

To: MLPA North Central Coast Regional Stakeholder Group (NCCRSB)
From: MLPA I-Team
Subject: Correction to SAT Spacing Analysis
Date: December 7, 2007

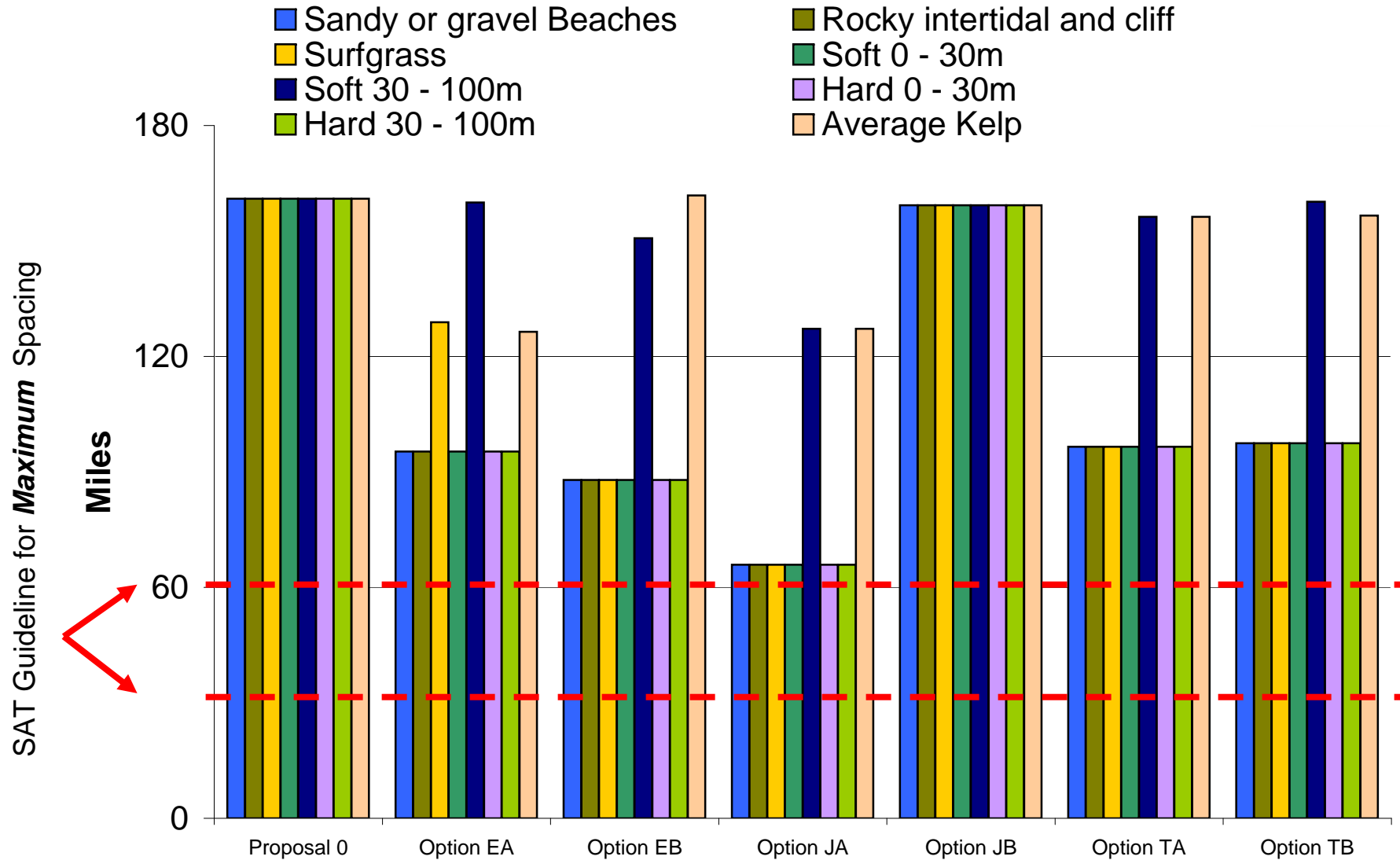
In reviewing the MLPA Master Plan Science Advisory Team (SAT) analysis of draft options for MPA arrays and draft external MPA proposals submitted to the I-Team on October 17, 2007, an error in several figures of the spacing analysis has been found and corrected.

