

California MLPA Master Plan Science Advisory Team
Round 2 Outputs from Bioeconomic Model Evaluations:
Deletion Analysis
June 23, 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 2 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 revised round 1 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 2 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
RU1	False Klamath Cove SMCA	0.9506	0.2777	5.0085	1.4629
RU1	Mattole Canyon SMR	0.6432	0.4615	3.7591	2.6974
RU1	Petrolia Lighthouse SMR	2.3848	0.3361	11.0432	1.5566
RU1	Point Cabrillo SMCA	0.387	0.6845	1.1079	1.9595
RU1	Point St. George Reef SMCA	0.3238	0.2881	1.0493	0.9335
RU1	Pyramid Point SMCA	-0.0002	-0.0052	0.081	1.9285
RU1	Pyramid Point SMR	0.7812	0.1524	3.4326	0.6696
RU1	Reading Rock Nearshore SMCA	0.02	0.0827	0.1412	0.5852
RU1	Reading Rock Offshore SMCA	0.9357	0.2003	4.8741	1.0435
RU1	Samoa SMCA	0.2626	0.1076	1.3555	0.5553
RU1	South Cape Mendocino SMR	0.6857	0.1367	3.157	0.6296
RU1	Ten Mile SMCA	0.9764	0.5232	3.6122	1.9355
RU1	Ten Mile SMR	1.121	0.5237	3.8509	1.799
RU1	Vizcaino SMCA	2.1075	0.46	9.3754	2.0465
RU2	Mattole Canyon SMR	0.6372	0.4572	4.0795	2.9274
RU2	Petrolia Lighthouse SMR	1.4148	0.287	6.856	1.391

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RU2	Pyramid Point SMCA	0.0183	0.3081	0.2584	4.348
RU2	Pyramid Point SMR	1.167	0.1739	5.5363	0.8252
RU2	Reading Rock Nearshore SMCA	0.0181	0.0751	0.1764	0.7308
RU2	Reading Rock Offshore SMCA	0.4509	0.1179	2.7038	0.7071
RU2	South Cape Mendocino SMR	0.6735	0.1343	3.3513	0.6684
RU2	Vizcaino SMCA	2.0863	0.4554	10.4656	2.2845
SA1	Big Flat SMCA	0.1772	0.1194	1.8755	1.263
SA1	MacKerricher SMCA	0.0569	1.147	0.0773	1.5591
SA1	Mattole Canyon Offshore SMR	1.0645	0.4537	5.1934	2.2135
SA1	Petrolia Lighthouse SMR	2.4041	0.3389	10.2919	1.4507
SA1	Point Cabrillo SMCA	0.1276	1.2615	0.3054	3.0179
SA1	Pyramid Point SMCA	0.0183	0.1909	0.2097	2.1887
SA1	Pyramid Point SMR	1.2452	0.169	5.195	0.7051
SA1	Reading Rock SMCA	0.598	0.1547	4.4667	1.1554
SA1	Reading Rock SMR	1.8137	1.0921	9.9615	5.9981
SA1	South Cape Mendocino SMR	0.8702	0.1269	3.8149	0.5563
SA1	Ten Mile SMCA	0.6935	0.5074	2.245	1.6427
SA1	Ten Mile SMR	0.3372	0.448	1.2678	1.6847
SA1	Vizcaino SMCA	2.4017	0.4523	9.4351	1.777
SA1	Wilson Rock SMCA	0.958	0.2797	4.7788	1.395
SA2	Big Flat SMCA	0.1695	0.1142	1.8461	1.2431
SA2	Mattole Canyon Offshore SMR	1.0544	0.4494	5.1912	2.2126
SA2	Petrolia Lighthouse SMCA	2.3921	0.3372	10.402	1.4662
SA2	Point Cabrillo SMCA	0.1287	1.2718	0.3212	3.1747
SA2	Pyramid Point SMCA	1.2439	0.1705	5.3507	0.7334
SA2	Reading Rock SMCA	2.3773	0.4655	13.6618	2.6749
SA2	South Cape Mendocino SMR	0.8727	0.1273	3.7897	0.5526
SA2	Ten Mile SMCA	0.6898	0.5047	2.2061	1.6142
SA2	Ten Mile SMR	0.3311	0.4399	1.2232	1.6254
SA2	Vizcaino SMCA	0.9988	0.3881	4.4329	1.7225
SA2	Wilson Rock SMCA	0.9597	0.2801	4.821	1.4073