

Summary of potential impacts of the May 2009 MPA proposals (Round 2) on commercial and recreational fisheries in the South Coast Study Region

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1. Introduction

The purpose of this project is to analyze the relative effects of six MPA proposals on commercial and recreational fisheries in the South Coast Study Region (SCSR). For detailed information on how data were collected and/or analyzed, please see our *Draft Survey Methods and Summary Statistics for Ecotrust's South Coast Study Region Fishery Uses and Values Project* (presented to the RSG on 3/3/2009). For information on the methods used to evaluate these data, please see Section 12 of the *SAT Draft Methods Used to Evaluate Marine Protected Area Proposals for the MLPA South Coast Region*. Additional proposal-specific information on potential fishery-specific impacts (to study region and to total area and value) for any given MPA are available in the series of Excel files provided to the RSG.

To analyze the commercial fisheries, we used data layers characterizing the spatial extent and relative importance of fishing grounds for 15 commercial fisheries. We collected this information during the summer and fall of 2008 using a stratified, representative sample of 254 commercial fishermen. Individual responses regarding the relative importance of ocean areas for each fishery were standardized using a 100-point scale and normalized to the reported fishing grounds.

To analyze the recreational fisheries, we used data layers characterizing the spatial extent and relative importance of fishing grounds for 10 commercial passenger fishing vessel (CPFV) fisheries and 17 recreational fisheries. We collected this information during the summer and fall of 2008 using a stratified, solicited¹ sample of 119 CPFV and 504 recreational fishermen. Individual responses regarding the relative importance of ocean areas for each fishery were standardized using a 100-point scale and normalized to the reported fishing grounds.

Based on the data described above, we evaluate the potential economic impacts on the commercial, CPFV, and recreational fishing grounds under each of the six MPA proposals (i.e., Lapis 1, Lapis 2, Opal, Topaz, Ext. A, and Ext. B). We also conduct a socioeconomic impact analysis on the commercial and CPFV fisheries. We report commercial and CPFV results by port. We report recreational results by user group (i.e., dive, kayak, and private vessel) and by county.

The remaining sections of this document summarize the potential impacts. For more detailed statistics, please see the tables in the Appendix.

In all tables presented, a 'dashed line' represents a fishery that does not occur or a fishery for which insufficient data were collected to merit presentation.

¹ The use of a solicited sample may cause traditional statistical measures (e.g., confidence intervals) to be less precise. Nevertheless, it does allow us to make generalizations about preferences of the overall recreational fishing population and about the three user groups within the study area. We feel that this adds thematic resolution to the MLPA marine planning process.

2. Impact of the Channel Islands MPAs (C.I. MPAs)

This report also presents the potential impacts of the Channel Island MPAs on commercial, CPFV, and recreational fishing grounds. We calculate these impacts the same way that we calculate the impacts of each MPA proposal (as described in the Introduction).

The Channel Islands network, which was established by California Fish and Game Commission (CFGC) in 2002 and expanded by the National Oceanic and Atmospheric Administration (NOAA) in 2006 and 2007, encompasses 241 square nautical miles (or 318 square miles). It consists of 11 marine reserves where all harvest and take is prohibited (Richardson Rock, Harris Point, Carrington Point, Scorpion, Anacapa Island, Footprint, Gulf Island, Skunk Point, South Point, Judith Rock, and Santa Barbara Island) and two marine conservation areas that allow limited take of lobster and/or pelagic fish (Painted Cave and Anacapa Island). The Channel Islands network was originally set to be reconsidered during the marine planning process (i.e., stakeholders would be given the opportunity to propose changes to the siting of the existing MPAs), and it was later decided that the Channel Islands MPAs would not be changed.

Therefore, because all proposal must include the Channel Island MPAs, the potential impacts of the Channel Islands (C.I.) MPAs will be the same under all the alternative MPA proposals and any comparison of the proposals should separate out these impacts.

By subtracting the estimated C.I. MPAs impacts from the estimated total impacts, stakeholders can more easily assess the potential impacts of MPAs that can be changed. For example, if the total impact of a MPA proposal is a 19% reduction in net economic revenue, but 5% of this reduction comes from the Channel Island MPAs, then stakeholders can only potentially affect 14% of the impact (i.e., the minimum impact of their proposal is a 5% reduction in net economic revenue assuming zero impact elsewhere in the SCSR).

3. Results for Commercial Fisheries

We summarize here our analyses of the potential impacts on the 15 commercial fisheries (i.e., Ca. Halibut (Hook & Line), Ca. Halibut (Trawl), Coastal Pelagics, Lobster, N. Fishery (Hook & Line), N. Fishery (Trap), Rock Crab, Sablefish, Sea Cucumber (Diving), Sea Cucumber (Trawl), Spot Prawn, Squid, Swordfish, Thornyhead, and Urchin). The commercial fisheries are reported for the entire study region and by port (i.e., Santa Barbara, Ventura, Port Hueneme, San Pedro, Dana Point, Oceanside, and San Diego).

3.1 Potential Impacts on Commercial Fishing Grounds (Area and Value)

MPA proposals vary considerably in their effects, both between and across fisheries. As mentioned previously, this report only presents results. Evaluation methods are presented in a separate document.

Each proposal affects the commercial fisheries differently. Ext. A and Ext. B generally have the lowest potential impacts in terms of both total value and total area, while Opal generally has the highest potential impacts. For information on the potential impacts on commercial fishing grounds for the 65 port-fishery combinations considered (both in terms of total area and total value), please see Tables A.1 and A.2 in the Appendix.

3.2 Potential Net Economic Impacts on Commercial Fisheries

A key assumption of this analysis is that each of the MPA proposals completely eliminates fishing opportunities in areas closed to specific fisheries and that fishermen are unable to adjust or mitigate in any way. In other words, the analysis assumes that all fishing in an area affected by an MPA is lost completely, when in reality it is more likely that fishermen will shift their efforts areas outside the MPA. The effect of such an assumption is most likely an overestimation of the impacts, or a “worst case scenario.”

Table 1 summarizes the MPA proposals with the estimated highest and lowest potential net economic impact by port (for associated values, see Table 2). On average, Ext. B is estimated to have the lowest potential net economic impact across the study region, while Opal is estimated to have the highest potential impact.

Figure 1 summarizes the potential annual net economic impact on SCSR commercial fisheries considered, calculated as a percentage reduction in net economic revenue (i.e., profit). The potential impacts from each proposal are further broken down by port in Figure 2 and Table 2. On average, Ventura is the port estimated to see the lowest potential net economic impacts (as a %), while Oceanside is estimated to see the highest potential net impacts (as a %). Tables 3–10 show potential impacts by fishery for each port and for the SCSR.²

In terms of potential net economic impact across the SCSR for the top six commercial species (based on % contribution to overall SCSR ex-vessel values), several patterns emerge from the analysis of the six proposals:

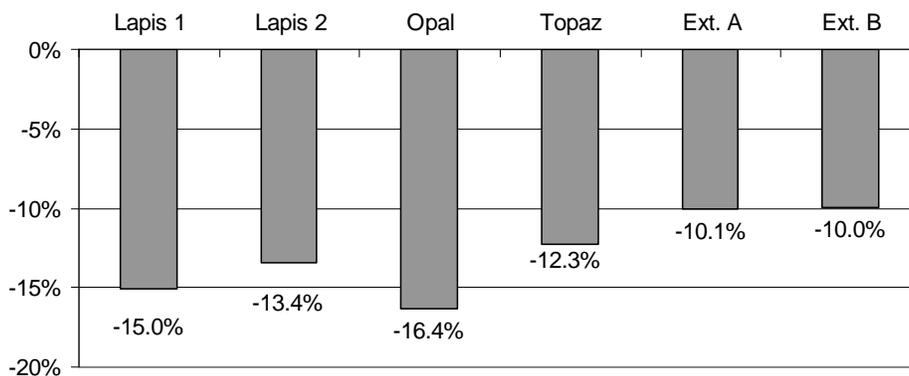
- The rock crab fishery sees the lowest range of potential impacts (in dollars). Topaz has the highest potential impact on the rock crab fishery (\$91,869), while Ext. B has the lowest potential impact (\$63,073).
- The squid fishery sees the highest range of potential impacts (in dollars). Opal has the highest potential impact on the squid fishery (\$1,709,636), while Ext. A has the lowest potential impact (\$702,287).
- The coastal pelagics fishery sees the lowest range of potential impacts (as a %). Lapis 1 has the highest potential impact on the coastal pelagics fishery (8.9%), while Ext. B has the lowest potential impact (3.4%).
- The spot prawn fishery sees the highest range of potential impacts (as a %). Opal has the highest potential impact on the spot prawn fishery (19.2%), while Ext. A has the lowest potential impact (17.0%).

² For an explanation of why net economic impact can exceed 100%, please see the Appendix.

Table 1: Highest/Lowest Annual Estimated Net Economic Impact on Commercial Fisheries by Port³

Port	MPA Proposal(s) with highest potential impact	MPA Proposal(s) with lowest potential impact
Santa Barbara	Topaz	Ext. B
Ventura	Opal	Ext. A
Port Hueneme	Opal	Ext. A
San Pedro	Opal	Ext. A
Dana Point	Opal	Ext. A
Oceanside	Opal	Ext. B
San Diego	Lapis 1	Ext. B
Study Region	Opal	Ext. B

Figure 1: Estimated Annual Net Economic Impact on Commercial Fisheries (% Reduction in Profit)



³ For all economic impacts, the results are the estimated maximum potential economic impact on average annual net revenue from 2000-07 (in \$2007).

