California Marine Life Protection Act Initiative

Summary of Findings in Habitat Replication, MPA Size and MPA Spacing Analyses for the BRTF Recommended MPA Proposals in the MLPA North Coast Study Region

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Introduction

The Marine Life Protection Act (MLPA) Blue Ribbon Task Force (BRTF) is forwarding two marine protected area (MPA) proposals and a special closures recommendation to the California Fish and Game Commission for consideration. These proposals, in addition to the north coast existing MPAs (Proposal 0), have been evaluated by the MLPA Master Plan Science Advisory Team (SAT).

This document was developed by MLPA Initiative staff to help summarize key findings in the SAT evaluations for habitat replication, MPA size and MPA spacing; it identifies both where science guidelines were met and where they were not met. This information is intended to complement, and does not replace, the SAT evaluations.

More information on the MPA proposals and associated evaluations, including those detailed in this summary, are available at http://www.dfg.ca.gov/mlpa/mpaproposals_nc.asp. For details about the methods used in conducting SAT evaluations, including explanations of levels of protection (LOPs), see *Methods Used to Evaluate Marine Protected Area Proposals in the MLPA North Coast Study Region* (available on the MLPA website at http://www.dfg.ca.gov/mlpa/pdfs/northcoastproposals/evaluationmethods.pdf).

Summary

This summary highlights key findings for the SAT evaluations of habitat replication, MPA size and MPA spacing for the Revised Round 3 MLPA North Coast Regional Stakeholder Group MPA Proposal (RNCP) and the North Coast Enhanced Compliance Alternative MPA Proposal (ECA). These evaluations only consider individual MPAs or MPA clusters that are at least a minimum size of nine square statute miles and at or above moderate-high LOP. For more details about the findings, see subsequent tables (Tables 1 – 3).

Habitat Replication

- **RNCP:** Six of twelve key habitats are not replicated in the northern bioregion (beaches, hard 0-30 meters (m), kelp, estuary, coastal marsh, and eelgrass). All the habitats are replicated in the southern bioregion, although hard 100-3000m habitats are replicated in only one MPA that falls on the bioregional divide.
- **ECA:** Two of twelve habitats are not replicated in the northern bioregion (hard 0-30m and kelp). All the habitats are replicated in the southern bioregion, although hard 100-3000m is replicated in only one MPA that falls on the bioregional divide.

MPA Size

- **RNCP:** Six of the eleven MPAs/MPA clusters are at least a moderate-high LOP and within minimum size range (9-18 square statue miles). There are no proposed MPAs with at least a moderate-high LOP and within the preferred size range (18-36 square statute miles).
- **ECA:** Ten of the eleven MPAs/MPA clusters are at least a moderate-high LOP and meet minimum size guidelines, including one MPA cluster with a moderate-high LOP and within the preferred size range.

Spacing

- **RNCP:** Nine of twelve key habitats have at least one spacing gap that substantially exceeds either SAT maximum spacing guidelines (beaches, rocky shores, hard 0-30m, soft 0-30m, estuary, marsh and eelgrass) *or* minimum possible spacing for rare habitats (kelp, soft 100-3000)[1]. The three estuarine habitats have multiple spacing gaps. Spacing guidelines are achieved for one key habitat (hard 30-100m) and gaps for two additional habitats approach guidelines or minimum possible spacing (hard 100-3000m and soft 30-100m). Hard 100-3000m is available in only one location and this habitat is replicated in an MPA, achieving the minimum possible spacing.
- **ECA:** Six of twelve key habitats have a spacing gap that substantially exceeds either SAT maximum spacing guidelines (beaches, hard 0-30m, soft 0-30m, estuary and eelgrass) *or* minimum possible spacing for rare habitats (kelp). The three estuarine habitats have multiple spacing gaps. Spacing guidelines are achieved for two key habitats (rocky shores and hard 30-100m) and gaps for four additional habitats approach guidelines or minimum possible spacing (hard 100-3000m, soft 30-100m, soft 100-3000m, and coastal marsh).