When analyzing the maximum gaps between habitats included within MPAs, only MPA clusters that are of at least the minimum SAT size guideline (9 square miles) should have been included. Instead, for these figures, clusters of any size were included. This means that the maximum gaps displayed in these figures were actually smaller than they should have been; as a result, draft MPA arrays and draft external proposals may have appeared to meet the SAT guidelines more often than they do in actuality. Only those figures that show maximum gaps have been affected by this error; the rest of the size and spacing analysis was correct.

This error has been corrected in the maximum gaps spacing analysis by counting only MPA clusters that are at least 9 square miles in area. Attached are revised versions of the three figures that display maximum gaps at "very high," "high," and "moderate-high" levels of protection. Also attached is a revised version of the I-Team summary of SAT guidance with updated information on size, spacing, and level of protection.

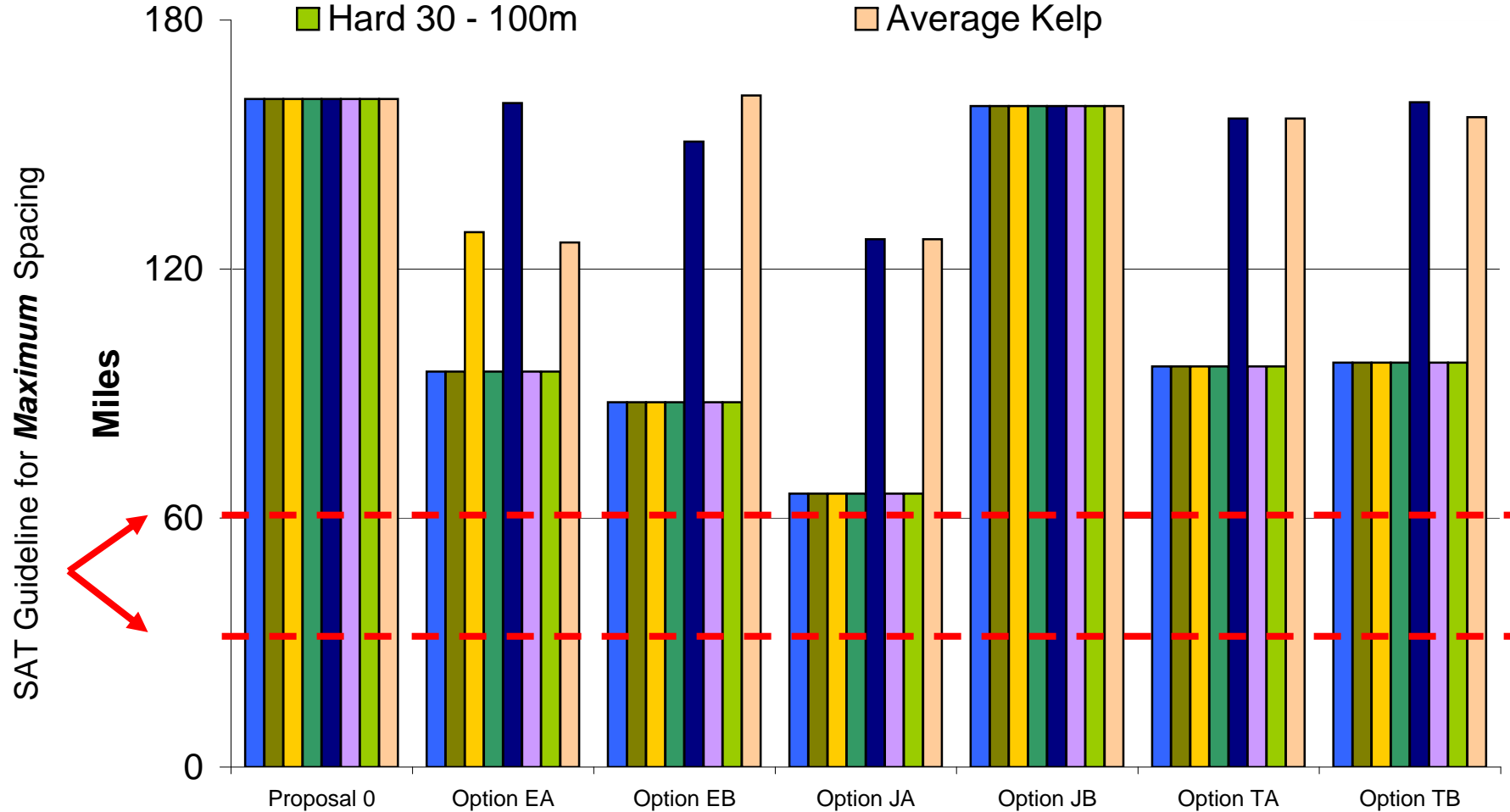
We sincerely apologize for any confusion that this may have caused. Feel free to contact any of the team with questions.