Figure 2: Estimated Annual Net Economic Impact on Commercial Fisheries by Port (% Reduction in Profit)

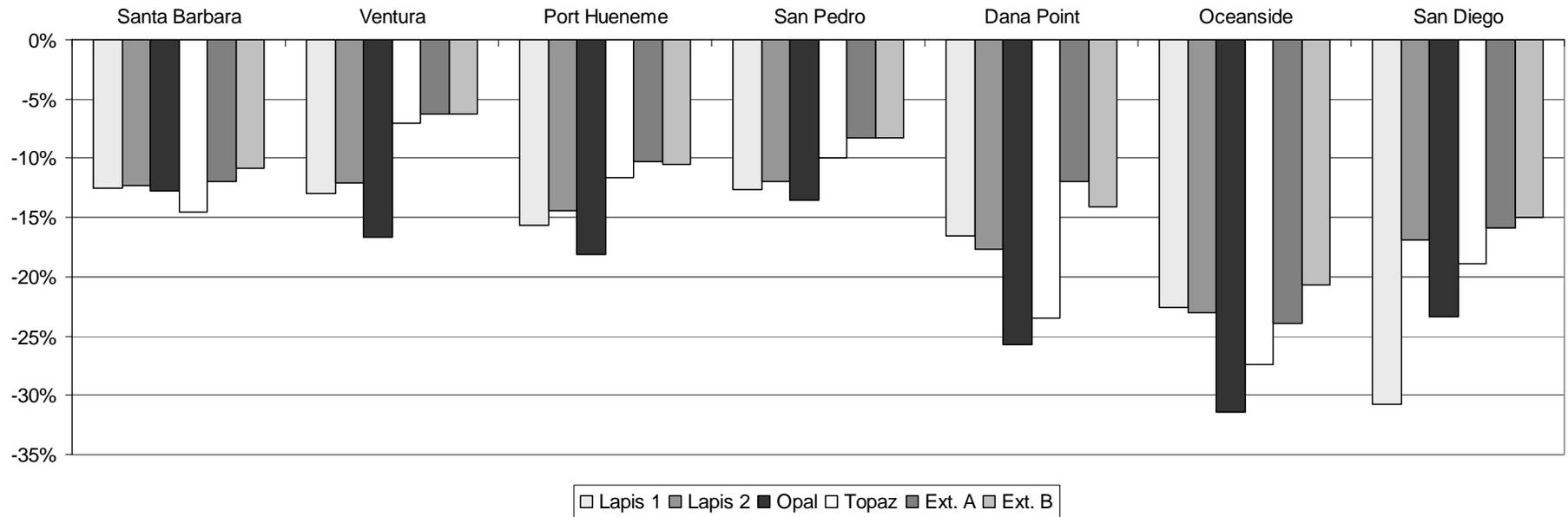


Table 2: Estimated Annual Net Economic Impact on Commercial Fisheries by Port (Reduction in Profit)

Port	Baseline GER	Estimated Costs	Baseline NER (Profit)	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
				\$ Reduction in Profit	\$ Reduction in Profit					
Santa Barbara	\$5,796,804	\$2,655,064	\$3,141,740	\$256,224	\$392,181	\$385,250	\$399,092	\$455,919	\$376,862	\$341,738
Ventura	\$5,061,321	\$2,828,803	\$2,232,518	\$86,604	\$290,770	\$269,787	\$373,115	\$157,866	\$138,909	\$140,479
Port Hueneme	\$11,061,000	\$6,008,602	\$5,052,398	\$306,853	\$793,561	\$727,657	\$916,663	\$585,911	\$519,553	\$533,200
San Pedro	\$20,141,349	\$10,989,464	\$9,151,885	\$227,858	\$1,156,759	\$1,093,810	\$1,234,148	\$913,877	\$753,777	\$758,301
Dana Point	\$1,860,091	\$926,136	\$933,955	\$2,458	\$154,059	\$164,905	\$240,326	\$219,057	\$111,231	\$131,268
Oceanside	\$987,326	\$481,905	\$505,421	\$1,146	\$113,926	\$116,159	\$158,889	\$138,688	\$120,863	\$104,665
San Diego	\$3,093,219	\$1,462,682	\$1,630,538	\$168	\$501,648	\$275,261	\$381,796	\$307,771	\$259,132	\$245,033
Study Region⁴	\$48,001,110	\$25,352,655	\$22,648,455	\$881,311	\$3,402,903	\$3,032,829	\$3,704,030	\$2,779,088	\$2,280,327	\$2,254,685
				% Reduction in Profit	% Reduction in Profit					
Santa Barbara	100%	48%	52%	7.5%	12.5%	12.3%	12.7%	14.5%	12.0%	10.9%
Ventura	100%	56%	44%	3.9%	13.0%	12.1%	16.7%	7.1%	6.2%	6.3%
Port Hueneme	100%	54%	46%	6.1%	15.7%	14.4%	18.1%	11.6%	10.3%	10.6%
San Pedro	100%	55%	45%	2.5%	12.6%	12.0%	13.5%	10.0%	8.2%	8.3%
Dana Point	100%	50%	50%	0.3%	16.5%	17.7%	25.7%	23.5%	11.9%	14.1%
Oceanside	100%	49%	51%	0.2%	22.5%	23.0%	31.4%	27.4%	23.9%	20.7%
San Diego	100%	47%	53%	0.0%	30.8%	16.9%	23.4%	18.9%	15.9%	15.0%
Study Region	—	—	—	3.9%	15.0%	13.4%	16.4%	12.3%	10.1%	10.0%

⁴ This total includes all the port-fishery combinations considered in Tables 3–9 except for Santa Barbara Ca. Halibut (Trawl) and Sea Cucumber(Trawl). Please see Table 3 for estimated impacts on these two fisheries.

Table 3: Estimated Annual Net Economic Impact for Santa Barbara

Fishery	Baseline GER	Estimated Costs	Baseline NER (Profit)	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
				\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	\$70,658	\$37,025	\$33,633	\$2,938	\$7,046	\$7,295	\$7,687	\$8,629	\$6,702	\$4,076
Ca. Halibut (Trawl)	\$200,567	\$65,184	\$135,383	\$0	\$12,035	\$14,631	\$9,965	\$14,649	\$15,017	\$10,351
Coastal Pelagics	—	—	—	—	—	—	—	—	—	—
Lobster	\$1,558,845	\$716,026	\$842,819	\$43,055	\$95,791	\$95,791	\$100,886	\$136,171	\$93,371	\$97,957
N. Fishery (Hook & Line)	\$150,237	\$77,523	\$72,715	\$10,879	\$14,915	\$14,915	\$15,472	\$15,750	\$13,442	\$10,740
N. Fishery (Trap)	\$39,144	\$19,986	\$19,157	\$1,266	\$2,057	\$2,034	\$2,057	\$3,070	\$2,169	\$2,470
Rock Crab	\$845,105	\$396,193	\$448,912	\$27,368	\$66,029	\$66,029	\$65,821	\$76,076	\$64,366	\$48,639
Sablefish	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	\$19,874	\$9,858	\$10,017	\$1,538	\$1,838	\$1,838	\$1,907	\$1,948	\$1,763	\$1,521
Sea Cucumber (Trawl)	\$163,088	\$40,772	\$122,316	\$0	\$4,096	\$4,096	\$4,138	\$5,052	\$4,038	\$3,867
Spot Prawn	\$48,537	\$23,651	\$24,886	\$0	\$4,657	\$4,657	\$2,604	\$4,718	\$4,657	\$0
Squid	—	—	—	—	—	—	—	—	—	—
Swordfish	—	—	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—	—	—
Urchin	\$3,064,404	\$1,374,803	\$1,689,601	\$169,180	\$199,847	\$192,691	\$202,658	\$209,558	\$190,391	\$176,336
All Fisheries	\$6,160,459	\$2,761,020	\$3,399,438	\$256,224	\$408,311	\$403,977	\$413,195	\$475,620	\$395,918	\$355,956
				% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	100%	52%	48%	8.7%	20.9%	21.7%	22.9%	25.7%	19.9%	12.1%
Ca. Halibut (Trawl)	100%	33%	68%	0.0%	8.9%	10.8%	7.4%	10.8%	11.1%	7.6%
Coastal Pelagics	—	—	—	—	—	—	—	—	—	—
Lobster	100%	46%	54%	5.1%	11.4%	11.4%	12.0%	16.2%	11.1%	11.6%
N. Fishery (Hook & Line)	100%	52%	48%	15.0%	20.5%	20.5%	21.3%	21.7%	18.5%	14.8%
N. Fishery (Trap)	100%	51%	49%	6.6%	10.7%	10.6%	10.7%	16.0%	11.3%	12.9%
Rock Crab	100%	47%	53%	6.1%	14.7%	14.7%	14.7%	16.9%	14.3%	10.8%
Sablefish	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	100%	50%	50%	15.4%	18.4%	18.4%	19.0%	19.4%	17.6%	15.2%
Sea Cucumber (Trawl)	100%	25%	75%	0.0%	3.3%	3.3%	3.4%	4.1%	3.3%	3.2%
Spot Prawn	100%	49%	51%	0.0%	18.7%	18.7%	10.5%	19.0%	18.7%	0.0%
Squid	—	—	—	—	—	—	—	—	—	—
Swordfish	—	—	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—	—	—
Urchin	100%	45%	55%	10.0%	11.8%	11.4%	12.0%	12.4%	11.3%	10.4%
All Fisheries	—	—	—	7.5%	12.0%	11.9%	12.2%	14.0%	11.6%	10.5%