Detailed Summary of Habitat Replication

Replication of habitats is evaluated by the SAT for each of two bioregions (northern and southern) and the entire MLPA North Coast Study Region (NCSR). The information provided in Table 1 summarizes the number of replicates for each key habitat, by bioregion, for the RNCP and the ECA. More details about this evaluation can be found in the SAT's evaluation document, *Evaluation of BRTF-Recommended MPA Proposals for the North Coast Study Region: Habitat Representation, Habitat Replication, MPA Size and MPA Spacing Analyses*, particularly Figures 3.1 - 3.4 (available on the MLPA website at http://www.dfg.ca.gov/mlpa/pdfs/northcoastproposals/habitat_graphs.pdf)

[1] Habitat spacing guidelines cannot be met for three open coast habitats: kelp (115 mi minimum gap), hard 100-3000m (110 mi minimum gap), and soft 100-3000m (95 mi minimum gap), although minimum possible spacing for each of these three habitats can be reduced.

Table 1: Detailed Summary of Habitat Replication

Did the BRTF-Recommended MPA Proposals Follow Replication Guidelines for the Key Habitats in Each Bioregion?

Key Habitats	Revised Round 3 NCRSG MPA Proposal (RNCP)		North Coast Enhanced Compliance Alternative MPA Proposal (ECA)		Additional Information[a]
	Northern	Southern	Northern	Southern	
Beaches	**No** (0 replicates)	Yes (1 replicate)	Yes (1 replicate)	Yes (1 replicate)	**Both:** Replication met in the southern bioregion at Skip Wollenberg/Ten Mile SMR. **RNCP:** Replication not met in northern bioregion, but South Cape Mendocino SMR is close to meeting the required habitat threshold. **ECA:** Replication met in northern bioregion at Reading Rock SMCA.
Rocky Shores	Yes (1 replicate)	Yes (2 replicates)	Yes (2 replicates)	Yes (2 replicates)	**Both**: Replication met in northern and southern bioregions. **ECA:** One additional replicate in northern bioregion from the Reading Rock SMCA
Kelp	**No** (0 replicates)	Yes (1 replicate)	**No** (0 replicates)	Yes (1 replicate)	**Both:** Replication met in the southern bioregion at Skip Wollenberg/Ten Mile SMR. Replication not met in northern bioregion, only replicate available off of Crescent City.
Hard 0 - 30m	**No** (0 replicates)	Yes (1 replicate)	**No** (0 replicates)	Yes (1 replicate)	**Both:** Replication met in the southern bioregion at Skip Wollenberg/Ten Mile SMR. Replication not met in northern bioregion, only replicates available near major centers (Crescent City, Sister's Rocks or Patrick's Point).
Hard 30 - 100m	Yes (3.5 replicates)	Yes (2.5 replicates)	Yes (3.5 replicates)	Yes (2.5 replicates)	**Both:** Replication met in northern and southern bioregions.
Hard 100 - 3000m	Minimum gap possible (0.5 replicate)	Minimum gap possible (0.5 replicate)	Minimum gap possible (0.5 replicate)	Minimum gap possible (0.5 replicate)	**Both:** Replication met. Hard 100-3000m is rare and exists in only one location. Habitat is replicated in an MPA that falls on bioregional divide.

Did the BRTF-Recommended MPA Proposals Follow Replication Guidelines for the Key Habitats in Each Bioregion?

Key Habitats	Revised Round 3 NCRSG MPA Proposal (RNCP)		North Coast Enhanced Compliance Alternative MPA Proposal (ECA)		Additional Information[a]
	Northern	Southern	Northern	Southern	
Soft 0 - 30m	Yes (1 replicate)	Yes (2 replicates)	Yes (2 replicates)	Yes (2 replicates)	**Both:** Replication met in northern and southern bioregions. **ECA:** One additional replicate in northern bioregion from the Reading Rock cluster.
Soft 30 - 100m	Yes (2.5 replicates)	Yes (1.5 replicates)	Yes (3.5 replicates)	Yes (3.5 replicates)	**Both:** Replication met in northern and southern bioregions. **ECA:** Three additional replicates compared to RNCP at Samoa Offshore SMCA, Big Flat Offshore SMCA and Vizcaino Offshore SMCA.
Soft 100 - 3000m	Yes (1.5 replicates)	Yes (0.5 replicate)	Yes (1.5 replicates)	Yes (2.5 replicates)	**Both:** Replication met in northern bioregion. **RNCP:** Replication met in the southern bioregion; the replicate fell on the bioregional divide and the SAT concluded it can reasonably be assigned to either bioregion; in this case it was assigned to the southern. **ECA:** Replication met in the southern bioregion. Two additional replicates compared to RNCP at Big Flat Offshore SMCA and Vizcaino Offshore SMCA.
Estuary	**No** (0 replicates)	Yes (1 replicate)	Yes (1 replicate)	Yes (1 replicate)	**Both:** Replication met for southern bioregion at Skip Wollenberg/Ten Mile Estuary SMRMA. **RNCP:** Replication not met in the northern bioregion, only replicate is found in an MPA below moderate-high LOP. **ECA:** Replication met in the northern bioregion due to replicate captured at Southern Humboldt Bay SMRMA.