Maximum Gaps (Very High Protection)



Maximum Gaps (High Protection)

- Sandy or gravel Beaches
- Rocky intertidal and cliff
- Surfgrass
- Soft 0 - 30m
- Soft 30 - 100m
- Hard 0 - 30m
- Hard 30 - 100m
- Average Kelp



California Marine Life Protection Act Initiative
I-Team Summary of SAT Analyses of Draft Options for
MPA Arrays in the North Central Coast

Revised December 6, 2007

Note that changes from the December 5 version are highlighted

The MLPA North Central Coast Regional Stakeholder Group (NCCRSG) has been tasked with assembling no more than five draft marine protected area (MPA) proposals during its December 11-12, 2007 meeting. In assembling draft MPA proposals for the next iteration of evaluations and analyses, the NCCRSG will consider the six draft options for MPA arrays and four draft external MPA proposals that were submitted in October.

To assist work group preparations for the December meeting, the MLPA Initiative staff (I-Team) has reviewed the feedback provided by the MLPA Master Plan Science Advisory Team (SAT) and made some broad scale observations with regard to habitat representation, size, spacing, levels of protection, and socioeconomic impacts. This information is not intended to be prescriptive; rather, the I-Team recognizes that some NCCRSG members may find it difficult to absorb the many SAT analyses. This document is intended to help distill key issues from the SAT analyses and focus NCCRSG discussions so that they may be as productive as possible.

Note that this summary is organized by workgroup. In many cases, workgroups proposed different MPA configurations in each geography in "A" and "B" options to test various ideas. The I-Team suggests that stakeholders use the summary below, as well as the SAT evaluations themselves, to compare results from these "A" and "B" options. While this summary is focused on the work group products, stakeholders should also consider the ideas within each of the draft external MPA proposals.

Considerations

For habitat representation, size and spacing, note that many habitats are unequally distributed throughout the study region and/or are not well mapped. Average kelp, for example, is mapped mostly in the northern portion of the study region. Thus, it is difficult to meet the spacing guidelines for this habitat and the SAT recognizes that challenge in its evaluation.

In the SAT spacing analysis, the distance between habitats within MPAs at various protection levels was analyzed. For this analysis, adjacent MPAs were grouped into "clusters." For an MPA cluster to be considered (or "counted") in the spacing analysis, it had to include the habitat being analyzed, meet the level of protection for the specific analysis ("very high", "high" or "moderate-high"), and be of at least the minimum science guideline size (9 square miles). Arrays that were deficient in the spacing analysis generally had MPA clusters not meeting the size guidelines for at least a "moderate-high" level of protection. Two potential ways to make these clusters "count" in the spacing analysis are to 1) increase the size of the higher protection portion of the cluster or 2) increase the level of protection of the lower protection portion of the cluster.

Please note that in the first round of SAT evaluations, an error in applying the minimum size guideline in some figures led to the appearance that maximum gaps between habitats were lower than is actually the case. In future iterations, stakeholders should ensure that habitats are adequately represented in MPAs that meet the minimum size guideline, are of at least

"moderate-high" protection, and are spaced to meet the spacing guideline. This version of the I-Team Summary of SAT Analyses incorporates the revised spacing analysis.

The summary of the socioeconomic analysis for each work group is based only on the Ecotrust commercial fishing data and considers impact to commercial fishing ground area within the study region. Note that the impacts are described as "high" and "low" in relation to other MPAs within each array.

