

California MLPA Master Plan Science Advisory Team

Outputs from Bioeconomic Model Evaluations of Round 3 SCRSG MPA Proposals: Fishery Yield

October 13, 2009

Bioeconomic Model Evaluations Table 2

Fishery yield 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. Fishery yield is the total harvest of each species in each square kilometer. Fishery yield 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 2a. Fishery yield estimated from UC Santa Barbara model

Species	MPA array	Yield - SCSR Total	Yield - South Mainland	Yield - North Mainland	Yield - North Channel Islands	Yield - South Channel Islands
Ocean Whitefish	P 0	1.00	1.00	1.00	1.00	1.00
Ocean Whitefish	P 1	0.98	0.97	0.92	0.97	1.10
Ocean Whitefish	P 2	0.98	0.96	0.92	0.99	1.08
Ocean Whitefish	P 3	0.97	0.88	0.89	1.06	1.18
Black Surfperch	P 0	1.00	1.00	1.00	1.00	1.00
Black Surfperch	P 1	0.88	0.92	0.92	0.65	0.99
Black Surfperch	P 2	0.92	0.92	0.92	0.80	0.99
Black Surfperch	P 3	0.84	0.82	0.78	0.72	0.98
Opaleye	P 0	1.00	1.00	1.00	1.00	1.00
Opaleye	P 1	1.01	0.89	1.00	0.89	1.13
Opaleye	P 2	1.01	0.96	1.00	0.98	1.10
Opaleye	P 3	1.01	0.90	0.93	1.11	1.30
Kelp Bass	P 0	1.00	1.00	1.00	1.00	1.00
Kelp Bass	P 1	0.98	0.94	0.95	0.87	1.11
Kelp Bass	P 2	0.98	0.95	0.96	0.92	1.08
Kelp Bass	P 3	0.95	0.84	0.87	1.01	1.22
Kelp Rockfish	P 0	1.00	1.00	1.00	1.00	1.00
Kelp Rockfish	P 1	0.98	0.89	0.97	0.87	1.04
Kelp Rockfish	P 2	0.99	0.95	0.96	0.95	1.03
Kelp Rockfish	P 3	0.98	0.86	0.90	1.02	1.15
Sheephead	P 0	1.00	1.00	1.00	1.00	1.00
Sheephead	P 1	0.98	0.93	0.95	0.83	1.10
Sheephead	P 2	0.98	0.92	0.96	0.91	1.07
Sheephead	P 3	0.96	0.80	0.89	1.00	1.21
Red Sea Urchin	P 0	1.00	1.00	1.00	1.00	1.00
Red Sea Urchin	P 1	0.96	0.89	0.93	0.97	1.05
Red Sea Urchin	P 2	0.97	0.91	0.95	1.02	1.03
Red Sea Urchin	P 3	0.93	0.82	0.85	1.04	1.09
Halibut	P 0	1.00	1.00	1.00	1.00	1.00
Halibut	P 1	0.98	0.97	0.95	0.98	1.01
Halibut	P 2	0.98	0.96	1.00	0.98	1.01
Halibut	P 3	0.96	0.91	0.89	0.97	1.05

Table 2b. Fishery yield estimated from UC Davis model

Species	MPA array	Yield - SCSR Total	Yield - South Mainland	Yield - North Mainland	Yield - North Channel Islands	Yield - South Channel Islands
Ocean Whitefish	P 0	1.00	1.00	1.00	1.00	1.00
Ocean Whitefish	P 1	1.02	1.08	0.99	0.97	0.95
Ocean Whitefish	P 2	1.02	1.07	0.99	0.97	0.95
Ocean Whitefish	P 3	1.10	1.14	0.99	0.89	0.93
Black Surfperch	P 0	1.00	1.00	1.00	1.00	1.00
Black Surfperch	P 1	0.68	1.00	0.84	0.86	0.89
Black Surfperch	P 2	0.85	1.00	0.90	0.90	0.90
Black Surfperch	P 3	0.75	1.00	0.79	0.77	0.71
Opaleye	P 0	1.00	1.00	1.00	1.00	1.00
Opaleye	P 1	1.10	1.14	1.00	0.95	0.99
Opaleye	P 2	1.08	1.11	1.01	0.97	1.00
Opaleye	P 3	1.38	1.35	1.01	0.89	0.94
Kelp Bass	P 0	1.00	1.00	1.00	1.00	1.00
Kelp Bass	P 1	0.94	1.10	0.98	0.95	0.97
Kelp Bass	P 2	0.99	1.07	0.98	0.96	0.97
Kelp Bass	P 3	1.13	1.19	0.96	0.85	0.90
Kelp Rockfish	P 0	1.00	1.00	1.00	1.00	1.00
Kelp Rockfish	P 1	0.89	1.11	1.00	0.98	1.00
Kelp Rockfish	P 2	1.03	1.08	1.00	0.97	1.00
Kelp Rockfish	P 3	1.19	1.25	1.04	0.98	1.02
Sheephead	P 0	1.00	1.00	1.00	1.00	1.00
Sheephead	P 1	0.94	1.10	0.97	0.95	0.96
Sheephead	P 2	1.03	1.07	0.97	0.95	0.95
Sheephead	P 3	1.20	1.19	0.96	0.82	0.90
Red Sea Urchin	P 0	1.00	1.00	1.00	1.00	1.00
Red Sea Urchin	P 1	0.99	1.04	0.94	0.88	0.90
Red Sea Urchin	P 2	1.02	1.02	0.96	0.92	0.91
Red Sea Urchin	P 3	1.08	1.07	0.91	0.79	0.84
Halibut	P 0	1.00	1.00	1.00	1.00	1.00
Halibut	P 1	0.97	1.03	0.98	0.97	0.99
Halibut	P 2	0.99	1.03	0.98	0.97	1.00
Halibut	P 3	1.00	1.10	0.99	0.97	0.96