Did the BRTF-Recommended MPA Proposals Follow Replication Guidelines for the Key Habitats in Each Bioregion?					
Key Habitats	**Revised Round 3 NCRSG MPA Proposal (RNCP)**		**North Coast Enhanced Compliance Alternative MPA Proposal (ECA)**		**Additional Information[a]**
	Northern	Southern	Northern	Southern	
Marsh	**No** (0 replicates)	Yes (1 replicate)	Yes (1 replicate)	Yes (1 replicate)	**Same as Estuary**
Known eelgrass locations	**No** (0 replicates)	Yes (1 replicate)	Yes (1 replicate)	Yes (1 replicate)	**Same as Estuary**

[a] *SMCA = state marine conservation area, SMP = state marine park, SMR = state marine reserve, SMRMA = state marine recreational management area*

Detailed Summary of MPA Size

Table 2 summarizes MPA sizes of those individual MPAs and MPA clusters at or above moderate-high LOP included in the RNCP and the ECA. The information reports the number of MPAs and MPA clusters that fall within the three size ranges, including: below minimum size range (0 - 9 square statute miles), within minimum size range (9 - 18 square statute miles), and preferred size range (18 - 36 square statute miles). For more details from the full SAT evaluations, please refer to the SAT document, *Evaluation of BRTF-Recommended MPA Proposals for the North Coast Study Region: Habitat Representation, Habitat Replication, MPA Size and MPA Spacing Analyses*, particularly Figure 4.1 and Table 4.2 (available on the MLPA website at http://www.dfg.ca.gov/mlpa/pdfs/northcoastproposals/habitat_graphs.pdf).

Table 2: Detailed Summary of MPA Size

Did the BRTF-Recommended MPA Proposals Follow the Size Guidelines?			
Size Range	**Revised Round 3 NCRSG MPA Proposal (RNCP)**	**North Coast Enhanced Compliance Alternative (ECA)**	**Additional Information[a]** (including list of MPAs and MPA clusters)
Below Minimum (0 - 9 square statue miles)	N/A (1 MPA)	N/A (1 MPA)	**Both:** Point Cabrillo SMR, which was not intended to contribute to science guidelines but instead to address Goal 3.
Within Minimum (9- 18 square statue miles)	Yes (6 MPAs/clusters)	Yes (9 MPAs/clusters)	**RNCP:** Size guidelines met with 6 MPAs within minimum size range, including: Point St. George Reef Offshore SMCA, Reading Rock SMR, South Cape Mendocino SMR, Mattole Canyon SMR, Sea Lion Gulch SMR, Skip Wollenberg/ Ten Mile SMR **ECA**: Size guidelines met with 10 MPAs/MPA clusters within minimum size

Did the BRTF-Recommended MPA Proposals Follow the Size Guidelines?			
Size Range	**Revised Round 3 NCRSG MPA Proposal (RNCP)**	**North Coast Enhanced Compliance Alternative (ECA)**	**Additional Information[a]** (including list of MPAs and MPA clusters)
			range, including: Pyramid Point Offshore SMCA, Point St. George Reef Offshore SMCA, Samoa Offshore SMCA, South Cape Mendocino SMR, Mattole Canyon SMR, Sea Lion Gulch SMR, Big Flat Offshore SMCA, Vizcaino Offshore SMCA and Skip Wollenberg/Ten Mile SMR.
Preferred (18- 36 square statue miles)	**No** (0 clusters)	Yes (1 MPAs/clusters)	**NCP:** Size guidelines not met with zero MPAs or MPA clusters in the preferred size range. **ECA**: Size guidelines met with 1 MPA cluster in the preferred size range, including: Reading Rock cluster.