Turquoise Work Group

Habitat Representation

- TB covers a greater percentage of available habitat than TA for most habitats.
- At least 15% of hard substrates (both deep and shallow) are included in SMRs¹ across the study region in both options, with most representation in the north in SMRs and most in moderate and moderate-high SMCAs in the south.
- A greater percentage of soft substrates are included in SMCAs² than in SMRs in both options. Deeper soft substrate is mostly in "moderate" level of protection MPAs in the south (TA in particular)
- A greater percentage of estuaries in the south than in the north are in MPAs in both options.
- Rocky shores are represented at a higher percentage than sandy beach in both options.

Size and Spacing and Level of Protection

- In TA, three out of seven clusters count for spacing for at least "moderate-high" level of protection (Russian River, Point Reyes, and Moss Beach do not). In TB, five out of seven clusters count (Black Salt and Point Reyes do not). Both arrays have two clusters that count at a "very high" level of protection (Point Arena and Bodega SMRs).
- Deep soft habitat and average kelp are the biggest gaps in both options. All habitats greatly exceed the spacing guidelines in option TA, even at a "moderately high" level of protection. For option TB, all habitats greatly exceed the spacing guidelines at "very high" and "high" levels of protection but most habitats are within 10% of the SAT guideline, at a "moderately high" level of protection. The biggest gap for deep soft habitat in TA was from Black Point SMCA to Año Nuevo SMCA in the central coast. The biggest gap in TB for deep soft habitat was from Point Arena SMCA to Año Nuevo SMCA.
- Many MPAs with deep soft habitat (Point Reyes, Duxbury, etc.) have a SAT protection level of "moderate" and are not counted in spacing. Point Arena SMR in TA is the only MPA with this habitat of at least "high" protection.

¹ SMR = state marine reserve

² SMCA = state marine conservation area

- The Russian River SMCA is big enough to count for spacing in TB, but not in TA.
- The Point Reyes SMCA in both options has a level of protection that is too low to count in spacing analyses. As a result, the Point Reyes SMR is not counted in the spacing analysis because it is too small by itself.

Socioeconomics – Commercial Area Affected

- TA and TB were in the middle of all arrays in terms of socioeconomic impact, with TA having a lower impact than TB.
- Looking across the study region, impacts to the rockfish fisheries (deep nearshore and nearshore) and the urchin fishery tend to be higher than to crab and salmon fisheries in both options.
- TA has higher impacts to the rockfish fishery in Bolinas than most other arrays.
- Point Arena SMR has the greatest impacts (rockfish) in TA. Point Reyes SMR/SMCA impacts both the halibut and rockfish fisheries at high levels relative to other MPAs in TA.
- Point Arena SMR/SMCA also has the greatest impacts (rockfish, urchin) in TB. Also in TB, Black Salt SMR has a relatively large impact to the urchin fishery. Point Reyes SMR and Duxbury SMCA also have relatively high socioeconomic effects in TB.

Emerald Work Group

Habitat Representation

- At least 15% of hard substrates (both deep and shallow) are included in SMRs across the study region in both options, with the shallow hard substrate in the north having the highest percentage of hard substrate represented.
- Both options have more shallow soft habitat in SMRs than other arrays.
- EB has more kelp than other arrays, but much of it is in “moderate” and “low” protection MPAs.
- Both options protect more estuary than other arrays, especially in the north. Over half of the estuary area protected in the south is in “moderate” and “low” protection MPAs.
- EB has less rocky shore habitat than all other internal arrays in "very high" protection in the north and less sandy beach than all other internal arrays in "very high" protection in the south.

Size and Spacing and Level of Protection

- In both options, only a few MPA "clusters" were large enough and had high enough protection levels to count for spacing. In EA, the Black Point and Fitzgerald MPA clusters counted for at least "moderate-high" protection, while in EB, the Bodega, Pescadero, and

Point Reyes clusters counted for at least "moderate-high" level of protection. EA and EB had two and three MPA clusters that counted for spacing under "very high" level of protection, respectively.