Table 4: Estimated Annual Net Economic Impact for Ventura

Fishery	Baseline GER	Estimated Costs	Baseline NER (Profit)	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
				\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	\$18,178	\$9,525	\$8,653	\$952	\$1,231	\$2,032	\$1,252	\$1,862	\$2,405	\$2,142
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—	—	—
Lobster	\$371,161	\$170,486	\$200,675	\$0	\$5,035	\$3,579	\$4,549	\$7,218	\$6,764	\$5,156
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—	—	—
N. Fishery (Trap)	\$35,207	\$17,976	\$17,231	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Rock Crab	\$126,384	\$59,250	\$67,134	\$3,637	\$3,637	\$3,658	\$3,637	\$3,699	\$3,699	\$3,668
Sablefish	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	\$49,076	\$24,342	\$24,734	\$116	\$6,695	\$4,516	\$5,708	\$9,221	\$5,904	\$8,292
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	\$108,471	\$52,855	\$55,616	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Squid	\$4,352,843	\$2,494,369	\$1,858,475	\$81,899	\$274,172	\$256,002	\$357,969	\$135,866	\$120,137	\$121,221
Swordfish	—	—	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—	—	—
Urchin	—	—	—	—	—	—	—	—	—	—
All Fisheries	\$5,061,321	\$2,828,803	\$2,232,518	\$86,604	\$290,770	\$269,787	\$373,115	\$157,866	\$138,909	\$140,479
				% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	100%	52%	48%	11.0%	14.2%	23.5%	14.5%	21.5%	27.8%	24.8%
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—	—	—
Lobster	100%	46%	54%	0.0%	2.5%	1.8%	2.3%	3.6%	3.4%	2.6%
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—	—	—
N. Fishery (Trap)	100%	51%	49%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rock Crab	100%	47%	53%	5.4%	5.4%	5.4%	5.4%	5.5%	5.5%	5.5%
Sablefish	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	100%	50%	50%	0.5%	27.1%	18.3%	23.1%	37.3%	23.9%	33.5%
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	100%	49%	51%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Squid	100%	57%	43%	4.4%	14.8%	13.8%	19.3%	7.3%	6.5%	6.5%
Swordfish	—	—	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—	—	—
Urchin	—	—	—	—	—	—	—	—	—	—
All Fisheries	—	—	—	3.9%	13.0%	12.1%	16.7%	7.1%	6.2%	6.3%

Table 5: Estimated Annual Net Economic Impact for Port Hueneme

Fishery	Baseline GER	Estimated Costs	Baseline NER (Profit)	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
				\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	\$19,373	\$10,152	\$9,222	\$904	\$1,182	\$2,036	\$1,228	\$1,816	\$2,412	\$2,135
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	\$767,935	\$427,164	\$340,771	\$3,764	\$21,118	\$22,732	\$16,914	\$28,549	\$17,305	\$14,714
Lobster	\$420,552	\$193,172	\$227,379	\$10,516	\$16,908	\$15,671	\$16,805	\$18,042	\$18,661	\$18,867
N. Fishery (Hook & Line)	\$49,637	\$25,613	\$24,024	\$65	\$7,656	\$7,656	\$5,663	\$8,652	\$6,625	\$69
N. Fishery (Trap)	\$61,447	\$31,374	\$30,073	\$0	\$769	\$658	\$769	\$1,237	\$1,274	\$1,029
Rock Crab	\$131,803	\$61,790	\$70,012	\$0	\$11	\$11	\$11	\$22	\$22	\$22
Sablefish	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	\$258,699	\$128,315	\$130,384	\$28,868	\$35,577	\$32,547	\$34,275	\$38,829	\$34,093	\$32,710
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	\$427,903	\$208,506	\$219,398	\$88,006	\$88,006	\$92,691	\$88,006	\$88,006	\$92,017	\$100,173
Squid	\$7,387,374	\$4,233,286	\$3,154,088	\$131,170	\$510,872	\$490,621	\$654,468	\$286,732	\$266,942	\$284,431
Swordfish	—	—	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—	—	—
Urchin	\$1,536,277	\$689,230	\$847,047	\$43,561	\$111,464	\$63,035	\$98,524	\$114,026	\$80,203	\$79,050
All Fisheries	\$11,061,000	\$6,008,602	\$5,052,398	\$306,853	\$793,561	\$727,657	\$916,663	\$585,911	\$519,553	\$533,200
				% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	100%	52%	48%	9.8%	12.8%	22.1%	13.3%	19.7%	26.2%	23.2%
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	100%	56%	44%	1.1%	6.2%	6.7%	5.0%	8.4%	5.1%	4.3%
Lobster	100%	46%	54%	4.6%	7.4%	6.9%	7.4%	7.9%	8.2%	8.3%
N. Fishery (Hook & Line)	100%	52%	48%	0.3%	31.9%	31.9%	23.6%	36.0%	27.6%	0.3%
N. Fishery (Trap)	100%	51%	49%	0.0%	2.6%	2.2%	2.6%	4.1%	4.2%	3.4%
Rock Crab	100%	47%	53%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sablefish	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	100%	50%	50%	22.1%	27.3%	25.0%	26.3%	29.8%	26.1%	25.1%
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	100%	49%	51%	40.1%	40.1%	42.2%	40.1%	40.1%	41.9%	45.7%
Squid	100%	57%	43%	4.2%	16.2%	15.6%	20.7%	9.1%	8.5%	9.0%
Swordfish	—	—	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—	—	—
Urchin	100%	45%	55%	5.1%	13.2%	7.4%	11.6%	13.5%	9.5%	9.3%
All Fisheries	—	—	—	6.1%	15.7%	14.4%	18.1%	11.6%	10.3%	10.6%

Table 6: Estimated Annual Net Economic Impact for San Pedro

Fishery	Baseline GER	Estimated Costs	Baseline NER (Profit)	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
				\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	\$5,121,261	\$2,848,701	\$2,272,559	\$17,278	\$212,557	\$183,543	\$163,330	\$167,894	\$91,282	\$73,352
Lobster	\$980,389	\$450,323	\$530,066	\$801	\$56,800	\$52,794	\$49,269	\$58,242	\$58,803	\$58,563
N. Fishery (Hook & Line)	\$14,034	\$7,242	\$6,793	\$724	\$1,265	\$1,265	\$1,333	\$1,414	\$1,179	\$793
N. Fishery (Trap)	\$76,447	\$39,033	\$37,414	\$0	\$3,453	\$5,003	\$5,493	\$4,352	\$3,753	\$5,015
Rock Crab	\$136,953	\$64,205	\$72,748	\$0	\$79	\$56	\$22	\$67	\$67	\$67
Sablefish	\$68,707	\$38,647	\$30,059	\$0	\$6,585	\$16,374	\$20,723	\$16,541	\$16,407	\$14,366
Sea Cucumber (Diving)	\$164,935	\$81,808	\$83,127	\$2,346	\$13,000	\$14,892	\$13,389	\$12,663	\$14,594	\$15,553
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	\$389,257	\$189,674	\$199,583	\$0	\$7,543	\$7,175	\$4,078	\$4,906	\$1,257	\$3,679
Squid	\$10,719,087	\$6,142,503	\$4,576,584	\$144,248	\$621,068	\$561,633	\$697,199	\$385,329	\$315,209	\$336,579
Swordfish	—	—	—	—	—	—	—	—	—	—
Thornyhead	\$280,325	\$144,835	\$135,490	\$0	\$52,505	\$62,779	\$99,417	\$83,304	\$63,113	\$46,332
Urchin	\$2,189,956	\$982,494	\$1,207,462	\$62,461	\$181,903	\$188,295	\$179,894	\$179,163	\$188,112	\$204,002
All Fisheries	\$20,141,349	\$10,989,464	\$9,151,885	\$227,858	\$1,156,759	\$1,093,810	\$1,234,148	\$913,877	\$753,777	\$758,301
				% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	100%	56%	44%	0.8%	9.4%	8.1%	7.2%	7.4%	4.0%	3.2%
Lobster	100%	46%	54%	0.2%	10.7%	10.0%	9.3%	11.0%	11.1%	11.0%
N. Fishery (Hook & Line)	100%	52%	48%	10.7%	18.6%	18.6%	19.6%	20.8%	17.4%	11.7%
N. Fishery (Trap)	100%	51%	49%	0.0%	9.2%	13.4%	14.7%	11.6%	10.0%	13.4%
Rock Crab	100%	47%	53%	0.0%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%
Sablefish	100%	56%	44%	0.0%	21.9%	54.5%	68.9%	55.0%	54.6%	47.8%
Sea Cucumber (Diving)	100%	50%	50%	2.8%	15.6%	17.9%	16.1%	15.2%	17.6%	18.7%
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	100%	49%	51%	0.0%	3.8%	3.6%	2.0%	2.5%	0.6%	1.8%
Squid	100%	57%	43%	3.2%	13.6%	12.3%	15.2%	8.4%	6.9%	7.4%
Swordfish	—	—	—	—	—	—	—	—	—	—
Thornyhead	100%	52%	48%	0.0%	38.8%	46.3%	73.4%	61.5%	46.6%	34.2%
Urchin	100%	45%	55%	5.2%	15.1%	15.6%	14.9%	14.8%	15.6%	16.9%
All Fisheries	—	—	—	2.5%	12.6%	12.0%	13.5%	10.0%	8.2%	8.3%