[a] *SMCA = state marine conservation area, SMP = state marine park, SMR = state marine reserve, SMRMA = state marine recreational management area*

Detailed Summary of Spacing

Table 3 summarizes the spacing between protected habitats found in individual MPAs and MPA clusters included in the RNCP and the ECA. The spacing guidelines recommend that habitats be replicated in MPAs placed at a maximum of 31-62 statute miles from each other. Therefore, the gaps reported in this table identify where habitat spacing between MPAs exceeds SAT maximum spacing guideline of 62 miles or minimum possible spacing for rare habitats. The information includes a number of gaps for each habitat, details for where those gaps exist and the distance between gaps. For more details from the full SAT evaluations, please refer to the SAT's document, *Evaluation of BRTF-Recommended MPA Proposals for the North Coast Study Region: Habitat Representation, Habitat Replication, MPA Size and MPA Spacing Analyses*, particularly Figures 5.1 – 5.2 and Tables 5.3a – b (available on the MLPA website at http://www.dfg.ca.gov/mlpa/pdfs/northcoastproposals/habitat_graphs.pdf).

Table 3: Detailed Summary of Spacing

Did the BRTF-Recommended MPA Proposals Follow the Spacing Guidelines for Key Habitats?			
Key Habitats	**Revised Round 3 NCRSG MPA Proposal (RNCP)**	**North Coast Enhanced Compliance Alternative MPA Proposal (ECA)**	**Additional Information[a, b]**
Beaches	**No** (2 spacing gaps)	**No** (2 spacing gap)	**Both:** Spacing guidelines not met. One gap of 95 miles between Skip Wollenberg/ Ten Mile SMR and Bodega Head SMCA*, increased based on change at Stewarts

Did the BRTF-Recommended MPA Proposals Follow the Spacing Guidelines for Key Habitats?			
Key Habitats	**Revised Round 3 NCRSG MPA Proposal (RNCP)**	**North Coast Enhanced Compliance Alternative MPA Proposal (ECA)**	**Additional Information[a, b]**
			Point SMR/SMCA cluster*. **RNCP:** Spacing guidelines not met with two spacing gaps. Given that the Skip Wollenberg/ Ten Mile SMR is the only beach replicate, there is a 174 mi gap north to Oregon and 95 mi gap to the south. **ECA:** Spacing guidelines not met with two spacing gaps. The largest gap is 126 miles from the Reading Rock cluster to the Skip Wollenberg/ Ten Mile SMR and the other is to the south as described above.
Rocky Shores	**No** (1 spacing gap)	Yes	**RNCP**: Spacing guidelines not met with one gap of 109 miles between Oregon border and South Cape Mendocino SMR. **ECA:** Spacing guidelines met. Addressed spacing gap by raising the level of protection to moderate-high for Reading Rock SMCA.
Kelp	**No** (1 spacing gap)	**No** (1 spacing gap)	**Both:** Spacing guidelines not met with one gap of 174 miles between Oregon border and Skip Wollenberg/Ten Mile SMR.
Hard 0 - 30m	**No** (1 spacing gap)	**No** (1 spacing gap)	**Both:** Spacing guidelines not met with one gap of 174 miles between Oregon border and Skip Wollenberg/ Ten Mile SMR.
Hard 30 - 100m	Yes	Yes	**Both:** Spacing guidelines met. Reading Rock SMR and South Cape Mendocino SMR are both important for maintaining less than 62 mile gap for this habitat.
Hard 100 - 3000m	Approaches guidelines	Approaches guidelines	**Both:** Approach minimum gap possible with 116 miles between Oregon border and Mattole Canyon SMR and 97 mi gap south from Mattole Canyon SMR to Bodega Head SMCA. Also, the Sea Lion Gulch SMR is close to meeting the habitat threshold and could potentially reduce the second gap to 91 miles.
Soft 0 - 30m	**No** (2 spacing gaps)	**No** (1 spacing gap)	**Both:** Spacing guidelines not met with at least one spacing gap in both proposals.

