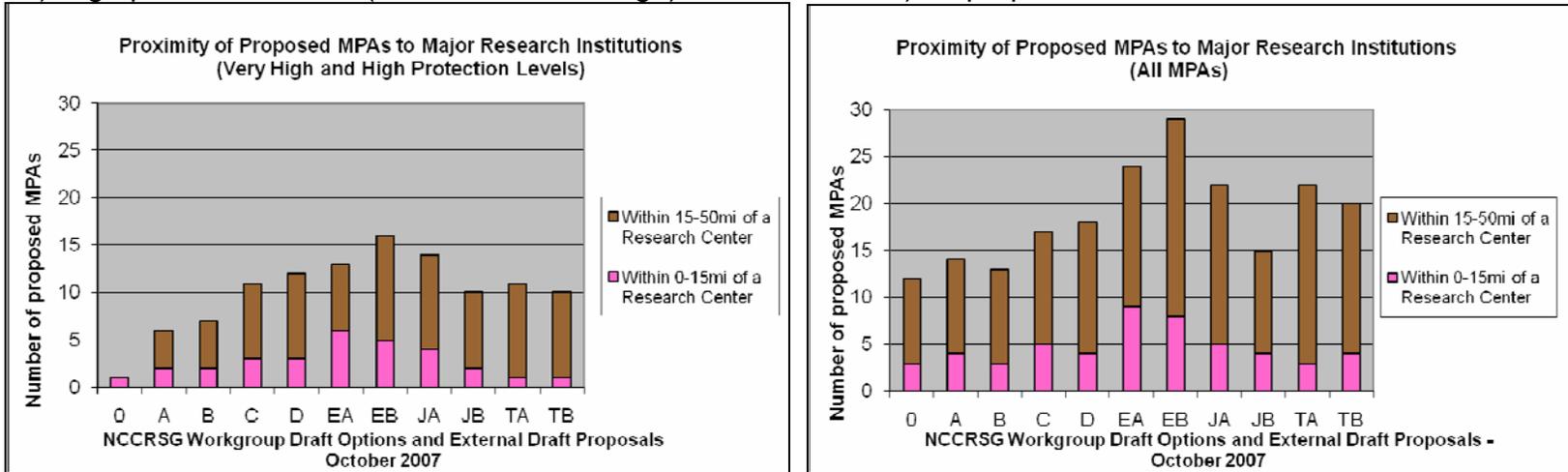


Figure 5: Number of long term monitoring sites in proposed MPA arrays

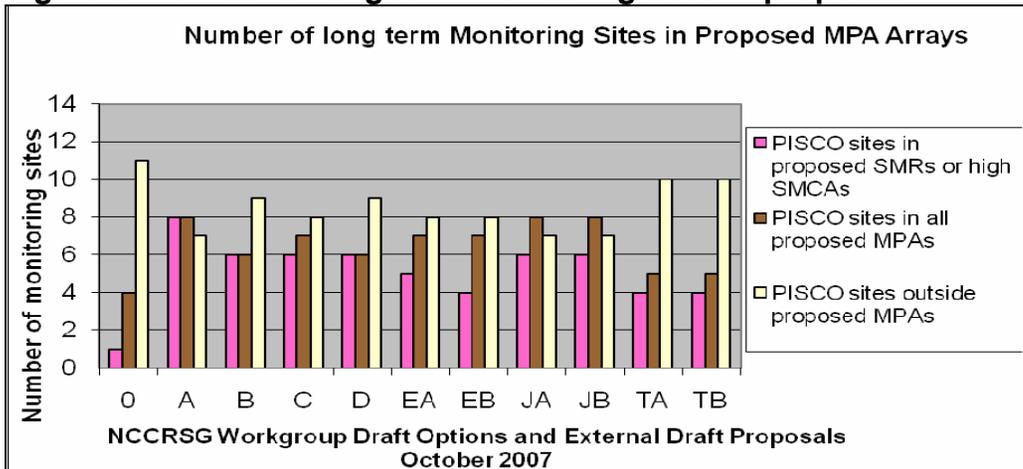
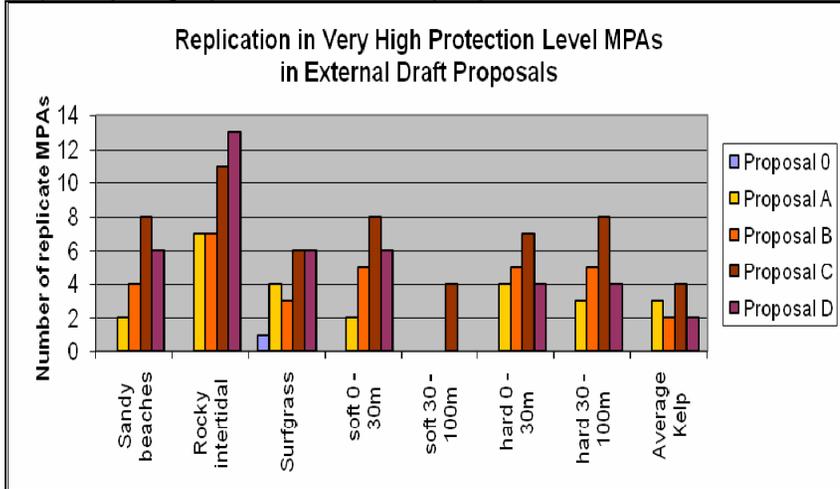
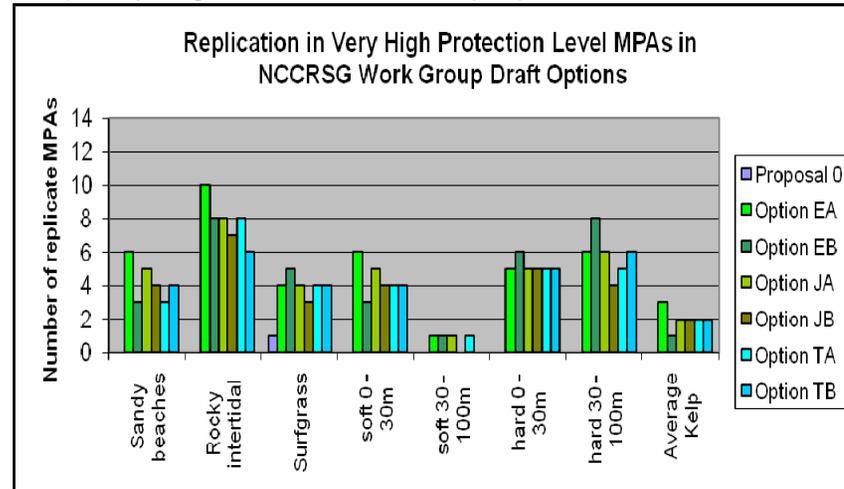