Table 7: Estimated Annual Net Economic Impact for Dana Point

Fishery	Baseline GER	Estimated Costs	Baseline NER (Profit)	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
				\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—	—	—
Lobster	\$914,095	\$419,872	\$494,223	\$0	\$65,284	\$59,383	\$81,045	\$92,548	\$22,110	\$56,246
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—	—	—
N. Fishery (Trap)	\$31,345	\$16,004	\$15,341	\$0	\$7,731	\$7,173	\$619	\$2,030	\$558	\$619
Rock Crab	\$38,375	\$17,991	\$20,384	\$0	\$3,225	\$2,190	\$582	\$2,023	\$547	\$645
Sablefish	\$127,274	\$71,591	\$55,682	\$0	\$12,199	\$30,331	\$38,388	\$30,641	\$30,393	\$26,612
Sea Cucumber (Diving)	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	\$300,792	\$146,568	\$154,224	\$0	\$9,548	\$10,141	\$30,517	\$23,954	\$9,596	\$9,691
Squid	—	—	—	—	—	—	—	—	—	—
Swordfish	\$196,774	\$130,362	\$66,411	\$2,458	\$11,255	\$11,270	\$28,595	\$14,103	\$11,090	\$11,075
Thornyhead	\$160,858	\$83,110	\$77,748	\$0	\$34,733	\$35,526	\$59,938	\$50,820	\$35,743	\$24,604
Urchin	\$90,579	\$40,637	\$49,942	\$0	\$10,085	\$8,891	\$642	\$2,938	\$1,194	\$1,775
All Fisheries	\$1,860,091	\$926,136	\$933,955	\$2,458	\$154,059	\$164,905	\$240,326	\$219,057	\$111,231	\$131,268
				% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—	—	—
Lobster	100%	46%	54%	0.0%	13.2%	12.0%	16.4%	18.7%	4.5%	11.4%
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—	—	—
N. Fishery (Trap)	100%	51%	49%	0.0%	50.4%	46.8%	4.0%	13.2%	3.6%	4.0%
Rock Crab	100%	47%	53%	0.0%	15.8%	10.7%	2.9%	9.9%	2.7%	3.2%
Sablefish	100%	56%	44%	0.0%	21.9%	54.5%	68.9%	55.0%	54.6%	47.8%
Sea Cucumber (Diving)	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	100%	49%	51%	0.0%	6.2%	6.6%	19.8%	15.5%	6.2%	6.3%
Squid	—	—	—	—	—	—	—	—	—	—
Swordfish	100%	66%	34%	3.7%	16.9%	17.0%	43.1%	21.2%	16.7%	16.7%
Thornyhead	100%	52%	48%	0.0%	44.7%	45.7%	77.1%	65.4%	46.0%	31.6%
Urchin	100%	45%	55%	0.0%	20.2%	17.8%	1.3%	5.9%	2.4%	3.6%
All Fisheries	—	—	—	0.3%	16.5%	17.7%	25.7%	23.5%	11.9%	14.1%

Table 8: Estimated Annual Net Economic Impact for Oceanside

Fishery	Baseline GER	Estimated Costs	Baseline NER (Profit)	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
				\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—	—	—
Lobster	\$400,696	\$184,052	\$216,644	\$1,146	\$38,899	\$20,366	\$24,492	\$24,164	\$24,754	\$25,147
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—	—	—
N. Fishery (Trap)	\$21,205	\$10,827	\$10,378	\$0	\$478	\$128	\$157	\$214	\$128	\$125
Rock Crab	\$35,177	\$16,491	\$18,686	\$0	\$14	\$9	\$9	\$0	\$0	\$0
Sablefish	\$90,829	\$51,091	\$39,738	\$0	\$8,705	\$21,646	\$27,396	\$21,867	\$21,690	\$18,992
Sea Cucumber (Diving)	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	\$211,491	\$103,054	\$108,437	\$0	\$21,490	\$21,490	\$21,490	\$21,490	\$21,490	\$21,490
Squid	—	—	—	—	—	—	—	—	—	—
Swordfish	—	—	—	—	—	—	—	—	—	—
Thornyhead	\$207,737	\$107,331	\$100,406	\$0	\$43,352	\$46,028	\$76,465	\$64,673	\$46,308	\$32,419
Urchin	\$20,191	\$9,058	\$11,132	\$0	\$987	\$6,493	\$8,881	\$6,279	\$6,493	\$6,493
All Fisheries	\$987,326	\$481,905	\$505,421	\$1,146	\$113,926	\$116,159	\$158,889	\$138,688	\$120,863	\$104,665
				% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—	—	—
Lobster	100%	46%	54%	0.5%	18.0%	9.4%	11.3%	11.2%	11.4%	11.6%
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—	—	—
N. Fishery (Trap)	100%	51%	49%	0.0%	4.6%	1.2%	1.5%	2.1%	1.2%	1.2%
Rock Crab	100%	47%	53%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Sablefish	100%	56%	44%	0.0%	21.9%	54.5%	68.9%	55.0%	54.6%	47.8%
Sea Cucumber (Diving)	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	100%	49%	51%	0.0%	19.8%	19.8%	19.8%	19.8%	19.8%	19.8%
Squid	—	—	—	—	—	—	—	—	—	—
Swordfish	—	—	—	—	—	—	—	—	—	—
Thornyhead	100%	52%	48%	0.0%	43.2%	45.8%	76.2%	64.4%	46.1%	32.3%
Urchin	100%	45%	55%	0.0%	8.9%	58.3%	79.8%	56.4%	58.3%	58.3%
All Fisheries	—	—	—	0.2%	22.5%	23.0%	31.4%	27.4%	23.9%	20.7%

Table 9: Estimated Annual Net Economic Impact for San Diego

Fishery	Baseline GER	Estimated Costs	Baseline NER (Profit)	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
				\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—	—	—
Lobster	\$1,715,118	\$787,807	\$927,311	\$0	\$337,766	\$197,754	\$264,606	\$226,485	\$190,466	\$183,879
N. Fishery (Hook & Line)	\$3,291	\$1,698	\$1,593	\$0	\$269	\$320	\$359	\$319	\$354	\$354
N. Fishery (Trap)	\$107,924	\$55,105	\$52,819	\$0	\$14,616	\$9,570	\$12,077	\$12,174	\$9,350	\$9,106
Rock Crab	\$155,496	\$72,898	\$82,598	\$0	\$11,499	\$11,206	\$13,373	\$9,982	\$10,020	\$10,033
Sablefish	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	\$7,712	\$3,825	\$3,887	\$0	\$2,217	\$1,084	\$1,649	\$945	\$923	\$923
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	\$254,984	\$124,247	\$130,737	\$0	\$27,396	\$23,499	\$24,946	\$23,620	\$23,178	\$23,198
Squid	—	—	—	—	—	—	—	—	—	—
Swordfish	\$169,952	\$112,593	\$57,359	\$168	\$790	\$1,036	\$1,333	\$1,074	\$1,010	\$841
Thornyhead	—	—	—	—	—	—	—	—	—	—
Urchin	\$678,742	\$304,508	\$374,234	\$0	\$107,095	\$30,793	\$63,453	\$33,170	\$23,830	\$16,698
All Fisheries	\$3,093,219	\$1,462,682	\$1,630,538	\$168	\$501,648	\$275,261	\$381,796	\$307,771	\$259,132	\$245,033
				% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—	—	—
Lobster	100%	46%	54%	0.0%	36.4%	21.3%	28.5%	24.4%	20.5%	19.8%
N. Fishery (Hook & Line)	100%	52%	48%	0.0%	16.9%	20.1%	22.6%	20.0%	22.2%	22.2%
N. Fishery (Trap)	100%	51%	49%	0.0%	27.7%	18.1%	22.9%	23.0%	17.7%	17.2%
Rock Crab	100%	47%	53%	0.0%	13.9%	13.6%	16.2%	12.1%	12.1%	12.1%
Sablefish	—	—	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	100%	50%	50%	0.0%	57.1%	27.9%	42.4%	24.3%	23.7%	23.7%
Sea Cucumber (Trawl)	100%	25%	75%	—	—	—	—	—	—	—
Spot Prawn	100%	49%	51%	0.0%	21.0%	18.0%	19.1%	18.1%	17.7%	17.7%
Squid	—	—	—	—	—	—	—	—	—	—
Swordfish	100%	66%	34%	0.3%	1.4%	1.8%	2.3%	1.9%	1.8%	1.5%
Thornyhead	—	—	—	—	—	—	—	—	—	—
Urchin	100%	45%	55%	0.0%	28.6%	8.2%	17.0%	8.9%	6.4%	4.5%
All Fisheries	—	—	—	0.0%	30.8%	16.9%	23.4%	18.9%	15.9%	15.0%