Did the BRTF-Recommended MPA Proposals Follow the Spacing Guidelines for Key Habitats?			
Key Habitats	**Revised Round 3 NCRSG MPA Proposal (RNCP)**	**North Coast Enhanced Compliance Alternative MPA Proposal (ECA)**	**Additional Information[a, b]**
			There is a gap of 96 miles from Skip Wollenberg/ Ten Mile SMR to Bodega Head SMCA*. **RNCP:** Spacing guidelines not met with two gaps. The largest gap is 109 miles between Oregon border and South Cape Mendocino SMR and the smaller gap is described above.
Soft 30 - 100m	**No** (2 spacing gaps that approach guidelines)	**No** (1 spacing gap that approaches guidelines)	**Both**: Approach spacing guidelines with 64 mi gap between Skip Wollenberg/ Ten Mile SMR and Stewarts Point cluster*. **RNCP:** Approaches spacing guidelines with 67 mi gap between Reading Rock SMR and Mattole Canyon SMR, in addition to the gap mentioned above.
Soft 100 - 3000m	**No** (2 spacing gaps – smaller gap approaches minimum possible spacing)	**No** (2 spacing gap – larger gap approaches minimum possible spacing)	**Both:** Minimum gap possible of 102 mi between Point St. George Reef Offshore SMCA and Mattole Canyon SMR. Round 2 spacing gap was addressed by adding MPA at Point St. George Reef. **RNCP:** Spacing guidelines not met with one gap of 121 miles between Mattole Canyon SMR and Stewarts Point cluster*, in addition to the gap mentioned above.. **ECA:** Spacing guidelines not met with one gap of 78 miles between Vizcaino Offshore SMCA and Stewarts Point cluster*, in addition to the gap mentioned above.
Estuary	**No** (2 spacing gaps)	**No** (3 spacing gaps)	**Both**: Spacing guidelines not met with multiple spacing gaps, including 89 miles between Skip Wollenberg/ Ten Mile Estuary SMRMA to Russian River SMRMA*. Habitat is available at Eel River, which would reduce the gap by 10 miles. **RNCP**: Spacing guidelines not met with two spacing gaps. The largest gap is 181 miles from Chetco River in Oregon to Skip Wollenberg/ Ten Mile Estuary SMRMA and the other gap is described above.

Did the BRTF-Recommended MPA Proposals Follow the Spacing Guidelines for Key Habitats?			
Key Habitats	**Revised Round 3 NCRSG MPA Proposal (RNCP)**	**North Coast Enhanced Compliance Alternative MPA Proposal (ECA)**	**Additional Information[a, b]**
			ECA: Spacing guidelines not met with three spacing gaps, including the Skip Wollenberg/ Ten Mile Estuary SMRMA to Russian River SMRMA* gap. South Humboldt Bay SMRMA in this proposal help reduces the large gap found in the RNCP, by creating two smaller gaps: an 89 mile gap from Chetco River in Oregon to South Humboldt Bay SMRMA and a 92 mile gap from South Humboldt Bay SMRMA to Skip Wollenberg/ Ten Mile Estuary SMRMA.
Marsh	**No** (2 spacing gaps)	**No** (3 spacing gaps – largest gap approaches minimum possible spacing)	**Same as Estuary habitat listed above.**
Known eelgrass locations	**No** (2 spacing gaps)	**No** (3 spacing gaps)	**Both:** Spacing guidelines not met with multiple spacing gaps, including 103 miles between Skip Wollenberg/ Ten Mile Estuary SMRMA and Estero Americano SMRMA*. Habitat is available to reduce gaps at Smith River, which would reduce the gap north of Humboldt Bay by 8 miles, and at Eel River, which would reduce the gap south of Humboldt Bay by 10 miles. **RNCP:** Spacing guidelines not met with one additional gap of 181 miles between Chetco River in Oregon and Skip Wollenberg/Ten Mile Estuary SMRMA. **ECA:** Spacing guidelines not met with the additional gap described in the RNCP above broken into two smaller gaps including 89 miles between the Chetco River in Oregon and South Humboldt Bay SMRMA and 92 miles between South Humboldt Bay SMRMA to Skip Wollenberg/ Ten Mile Estuary SMRMA.

[a] *SMCA = state marine conservation area, SMP = state marine park, SMR = state marine reserve, SMRMA = state marine recreational management area*

[b] *MPAs notated with an asterisks (*) are located in the MLPA North Central Coast Study Region.*