Figure 6 – Habitat replication within NCCRSR workgroup draft MPA options and external draft MPA proposals

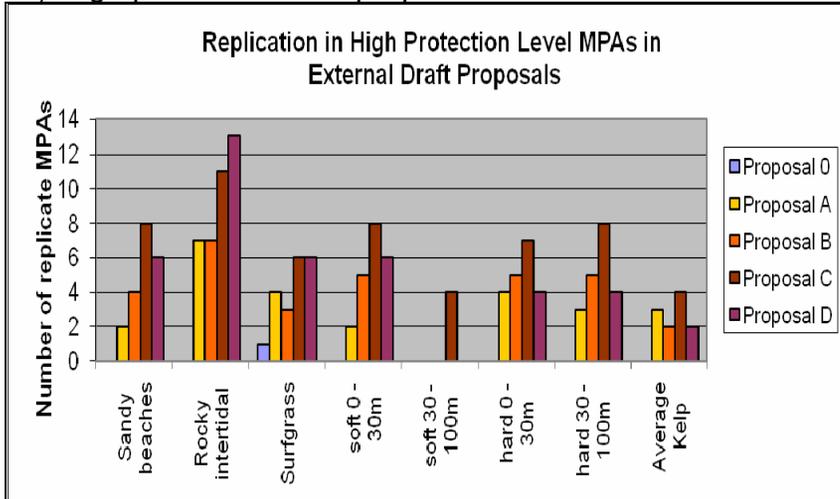
6a) Very High protection level proposed MPAs – External



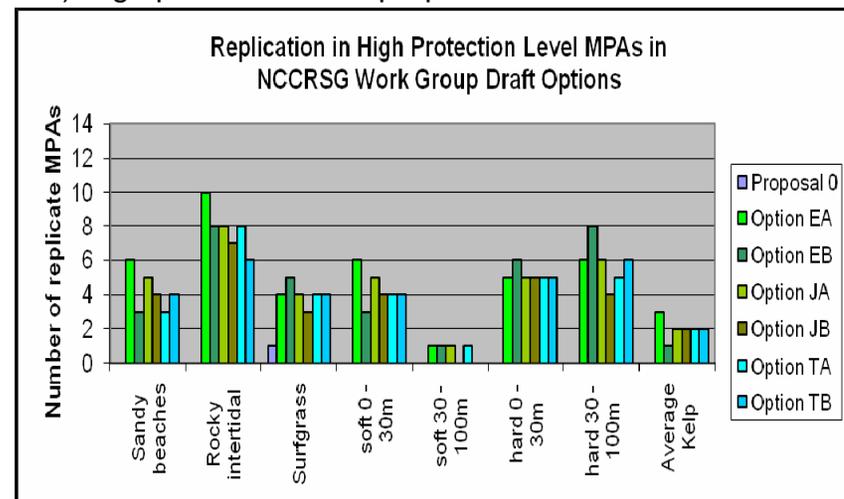
6b) Very High Protection Level proposed MPAs – NCCRSR work group