Table 10: Estimated Annual Net Economic Impact for the SCSR

Fishery	Baseline GER	Estimated Costs	Baseline NER (Profit)	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
				\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	\$108,209	\$56,702	\$51,508	\$4,794	\$9,459	\$11,363	\$10,166	\$12,307	\$11,520	\$8,354
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	\$5,889,196	\$3,275,865	\$2,613,331	\$21,043	\$233,676	\$206,274	\$180,244	\$196,443	\$108,588	\$88,066
Lobster	\$6,360,856	\$2,921,739	\$3,439,117	\$55,518	\$616,482	\$445,339	\$541,653	\$562,871	\$414,928	\$445,814
N. Fishery (Hook & Line)	\$217,200	\$112,075	\$105,125	\$11,668	\$24,105	\$24,156	\$22,827	\$26,135	\$21,600	\$11,956
N. Fishery (Trap)	\$372,719	\$190,306	\$182,413	\$1,266	\$29,104	\$24,566	\$21,172	\$23,078	\$17,232	\$18,364
Rock Crab	\$1,469,292	\$688,818	\$780,474	\$31,005	\$84,494	\$83,158	\$83,455	\$91,869	\$78,722	\$63,073
Sablefish	\$286,809	\$161,330	\$125,479	\$0	\$27,489	\$68,351	\$86,507	\$69,048	\$68,491	\$59,970
Sea Cucumber (Diving)	\$500,296	\$248,147	\$252,149	\$32,868	\$59,327	\$54,878	\$56,928	\$63,606	\$57,277	\$58,999
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	\$1,741,435	\$848,554	\$892,881	\$88,006	\$158,640	\$159,653	\$171,640	\$166,693	\$152,194	\$158,232
Squid	\$22,459,304	\$12,870,158	\$9,589,146	\$357,317	\$1,406,112	\$1,308,256	\$1,709,636	\$807,927	\$702,287	\$742,232
Swordfish	\$366,725	\$242,956	\$123,770	\$2,626	\$12,045	\$12,306	\$29,928	\$15,177	\$12,100	\$11,917
Thornyhead	\$648,920	\$335,275	\$313,645	\$0	\$130,590	\$144,332	\$235,820	\$198,798	\$145,165	\$103,356
Urchin	\$7,580,148	\$3,400,730	\$4,179,418	\$275,201	\$611,380	\$490,198	\$554,052	\$545,135	\$490,223	\$484,353
All Fisheries⁵	\$48,001,110	\$25,352,655	\$22,648,455	\$881,311	\$3,402,903	\$3,032,829	\$3,704,030	\$2,779,088	\$2,280,327	\$2,254,685
				% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	100%	52%	48%	9.3%	18.4%	22.1%	19.7%	23.9%	22.4%	16.2%
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—	—	—
Coastal Pelagics	100%	56%	44%	0.8%	8.9%	7.9%	6.9%	7.5%	4.2%	3.4%
Lobster	100%	46%	54%	1.6%	17.9%	12.9%	15.7%	16.4%	12.1%	13.0%
N. Fishery (Hook & Line)	100%	52%	48%	11.1%	22.9%	23.0%	21.7%	24.9%	20.5%	11.4%
N. Fishery (Trap)	100%	51%	49%	0.7%	16.0%	13.5%	11.6%	12.7%	9.4%	10.1%
Rock Crab	100%	47%	53%	4.0%	10.8%	10.7%	10.7%	11.8%	10.1%	8.1%
Sablefish	100%	56%	44%	0.0%	21.9%	54.5%	68.9%	55.0%	54.6%	47.8%
Sea Cucumber (Diving)	100%	50%	50%	13.0%	23.5%	21.8%	22.6%	25.2%	22.7%	23.4%
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—	—	—
Spot Prawn	100%	49%	51%	9.9%	17.8%	17.9%	19.2%	18.7%	17.0%	17.7%
Squid	100%	57%	43%	3.7%	14.7%	13.6%	17.8%	8.4%	7.3%	7.7%
Swordfish	100%	66%	34%	2.1%	9.7%	9.9%	24.2%	12.3%	9.8%	9.6%
Thornyhead	100%	52%	48%	0.0%	41.6%	46.0%	75.2%	63.4%	46.3%	33.0%
Urchin	100%	45%	55%	6.6%	14.6%	11.7%	13.3%	13.0%	11.7%	11.6%
All Fisheries	—	—	—	3.9%	15.0%	13.4%	16.4%	12.3%	10.1%	10.0%

⁵ Santa Barbara Ca. Halibut (Trawl) and Sea Cucumber (Trawl) are not included in this total. Please see Table 3 for estimated impacts on these two fisheries.

3.3 Potential Gross Economic Impacts on Commercial Fisheries

A key assumption of our analysis is that each of the MPA proposals completely eliminates fishing opportunities in areas closed to specific fisheries and that fishermen are unable to adjust or mitigate in any way. In other words, the analysis assumes that all fishing in an area affected by an MPA is lost completely, when in reality it is more likely that fishermen will shift their efforts areas outside the MPA. The effect of such an assumption is most likely an overestimation of the impacts, or a “worst case scenario.”

Unlike net economic impact, gross economic impact does not account for fishermen’s operating costs. Therefore, the percentage reduction in gross economic revenue on SCSR commercial fisheries considered is less than the percentage reduction in net economic revenue; however, the dollar reduction in gross economic revenue is greater than the dollar reduction in net economic revenue. Figures 3–4 compare the potential annual gross economic impact with the potential net economic impact on SCSR commercial fisheries considered.

On average, Ext. B is estimated to have the lowest potential gross economic impact across the study region, while Opal is estimated to have the highest potential impact.

The potential gross economic impacts from each proposal are further broken down by port in Figure 5 and Table 11. On average, Ventura is the port estimated to see the lowest potential gross economic impacts (as a %), while Oceanside is estimated to see the highest potential gross economic impacts (as a %). Tables 12–19 show potential impacts by fishery for each port and for the SCSR.

In terms of potential gross economic impact across the SCSR for the top six commercial species (based on % contribution to overall SCSR ex-vessel values), several patterns emerge from the analysis of the six proposals:

- The rock crab fishery sees the lowest range of potential impacts (in dollars). Topaz has the highest potential impact on the rock crab fishery (\$112,056), while Ext. B has the lowest potential impact (\$76,933).
- The squid fishery sees the highest range of potential impacts (in dollars). Opal has the highest potential impact on the squid fishery (\$2,744,133), while Ext. A has the lowest potential impact (\$1,127,240).
- The coastal pelagics fishery sees the lowest range of potential impacts (as a %). Lapis 1 has the highest potential impact on the coastal pelagics fishery (6.2%), while Ext. B has the lowest potential impact (2.3%).
- The spot prawn fishery sees the highest range of potential impacts (as a %). Opal has the highest potential impact on the spot prawn fishery (12.5%), while Ext. A has the lowest potential impact (11.1%).

Figure 3: Estimated Gross Economic Impact (GEI) and Annual Net Economic Impact (NEI) on Commercial Fisheries (% Reduction in Profit)

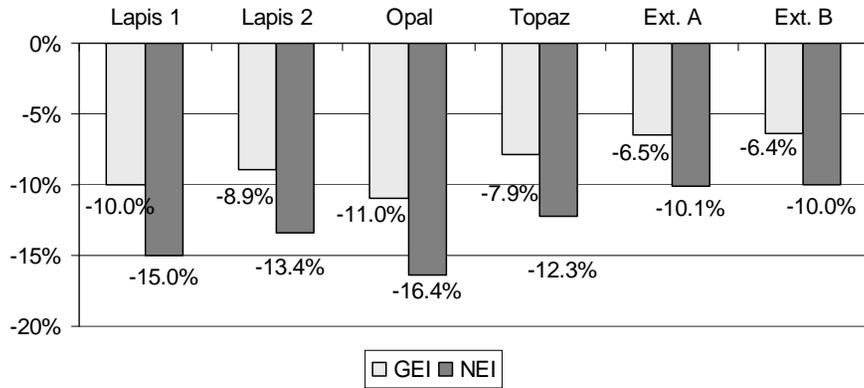


Figure 4: Estimated Gross Economic Impact (GEI) and Annual Net Economic Impact (NEI) on Commercial Fisheries (\$ Reduction in Profit)

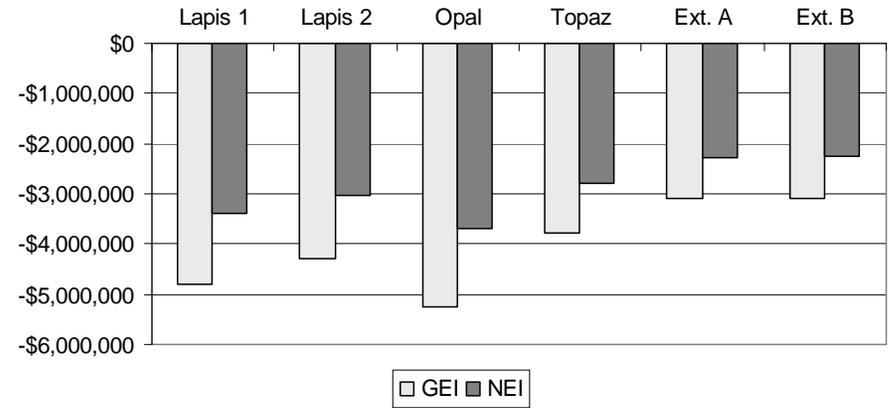


Figure 5: Estimated Annual Gross Economic Impact on Commercial Fisheries by Port (% Reduction in Profit)

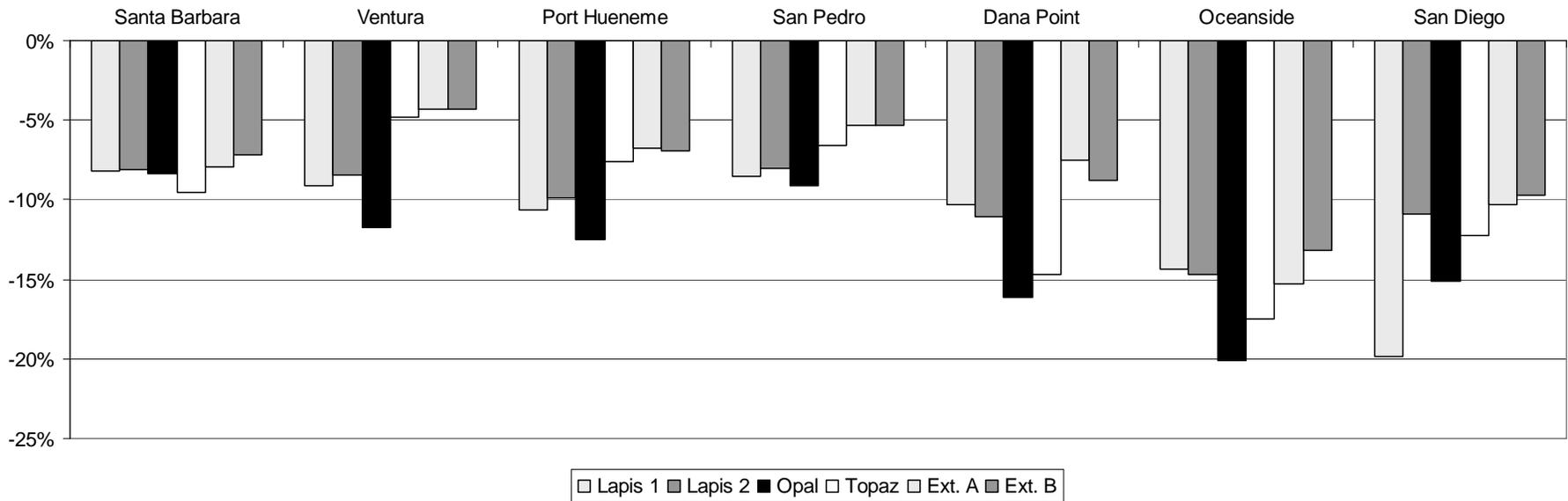


Table 11: Estimated Annual Gross Economic Impact on Commercial Fisheries by Port (Reduction in Profit)