- In both options, deep sand and average kelp have the biggest gaps at "very high" and "high" levels of protection. At the "moderate-high" level of protection option EA has the biggest gaps in surfgrass and kelp habitat and no habitats meet the SAT guideline. Black Point and Fitzgerald SMCAs each have deep sand and count at "moderate-high" protection. The biggest gap for kelp is from the Russian River SMCA to Año Nuevo SMR in the central coast.
- Although EB has gaps that greatly exceed the SAT guideline for all habitats at the "very high" and "high" levels of protection, most habitats approach the guideline at the "moderate-high" level of protection. The habitats that remain well above the guideline at "moderate-high" level of protection are sandy beaches, shallow sand, shallow rock, and kelp. The biggest gap for shallow sand and sandy beach was from Bodega SMR to Pescadero SMR (note that the Fitzgerald SMR is too small to count by itself and the Fitzgerald SMCA only counts at a "moderate" level of protection). Bodega SMCA to Pescadero has the largest gap for deep sand, but since Bodega SMCA is of "moderate-high" protection, this gap increases at higher levels of protection.

Socioeconomics – Commercial Area Affected

- Relative to other arrays, EB has high impacts and EA has moderately high impacts. Only one internal array has higher socioeconomic impacts.
- EB has large impacts to the rockfish and urchin fisheries in the north and the rockfish and crab fisheries in the south.
- In EA, Point Arena SMCA and Farallones SMCA have the largest impacts to the rockfish fishery (46.7% of grounds for deep nearshore rockfish from Bolinas for the Farallones) and Point Reyes SMR has a large impact to the halibut fishery.
- In EB, Point Arena SMCA and Saunders Reef SMCA have a high impact to the rockfish fishery in the north and Pescadero SMR has a high impact to the rockfish and squid fisheries in the south (44% of nearshore rockfish grounds from Half Moon Bay).

Jade Work Group

Habitat Representation

- For most habitats, JA represents habitats in a greater percentage than JB, both in SMRs and in all MPAs together.
- Both JA and JB represent at least 15% of both shallow and deep hard habitats in at least "moderate-high" protection, with JA having a large portion in "moderate" protection in the south and JB having a large portion in "moderate-high" protection in the north.

- In JB, less than 5% of deep soft habitat is in at least "high" protection, with deep soft habitat in the south being in mostly "moderate" protection MPAs.
- Both options represent more estuarine habitat in the south than in the north, with most of the representation in the south being in "high protection" MPAs.

Size and Spacing and Level of Protection

- Six of the seven MPA "clusters" in JA count in at least a "moderate-high" level of protection (Saunders reef does not) whereas three out of six MPA "clusters" in JB count in at least a "moderate-high" level of protection (Point Arena, Point Reyes, and Fitzgerald didn't count). Note that no clusters in JB count at the "very high" protection level (JA has three).
- In JA deep sand and average kelp have the biggest gaps at "very high" and "high" levels of protection. At the "moderate-high" level of protection JA meets or is within ~10% of the guidelines for all habitats except kelp. JA meets the guidelines for deep soft at "moderate-high" protection, but only has one MPA (Sonoma Coast SMR) with this habitat at a level above "moderate-high."
- JB greatly exceeds the SAT spacing guidelines for all habitats at "very high" and "high" levels of protection. At the "moderate-high" level of protection, the biggest gap in option JB is kelp. JB does not have any MPAs with deep soft above "moderate high" and the largest gap for this habitat is between Bodega SMCA and Año Nuevo SMR in the central coast.
- The biggest gap in spacing in JA for kelp was from the Sonoma Coast SMR to Año Nuevo SMR in the central coast. The biggest gap in spacing for kelp in JB was from Black Point SMR to Año Nuevo SMR. Note that in both cases kelp is not well mapped in the southern portion of the study region.

Socioeconomics – Commercial Area Affected

- Relative to other arrays, JA has high impacts and JB has low impacts.
- JA has relatively high impacts to the Dungeness crab fishery from Bolinas, the rockfish fishery from San Francisco, and the squid fishery from Half Moon Bay.
- The MPAs in JA with the largest impacts are Saunders Reef Inshore SMCA (rockfish), Duxbury SMCA (Dungeness crab and rockfish), Point Arena SMR/SMCA (rockfish), and Point Reyes SMR/SMCA (halibut).
- The MPAs in JB with the largest impacts are Point Arena SMR/SMCA (rockfish, urchin) and Point Reyes SMR/SMCA (halibut).