

California MLPA Master Plan Science Advisory Team
Round 3 Outputs from Bioeconomic Model Evaluations:
Deletion Analysis
October 10, 2010 DRAFT

Table 3. Deletion Analysis for External Proposed MPA Arrays. This table shows the biomass increase and biomass increase per area for each MPA proposed in the round 3 draft marine protected area (MPA) proposals for the Marine Life Protection Act (MLPA) Initiative north coast study region (NCSR) derived from the UC Santa Barbara (UCSB) bioeconomic model. To explore a range of assumptions, the UCSB model runs this analysis with two management scenarios: maximum-sustainable yield (MSY)-type and unsuccessful management outside of the MPAs. The **biomass increase** is the contribution of an individual proposed MPA to the overall biomass in the external MPA array, expressed as a percentage of the equilibrium biomass with the full proposed MPA array. A biomass increase of 1 indicates that the MPA is contributing 1% to the overall biomass in the study region (for example, allowing fishing within that MPA would reduce biomass by 1%). **Biomass increase per area** is the contribution of an individual proposed MPA to the overall biomass in the external MPA array, accounting for the area of the MPA. This is calculated as the percent increase in biomass per square kilometer of habitat protected. For both metrics, negative numbers indicate that the MPA is reducing equilibrium biomass. Negative numbers are rare but can occur when opening an MPA draws fishing effort away from other, more productive, locations. For deletion analysis for round 3 evaluations, the Master Plan Science Advisory Team (SAT) modeled populations of six species: Black rockfish, brown rockfish, cabezon, redbtail surfperch, red abalone, and red sea urchin. Biomass increase and biomass increase per area are averaged across these species.

Round 3 Draft MPA Proposal	MPA Name	Biomass increase for MSY-type management	Biomass increase per area for MSY-type management	Biomass increase for unsuccessful management	Biomass increase per area for unsuccessful management
NCP	Big Flat SMCA	0.0904	0.0886	34.4035	33.7259
NCP	Mattole Canyon SMR	0.655	0.47	35.0132	25.1247
NCP	Point Cabrillo SMR	0.3984	0.7046	34.6485	61.2825
NCP	Point St. George Reef Offshore SMCA	0.114	0.2997	34.3753	90.3478
NCP	Pyramid Point SMCA	0	0	0	0
NCP	Reading Rock SMCA	0	0	0	0
NCP	Reading Rock SMR	0.6815	1.4403	34.9782	73.9272
NCP	Samoa SMCA	0	0	0	0
NCP	Sea Lion Gulch SMR	1.7753	0.3087	36.2409	6.3029
NCP	South Cape Mendocino SMR	0.8427	0.124	35.3246	5.1985
NCP	Ten Mile SMR	1.6682	0.529	36.073	11.44
NCP	Ten Mile Beach SMCA	0.0253	0.1118	34.2767	151.3606
NCP	Vizcaino SMCA	0	0	0	0
SUP	Big Flat SMCA	0.1528	0.1322	32.108	27.7747
SUP	Mattole Canyon SMR	0.657	0.4715	32.5664	23.3689
SUP	Point Cabrillo SMR	0.3941	0.6971	32.1875	56.9297

*California MLPA Master Plan Science Advisory Team
 Round 3 Outputs from Bioeconomic Model Evaluations: Deletion Analysis
 October 10, 2010 DRAFT*

Round 3 Draft MPA Proposal	MPA Name	Biomass increase for MSY-type management	Biomass increase per area for MSY-type management	Biomass increase for unsuccessful management	Biomass increase per area for unsuccessful management
SUP	Point St. George Reef Offshore SMCA	0.114	0.2997	31.9169	83.8865
SUP	Pyramid Point SMCA	1.1957	0.1757	33.3616	4.9028
SUP	Reading Rock SMCA	0.5833	0.1862	32.7164	10.4419
SUP	Reading Rock SMR	0.6772	1.4314	32.5321	68.7574
SUP	Samoa SMCA	0.2588	0.106	32.1871	13.186
SUP	Sea Lion Gulch SMR	1.7716	0.3081	33.79	5.8766
SUP	South Cape Mendocino SMR	0.856	0.126	32.8848	4.8394
SUP	Ten Mile SMR	1.6722	0.5303	33.6438	10.6696
SUP	Ten Mile Beach SMCA	0.0408	0.0945	31.85	73.8182
SUP	Vizcaino SMCA	1.5291	0.4413	33.6999	9.7262