Port	Baseline GER	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
		\$ Reduction in Profit	\$ Reduction in Profit					
Santa Barbara	\$5,796,804	\$310,585	\$477,104	\$468,825	\$485,514	\$555,172	\$458,462	\$415,210
Ventura	\$5,061,321	\$137,310	\$460,833	\$428,208	\$593,513	\$245,642	\$216,343	\$218,766
Port Hueneme	\$11,061,000	\$431,308	\$1,177,046	\$1,090,578	\$1,381,111	\$840,324	\$748,379	\$770,658
San Pedro	\$20,141,349	\$338,475	\$1,725,023	\$1,615,792	\$1,833,559	\$1,323,592	\$1,073,272	\$1,080,005
Dana Point	\$1,860,091	\$3,227	\$191,828	\$205,343	\$300,583	\$272,642	\$139,145	\$163,236
Oceanside	\$987,326	\$1,402	\$142,005	\$144,808	\$198,147	\$173,029	\$150,574	\$130,247
San Diego	\$3,093,219	\$221	\$614,157	\$338,272	\$468,212	\$378,272	\$318,666	\$301,549
Study Region⁶	\$48,001,110	\$1,222,527	\$4,787,997	\$4,291,826	\$5,260,638	\$3,788,674	\$3,104,842	\$3,079,671
		% Reduction in Profit	% Reduction in Profit					
Santa Barbara	100%	5.4%	8.2%	8.1%	8.4%	9.6%	7.9%	7.2%
Ventura	100%	0.1%	9.1%	8.5%	11.7%	4.9%	4.3%	4.3%
Port Hueneme	100%	3.9%	10.6%	9.9%	12.5%	7.6%	6.8%	7.0%
San Pedro	100%	1.7%	8.6%	8.0%	9.1%	6.6%	5.3%	5.4%
Dana Point	100%	0.2%	10.3%	11.0%	16.2%	14.7%	7.5%	8.8%
Oceanside	100%	0.1%	14.4%	14.7%	20.1%	17.5%	15.3%	13.2%
San Diego	100%	0.0%	19.9%	10.9%	15.1%	12.2%	10.3%	9.7%
Study Region	—	2.5%	10.0%	8.9%	11.0%	7.9%	6.5%	6.4%

⁶ This total includes all the port-fishery combinations considered in Tables 12–18 except for Santa Barbara Ca. Halibut (Trawl) and Sea Cucumber (Trawl). Please see Table 12 for estimated impacts on these two fisheries.

Table 12: Estimated Annual GrossEconomic Impact for Santa Barbara

Fishery	Baseline GER	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
		\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	\$70,658	\$3,922	\$9,405	\$9,737	\$10,260	\$11,517	\$8,945	\$5,441
Ca. Halibut (Trawl)	\$200,567	\$0	\$13,759	\$16,727	\$11,392	\$16,747	\$17,169	\$11,833
Coastal Pelagics	—	—	—	—	—	—	—	—
Lobster	\$1,558,845	\$52,689	\$117,225	\$117,225	\$123,461	\$166,641	\$114,263	\$119,875
N. Fishery (Hook & Line)	\$150,237	\$14,092	\$19,321	\$19,321	\$20,042	\$20,402	\$17,413	\$13,912
N. Fishery (Trap)	\$39,144	\$1,679	\$2,728	\$2,697	\$2,728	\$4,071	\$2,877	\$3,276
Rock Crab	\$845,105	\$33,382	\$80,538	\$80,538	\$80,285	\$92,793	\$78,510	\$59,326
Sablefish	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	\$19,874	\$1,958	\$2,339	\$2,339	\$2,427	\$2,478	\$2,244	\$1,936
Sea Cucumber (Trawl)	\$163,088	\$0	\$4,681	\$4,681	\$4,730	\$5,773	\$4,615	\$4,420
Spot Prawn	\$48,537	\$0	\$5,912	\$5,912	\$3,305	\$5,989	\$5,912	\$0
Squid	—	—	—	—	—	—	—	—
Swordfish	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—
Urchin	\$3,064,404	\$202,864	\$239,636	\$231,056	\$243,007	\$251,281	\$228,298	\$211,444
All Fisheries	\$6,160,459	\$310,585	\$495,544	\$490,233	\$501,636	\$577,693	\$480,246	\$431,463
		% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	100.0%	5.6%	13.3%	13.8%	14.5%	16.3%	12.7%	7.7%
Ca. Halibut (Trawl)	100.0%	0.0%	6.9%	8.3%	5.7%	8.4%	8.6%	5.9%
Coastal Pelagics	—	—	—	—	—	—	—	—
Lobster	100.0%	3.4%	7.5%	7.5%	7.9%	10.7%	7.3%	7.7%
N. Fishery (Hook & Line)	100.0%	9.4%	12.9%	12.9%	13.3%	13.6%	11.6%	9.3%
N. Fishery (Trap)	100.0%	4.3%	7.0%	6.9%	7.0%	10.4%	7.4%	8.4%
Rock Crab	100.0%	4.0%	9.5%	9.5%	9.5%	11.0%	9.3%	7.0%
Sablefish	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	100.0%	9.9%	11.8%	11.8%	12.2%	12.5%	11.3%	9.7%
Sea Cucumber (Trawl)	100.0%	0.0%	2.9%	2.9%	2.9%	3.5%	2.8%	2.7%
Spot Prawn	100.0%	0.0%	12.2%	12.2%	6.8%	12.3%	12.2%	0.0%
Squid	—	—	—	—	—	—	—	—
Swordfish	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—
Urchin	100.0%	6.6%	7.8%	7.5%	7.9%	8.2%	7.5%	6.9%
All Fisheries	—	5.0%	8.0%	8.0%	8.1%	9.4%	7.8%	7.0%

Table 13: Estimated Annual Gross Economic Impact for Ventura

Fishery	Baseline GER	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
		\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	\$18,178	\$1,271	\$1,643	\$2,712	\$1,671	\$2,485	\$3,210	\$2,859
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—
Lobster	\$371,161	\$0	\$6,161	\$4,380	\$5,567	\$8,834	\$8,277	\$6,310
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—
N. Fishery (Trap)	\$35,207	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Rock Crab	\$126,384	\$4,436	\$4,436	\$4,461	\$4,436	\$4,512	\$4,512	\$4,474
Sablefish	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	\$49,076	\$147	\$8,520	\$5,747	\$7,263	\$11,734	\$7,514	\$10,551
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	\$108,471	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Squid	\$4,352,843	\$131,456	\$440,072	\$410,908	\$574,575	\$218,077	\$192,831	\$194,572
Swordfish	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—
Urchin	—	—	—	—	—	—	—	—
All Fisheries	\$5,061,321	\$137,310	\$460,833	\$428,208	\$593,513	\$245,642	\$216,343	\$218,766
		% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	100%	7.0%	9.0%	14.9%	9.2%	13.7%	17.7%	15.7%
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—
Lobster	100%	0.0%	1.7%	1.2%	1.5%	2.4%	2.2%	1.7%
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—
N. Fishery (Trap)	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rock Crab	100%	3.5%	3.5%	3.5%	3.5%	3.6%	3.6%	3.5%
Sablefish	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	100%	0.3%	17.4%	11.7%	14.8%	23.9%	15.3%	21.5%
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Squid	100%	3.0%	10.1%	9.4%	13.2%	5.0%	4.4%	4.5%
Swordfish	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—
Urchin	—	—	—	—	—	—	—	—
All Fisheries	—	2.7%	9.1%	8.5%	11.7%	4.9%	4.3%	4.3%

Table 14: Estimated Annual Gross Economic Impact for Port Hueneme

Fishery	Baseline GER	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
		\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	\$19,373	\$1,207	\$1,577	\$2,718	\$1,639	\$2,424	\$3,220	\$2,850
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	\$767,935	\$5,913	\$33,175	\$35,709	\$26,571	\$44,847	\$27,185	\$23,115
Lobster	\$420,552	\$12,869	\$20,691	\$19,177	\$20,565	\$22,079	\$22,836	\$23,088
N. Fishery (Hook & Line)	\$49,637	\$84	\$9,918	\$9,918	\$7,336	\$11,208	\$8,582	\$89
N. Fishery (Trap)	\$61,447	\$0	\$1,020	\$873	\$1,020	\$1,641	\$1,690	\$1,364
Rock Crab	\$131,803	\$0	\$13	\$13	\$13	\$26	\$26	\$26
Sablefish	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	\$258,699	\$36,735	\$45,272	\$41,418	\$43,617	\$49,412	\$43,384	\$41,625
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	\$427,903	\$111,726	\$111,726	\$117,673	\$111,726	\$111,726	\$116,818	\$127,173
Squid	\$7,387,374	\$210,540	\$819,999	\$787,494	\$1,050,485	\$460,233	\$428,468	\$456,540
Swordfish	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—
Urchin	\$1,536,277	\$52,233	\$133,656	\$75,585	\$118,140	\$136,729	\$96,171	\$94,788
All Fisheries	\$11,061,000	\$431,308	\$1,177,046	\$1,090,578	\$1,381,111	\$840,324	\$748,379	\$770,658
		% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	100%	6.2%	8.1%	14.0%	8.5%	12.5%	16.6%	14.7%
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	100%	0.8%	4.3%	4.7%	3.5%	5.8%	3.5%	3.0%
Lobster	100%	3.1%	4.9%	4.6%	4.9%	5.3%	5.4%	5.5%
N. Fishery (Hook & Line)	100%	0.2%	20.0%	20.0%	14.8%	22.6%	17.3%	0.2%
N. Fishery (Trap)	100%	0.0%	1.7%	1.4%	1.7%	2.7%	2.8%	2.2%
Rock Crab	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sablefish	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	100%	14.2%	17.5%	16.0%	16.9%	19.1%	16.8%	16.1%
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	100%	26.1%	26.1%	27.5%	26.1%	26.1%	27.3%	29.7%
Squid	100%	2.9%	11.1%	10.7%	14.2%	6.2%	5.8%	6.2%
Swordfish	—	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	—
Urchin	100%	3.4%	8.7%	4.9%	7.7%	8.9%	6.3%	6.2%
All Fisheries	—	3.9%	10.6%	9.9%	12.5%	7.6%	6.8%	7.0%

