

California MLPA Master Plan Science Advisory Team

Outputs from Bioeconomic Model Evaluation of Round 3 SCRSG MPA Proposals: Biomass

October 13, 2009

Bioeconomic Model Evaluations Table 1. Biomass predicted for each of eight species for Round 2 evaluations of draft marine protected area (MPA) arrays and external proposals using UC Santa Barbara (UCSB) and UC Davis (UCD) bioeconomic models. The total biomass of each species is estimated at equilibrium for each square kilometer of the study region. Values are scaled relative to total unfished biomass such that values of 0 indicate no biomass and values of 1 indicate maximum unfished biomass. Biomass is predicted for the entire Marine Life Protection Act (MLPA) South Coast Study Region (SCSR) and several subregions: (1) South mainland (SM): Mexico to Long Beach, (2) North Mainland (NM): Long Beach to Point Conception, (3) North Channel Islands (NCI): San Miguel, Santa Rosa, Santa Cruz, and Anacapa islands, and (4) South Channel Islands (SCI): Santa Barbara, Santa Catalina, San Clemente, and San Nicolas islands.

Table 1a. Biomass estimated from UC Santa Barbara model

Species	MPA Array	Biomass SCSR Total	Biomass South Mainland	Biomass North Mainland	Biomass North Channel Islands	Biomass South Channel Islands
Ocean Whitefish	P 0	0.39	0.44	0.40	0.47	0.31
Ocean Whitefish	P 1	0.41	0.46	0.42	0.47	0.35
Ocean Whitefish	P 2	0.41	0.45	0.42	0.47	0.35
Ocean Whitefish	P 3	0.43	0.46	0.45	0.47	0.37
Black Surfperch	P 0	0.45	0.36	0.50	0.54	0.41
Black Surfperch	P 1	0.49	0.54	0.51	0.51	0.41
Black Surfperch	P 2	0.47	0.43	0.52	0.53	0.43
Black Surfperch	P 3	0.51	0.48	0.55	0.50	0.50
Opaleye	P 0	0.42	0.48	0.49	0.50	0.32
Opaleye	P 1	0.45	0.51	0.53	0.52	0.36
Opaleye	P 2	0.45	0.51	0.52	0.52	0.36
Opaleye	P 3	0.48	0.53	0.55	0.53	0.40
Kelp Bass	P 0	0.41	0.47	0.45	0.50	0.32
Kelp Bass	P 1	0.44	0.51	0.50	0.51	0.37
Kelp Bass	P 2	0.43	0.49	0.48	0.50	0.36
Kelp Bass	P 3	0.47	0.51	0.53	0.51	0.41
Kelp Rockfish	P 0	0.37	0.47	0.42	0.43	0.26
Kelp Rockfish	P 1	0.39	0.50	0.46	0.43	0.30
Kelp Rockfish	P 2	0.39	0.49	0.44	0.43	0.30
Kelp Rockfish	P 3	0.43	0.52	0.50	0.44	0.35
Sheephead	P 0	0.41	0.48	0.44	0.48	0.33
Sheephead	P 1	0.44	0.51	0.48	0.48	0.36
Sheephead	P 2	0.44	0.50	0.47	0.48	0.36
Sheephead	P 3	0.47	0.51	0.53	0.49	0.40
Red Sea Urchin	P 0	0.49	0.48	0.43	0.53	0.50
Red Sea Urchin	P 1	0.51	0.49	0.47	0.54	0.53
Red Sea Urchin	P 2	0.51	0.48	0.46	0.53	0.52
Red Sea Urchin	P 3	0.53	0.49	0.50	0.55	0.56
Halibut	P 0	0.45	0.45	0.38	0.52	0.63
Halibut	P 1	0.45	0.47	0.39	0.51	0.64
Halibut	P 2	0.45	0.46	0.39	0.51	0.63
Halibut	P 3	0.47	0.46	0.42	0.51	0.66

Table 1b. Biomass estimated from UC Davis model

Species	MPA Array	Biomass SCSR Total	Biomass South Mainland	Biomass North Mainland	Biomass North Channel Islands	Biomass South Channel Islands
Ocean Whitefish	P 0	0.40	0.40	0.42	0.44	0.35
Ocean Whitefish	P 1	0.42	0.43	0.44	0.45	0.38
Ocean Whitefish	P 2	0.42	0.42	0.44	0.45	0.38
Ocean Whitefish	P 3	0.44	0.43	0.47	0.47	0.41
Black Surfperch	P 0	0.43	0.36	0.44	0.52	0.38
Black Surfperch	P 1	0.48	0.56	0.48	0.49	0.40
Black Surfperch	P 2	0.46	0.46	0.46	0.50	0.41
Black Surfperch	P 3	0.50	0.49	0.51	0.47	0.51
Opaleye	P 0	0.34	0.36	0.35	0.39	0.30
Opaleye	P 1	0.37	0.40	0.39	0.40	0.34
Opaleye	P 2	0.37	0.39	0.38	0.40	0.34
Opaleye	P 3	0.41	0.42	0.44	0.43	0.39
Kelp Bass	P 0	0.41	0.41	0.41	0.47	0.37
Kelp Bass	P 1	0.45	0.47	0.46	0.49	0.43
Kelp Bass	P 2	0.44	0.45	0.45	0.48	0.42
Kelp Bass	P 3	0.49	0.49	0.52	0.51	0.47
Kelp Rockfish	P 0	0.21	0.23	0.22	0.25	0.18
Kelp Rockfish	P 1	0.21	0.25	0.22	0.23	0.18
Kelp Rockfish	P 2	0.21	0.24	0.22	0.23	0.18
Kelp Rockfish	P 3	0.23	0.25	0.25	0.23	0.20
Sheephead	P 0	0.38	0.38	0.38	0.43	0.34
Sheephead	P 1	0.43	0.46	0.44	0.45	0.39
Sheephead	P 2	0.42	0.43	0.42	0.45	0.38
Sheephead	P 3	0.46	0.46	0.49	0.47	0.44
Red Sea Urchin	P 0	0.62	0.65	0.59	0.66	0.59
Red Sea Urchin	P 1	0.64	0.67	0.63	0.66	0.62
Red Sea Urchin	P 2	0.63	0.66	0.61	0.66	0.62
Red Sea Urchin	P 3	0.66	0.67	0.66	0.66	0.64
Halibut	P 0	0.21	0.18	0.19	0.28	0.33
Halibut	P 1	0.20	0.18	0.18	0.26	0.32
Halibut	P 2	0.20	0.17	0.18	0.26	0.32
Halibut	P 3	0.21	0.17	0.20	0.26	0.34