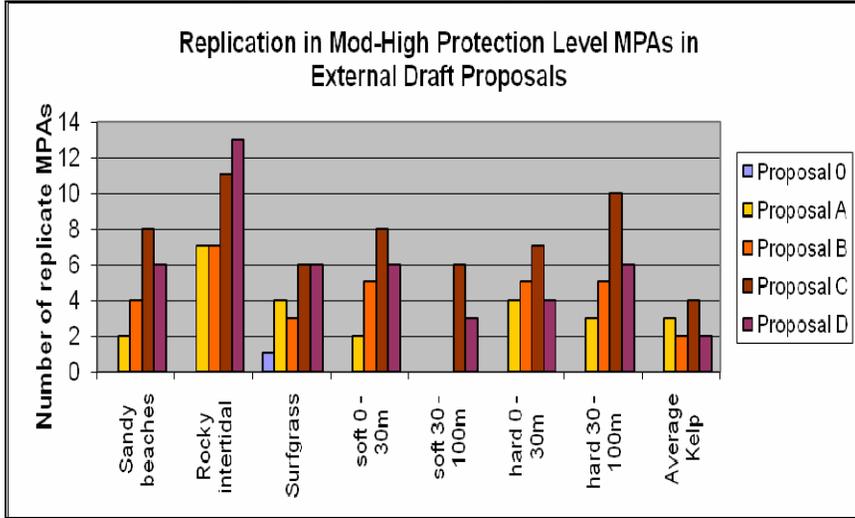
6c) High protection level proposed MPAs - External



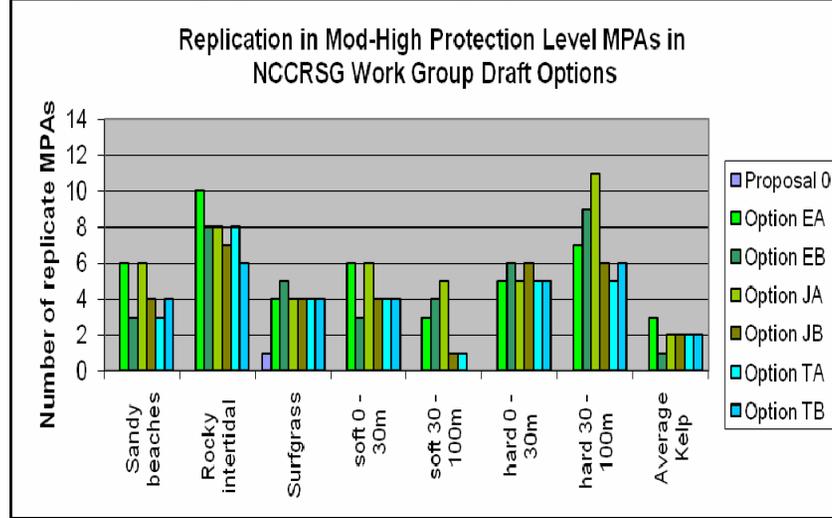
6d) High protection level proposed MPAs – NCCRSR work group



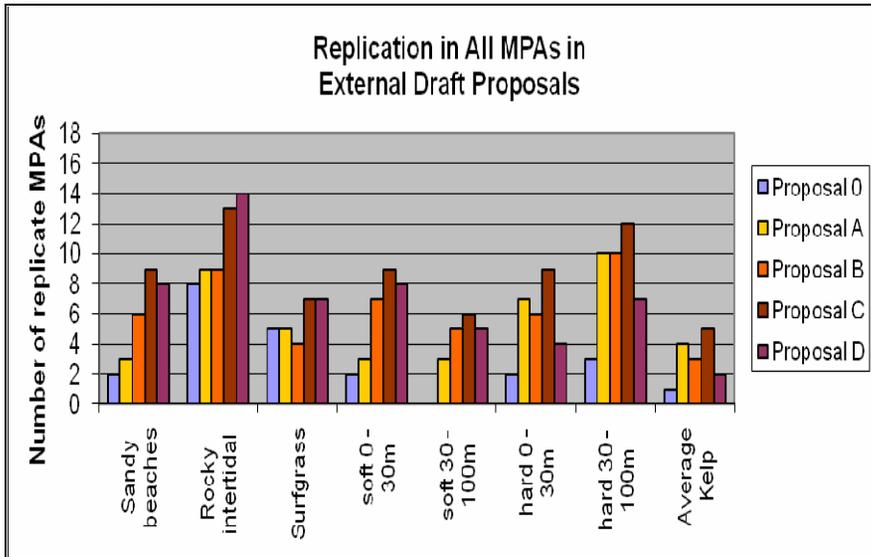
6e) Moderate-High protection level proposed MPAs - External



6f) Mod-High protection level proposed MPAs – NCCRSR work group



6g) All proposed MPAs - External



6h) All proposed MPAs – NCCRSR work group