Table 15: Estimated Annual Gross Economic Impact for San Pedro

Fishery	Baseline GER	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
		\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	\$5,121,261	\$27,143	\$333,906	\$288,327	\$256,575	\$263,745	\$143,395	\$115,228
Lobster	\$980,389	\$980	\$69,510	\$64,608	\$60,294	\$71,274	\$71,961	\$71,666
N. Fishery (Hook & Line)	\$14,034	\$937	\$1,639	\$1,639	\$1,726	\$1,831	\$1,527	\$1,027
N. Fishery (Trap)	\$76,447	\$0	\$4,579	\$6,636	\$7,285	\$5,772	\$4,977	\$6,651
Rock Crab	\$136,953	\$0	\$96	\$68	\$27	\$82	\$82	\$82
Sablefish	\$68,707	\$0	\$8,135	\$20,227	\$25,600	\$20,433	\$20,268	\$17,747
Sea Cucumber (Diving)	\$164,935	\$2,985	\$16,543	\$18,951	\$17,038	\$16,114	\$18,572	\$19,792
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	\$389,257	\$0	\$9,576	\$9,109	\$5,177	\$6,228	\$1,596	\$4,671
Squid	\$10,719,087	\$231,532	\$996,875	\$901,475	\$1,119,073	\$618,491	\$505,941	\$540,242
Swordfish	—	—	—	—	—	—	—	—
Thornyhead	\$280,325	\$0	\$66,045	\$78,968	\$125,053	\$104,785	\$79,388	\$58,280
Urchin	\$2,189,956	\$74,896	\$218,120	\$225,784	\$215,711	\$214,835	\$225,565	\$244,618
All Fisheries	\$20,141,349	\$338,475	\$1,725,023	\$1,615,792	\$1,833,559	\$1,323,592	\$1,073,272	\$1,080,005
		% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	100%	0.5%	6.5%	5.6%	5.0%	5.2%	2.8%	2.3%
Lobster	100%	0.1%	7.1%	6.6%	6.2%	7.3%	7.3%	7.3%
N. Fishery (Hook & Line)	100%	6.7%	11.7%	11.7%	12.3%	13.1%	10.9%	7.3%
N. Fishery (Trap)	100%	0.0%	6.0%	8.7%	9.5%	7.6%	6.5%	8.7%
Rock Crab	100%	0.0%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%
Sablefish	100%	0.0%	11.8%	29.4%	37.3%	29.7%	29.5%	25.8%
Sea Cucumber (Diving)	100%	1.8%	10.0%	11.5%	10.3%	9.8%	11.3%	12.0%
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	100%	0.0%	2.5%	2.3%	1.3%	1.6%	0.4%	1.2%
Squid	100%	2.2%	9.3%	8.4%	10.4%	5.8%	4.7%	5.0%
Swordfish	—	—	—	—	—	—	—	—
Thornyhead	100%	0.0%	23.6%	28.2%	44.6%	37.4%	28.3%	20.8%
Urchin	100%	3.4%	10.0%	10.3%	9.9%	9.8%	10.3%	11.2%
All Fisheries	—	1.7%	8.6%	8.0%	9.1%	6.6%	5.3%	5.4%

Table 16: Estimated Annual Gross Economic Impact for Dana Point

Fishery	Baseline GER	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
		\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—
Lobster	\$914,095	\$0	\$79,892	\$72,671	\$99,179	\$113,256	\$27,057	\$68,831
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—
N. Fishery (Trap)	\$31,345	\$0	\$10,253	\$9,513	\$821	\$2,693	\$740	\$821
Rock Crab	\$38,375	\$0	\$3,933	\$2,671	\$710	\$2,468	\$668	\$787
Sablefish	\$127,274	\$0	\$15,069	\$37,469	\$47,422	\$37,851	\$37,546	\$32,875
Sea Cucumber (Diving)	—	—	—	—	—	—	—	—
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	\$300,792	\$0	\$12,122	\$12,874	\$38,742	\$30,410	\$12,182	\$12,302
Squid	—	—	—	—	—	—	—	—
Swordfish	\$196,774	\$3,227	\$14,778	\$14,797	\$37,544	\$18,516	\$14,561	\$14,542
Thornyhead	\$160,858	\$0	\$43,689	\$44,686	\$75,394	\$63,925	\$44,960	\$30,949
Urchin	\$90,579	\$0	\$12,092	\$10,661	\$770	\$3,524	\$1,431	\$2,129
All Fisheries	\$1,860,091	\$3,227	\$191,828	\$205,343	\$300,583	\$272,642	\$139,145	\$163,236
		% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—
Lobster	100%	0.0%	8.7%	8.0%	10.9%	12.4%	3.0%	7.5%
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—
N. Fishery (Trap)	100%	0.0%	32.7%	30.4%	2.6%	8.6%	2.4%	2.6%
Rock Crab	100%	0.0%	10.3%	7.0%	1.9%	6.4%	1.7%	2.1%
Sablefish	100%	0.0%	11.8%	29.4%	37.3%	29.7%	29.5%	25.8%
Sea Cucumber (Diving)	100%	—	—	—	—	—	—	—
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	100%	0.0%	4.0%	4.3%	12.9%	10.1%	4.1%	4.1%
Squid	—	—	—	—	—	—	—	—
Swordfish	100%	1.6%	7.5%	7.5%	19.1%	9.4%	7.4%	7.4%
Thornyhead	100%	0.0%	27.2%	27.8%	46.9%	39.7%	28.0%	19.2%
Urchin	100%	0.0%	13.4%	11.8%	0.9%	3.9%	1.6%	2.4%
All Fisheries	—	0.2%	10.3%	11.0%	16.2%	14.7%	7.5%	8.8%

Table 17: Estimated Annual Gross Economic Impact for Oceanside

Fishery	Baseline GER	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
		\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—
Lobster	\$400,696	\$1,402	\$47,603	\$24,923	\$29,972	\$29,571	\$30,293	\$30,773
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—
N. Fishery (Trap)	\$21,205	\$0	\$634	\$170	\$208	\$284	\$170	\$165
Rock Crab	\$35,177	\$0	\$18	\$11	\$11	\$0	\$0	\$0
Sablefish	\$90,829	\$0	\$10,754	\$26,740	\$33,843	\$27,013	\$26,795	\$23,461
Sea Cucumber (Diving)	—	—	—	—	—	—	—	—
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	\$211,491	\$0	\$27,282	\$27,282	\$27,282	\$27,282	\$27,282	\$27,282
Squid	—	—	—	—	—	—	—	—
Swordfish	—	—	—	—	—	—	—	—
Thornyhead	\$207,737	\$0	\$54,531	\$57,896	\$96,182	\$81,350	\$58,250	\$40,779
Urchin	\$20,191	\$0	\$1,183	\$7,786	\$10,649	\$7,529	\$7,786	\$7,786
All Fisheries	\$987,326	\$1,402	\$142,005	\$144,808	\$198,147	\$173,029	\$150,574	\$130,247
		% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—
Lobster	100%	0.4%	11.9%	6.2%	7.5%	7.4%	7.6%	7.7%
N. Fishery (Hook & Line)	—	—	—	—	—	—	—	—
N. Fishery (Trap)	100%	0.0%	3.0%	0.8%	1.0%	1.3%	0.8%	0.8%
Rock Crab	100%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Sablefish	100%	0.0%	11.8%	29.4%	37.3%	29.7%	29.5%	25.8%
Sea Cucumber (Diving)	—	—	—	—	—	—	—	—
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	100%	0.0%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%
Squid	—	—	—	—	—	—	—	—
Swordfish	—	—	—	—	—	—	—	—
Thornyhead	100%	0.0%	26.3%	27.9%	46.3%	39.2%	28.0%	19.6%
Urchin	100%	0.0%	5.9%	38.6%	52.7%	37.3%	38.6%	38.6%
All Fisheries	—	0.1%	14.4%	14.7%	20.1%	17.5%	15.3%	13.2%

Table 18: Estimated Annual Gross Economic Impact for San Diego

Fishery	Baseline GER	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
		\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—
Lobster	\$1,715,118	\$0	\$413,344	\$242,003	\$323,814	\$277,163	\$233,085	\$225,024
N. Fishery (Hook & Line)	\$3,291	\$0	\$349	\$414	\$465	\$414	\$458	\$458
N. Fishery (Trap)	\$107,924	\$0	\$19,383	\$12,692	\$16,016	\$16,145	\$12,400	\$12,077
Rock Crab	\$155,496	\$0	\$14,026	\$13,668	\$16,312	\$12,175	\$12,222	\$12,238
Sablefish	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	\$7,712	\$0	\$2,822	\$1,379	\$2,098	\$1,203	\$1,174	\$1,174
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	\$254,984	\$0	\$34,780	\$29,833	\$31,669	\$29,986	\$29,425	\$29,451
Squid	—	—	—	—	—	—	—	—
Swordfish	\$169,952	\$221	\$1,037	\$1,360	\$1,751	\$1,411	\$1,326	\$1,105
Thornyhead	—	—	—	—	—	—	—	—
Urchin	\$678,742	\$0	\$128,418	\$36,924	\$76,087	\$39,774	\$28,575	\$20,023
All Fisheries	\$3,093,219	\$221	\$614,157	\$338,272	\$468,212	\$378,272	\$318,666	\$301,549
		% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—	—
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	—	—	—	—	—	—	—	—
Lobster	100%	0.0%	24.1%	14.1%	18.9%	16.2%	13.6%	13.1%
N. Fishery (Hook & Line)	100%	0.0%	10.6%	12.6%	14.1%	12.6%	13.9%	13.9%
N. Fishery (Trap)	100%	0.0%	18.0%	11.8%	14.8%	15.0%	11.5%	11.2%
Rock Crab	100%	0.0%	9.0%	8.8%	10.5%	7.8%	7.9%	7.9%
Sablefish	—	—	—	—	—	—	—	—
Sea Cucumber (Diving)	100%	0.0%	36.6%	17.9%	27.2%	15.6%	15.2%	15.2%
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	100%	0.0%	13.6%	11.7%	12.4%	11.8%	11.5%	11.6%
Squid	100%	—	—	—	—	—	—	—
Swordfish	100%	0.1%	0.6%	0.8%	1.0%	0.8%	0.8%	0.7%
Thornyhead	—	—	—	—	—	—	—	—
Urchin	100%	0.0%	18.9%	5.4%	11.2%	5.9%	4.2%	3.0%
All Fisheries	—	0.0%	19.9%	10.9%	15.1%	12.2%	10.3%	9.7%

Table 19: Estimated Annual Gross Economic Impact for the SCSR

Fishery	Baseline GER	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
		\$ Reduction in Profit	\$ Reduction in Profit					
Ca. Halibut (Hook & Line)	\$108,209	\$6,399	\$12,625	\$15,167	\$13,569	\$16,426	\$15,375	\$11,150
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	\$5,889,196	\$33,056	\$367,081	\$324,036	\$283,146	\$308,592	\$170,580	\$138,343
Lobster	\$6,360,856	\$67,941	\$754,425	\$544,987	\$662,853	\$688,818	\$507,771	\$545,568
N. Fishery (Hook & Line)	\$217,200	\$15,114	\$31,226	\$31,291	\$29,570	\$33,855	\$27,980	\$15,487
N. Fishery (Trap)	\$372,719	\$1,679	\$38,598	\$32,580	\$28,079	\$30,605	\$22,853	\$24,355
Rock Crab	\$1,469,292	\$37,818	\$103,060	\$101,431	\$101,794	\$112,056	\$96,020	\$76,933
Sablefish	\$286,809	\$0	\$33,958	\$84,437	\$106,865	\$85,297	\$84,609	\$74,083
Sea Cucumber (Diving)	\$500,296	\$41,825	\$75,496	\$69,834	\$72,443	\$80,941	\$72,887	\$75,078
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	\$1,741,435	\$111,726	\$201,397	\$202,683	\$217,901	\$211,622	\$193,215	\$200,879
Squid	\$22,459,304	\$573,528	\$2,256,946	\$2,099,878	\$2,744,133	\$1,296,802	\$1,127,240	\$1,191,354
Swordfish	\$366,725	\$3,448	\$15,814	\$16,157	\$39,295	\$19,927	\$15,887	\$15,646
Thornyhead	\$648,920	\$0	\$164,264	\$181,550	\$296,629	\$250,060	\$182,597	\$130,007
Urchin	\$7,580,148	\$329,993	\$733,106	\$587,796	\$664,363	\$653,671	\$587,826	\$580,787
All Fisheries⁷	\$48,001,110	\$1,222,527	\$4,787,997	\$4,291,826	\$5,260,638	\$3,788,674	\$3,104,842	\$3,079,671
		% Reduction in Profit	% Reduction in Profit					
Ca. Halibut (Hook & Line)	100%	5.9%	11.7%	14.0%	12.5%	15.2%	14.2%	10.3%
Ca. Halibut (Trawl)	—	—	—	—	—	—	—	—
Coastal Pelagics	100%	0.6%	6.2%	5.5%	4.8%	5.2%	2.9%	2.3%
Lobster	100%	1.1%	11.9%	8.6%	10.4%	10.8%	8.0%	8.6%
N. Fishery (Hook & Line)	100%	7.0%	14.4%	14.4%	13.6%	15.6%	12.9%	7.1%
N. Fishery (Trap)	100%	0.5%	10.4%	8.7%	7.5%	8.2%	6.1%	6.5%
Rock Crab	100%	2.6%	7.0%	6.9%	6.9%	7.6%	6.5%	5.2%
Sablefish	100%	0.0%	11.8%	29.4%	37.3%	29.7%	29.5%	25.8%
Sea Cucumber (Diving)	100%	8.4%	15.1%	14.0%	14.5%	16.2%	14.6%	15.0%
Sea Cucumber (Trawl)	—	—	—	—	—	—	—	—
Spot Prawn	100%	6.4%	11.6%	11.6%	12.5%	12.2%	11.1%	11.5%
Squid	100%	2.6%	10.0%	9.3%	12.2%	5.8%	5.0%	5.3%
Swordfish	100%	0.9%	4.3%	4.4%	10.7%	5.4%	4.3%	4.3%
Thornyhead	100%	0.0%	25.3%	28.0%	45.7%	38.5%	28.1%	20.0%
Urchin	100%	4.4%	9.7%	7.8%	8.8%	8.6%	7.8%	7.7%
All Fisheries	—	2.5%	10.0%	8.9%	11.0%	7.9%	6.5%	6.4%

⁷ Santa Barbara Ca. Halibut (Trawl) and Sea Cucumber (Trawl) are not included in this total. Please see Table 12 for estimated impacts on these two fisheries.

4. Results for Commercial Passenger Fishing Vessels (CPFV)

We summarize here our analyses of the potential impacts on the 10 CPFV fisheries (i.e., Barracuda, Ca. Halibut, Calico Bass, Lingcod, Rockfish, Ca. Scorpionfish, Ca. Sheephead, Sand Bass, Whitefish, and White Seabass). The results for CPFV fisheries are broken out by study region and by port (i.e., Santa Barbara, Port Hueneme/Channel Islands Harbor, Santa Monica, San Pedro/Long Beach, Newport Beach, Dana Point, Oceanside, and San Diego).

4.1 Potential Impacts on CPFV Fishing Grounds (Area and Value)

MPA proposals vary considerably in their effects, both between and across fisheries. As mentioned previously, this report only presents results. Evaluation methods are presented in a separate document. Each proposal affects the CPFV fisheries differently. For information on the potential impacts on CPFV fishing grounds for the 80 port-fishery combinations considered in this analysis (both in terms of total area and total value), please see Tables A.3 and A.4 in the Appendix.

4.2 Potential Economic Impacts on CPFV Fisheries

Table 20 summarizes the MPA proposals with the estimated highest and lowest potential economic impact by port (for associated values, see Table 21). On average, Ext. B is estimated to have the lowest potential net economic impact across the study region, while Lapis 1 is estimated to have the highest potential impact.

Figure 6 summarizes the potential annual net economic impact on all SCSR CPFV fisheries considered. Similar to our analysis of the commercial fisheries, we calculate the potential net economic impact for the CPFV fisheries as the average (i.e., for all 10 species considered) percentage reduction on net economic revenue (i.e., profit). The potential impacts from each proposal are further broken down by port in Figure 7. On average, Santa Monica is the port estimated to see the lowest potential net economic impacts (as a %), while San Diego is estimated to see the highest potential impacts (as a %).

Table 20: Highest/Lowest Annual Estimated Net Economic Impact on CPFV Fisheries by Port

Port	MPA Proposal(s) with highest potential impact	MPA Proposal(s) with lowest potential impact
Santa Barbara	Topaz	Ext. B
Port Hueneme / Channel Islands Harbor	Topaz	Lapis 2
Santa Monica	Lapis 1	Ext. B
San Pedro / Long Beach	Opal	Lapis 1
Newport Beach	Lapis 1	Ext. A
Dana Point	Lapis 1	Ext. A
Oceanside	Topaz	Ext. B
San Diego	Lapis 1	Ext. B
Study Region	Lapis 1	Ext. B

Figure 6: Estimated Annual Net Economic Impact on CPFV Fisheries (% Reduction in Profit)

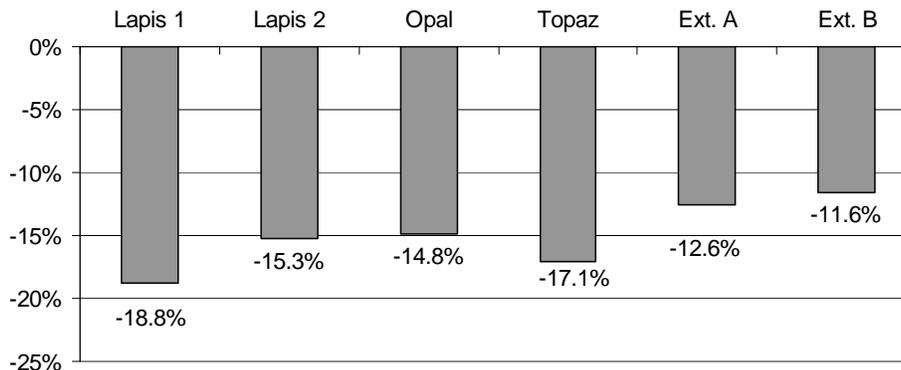
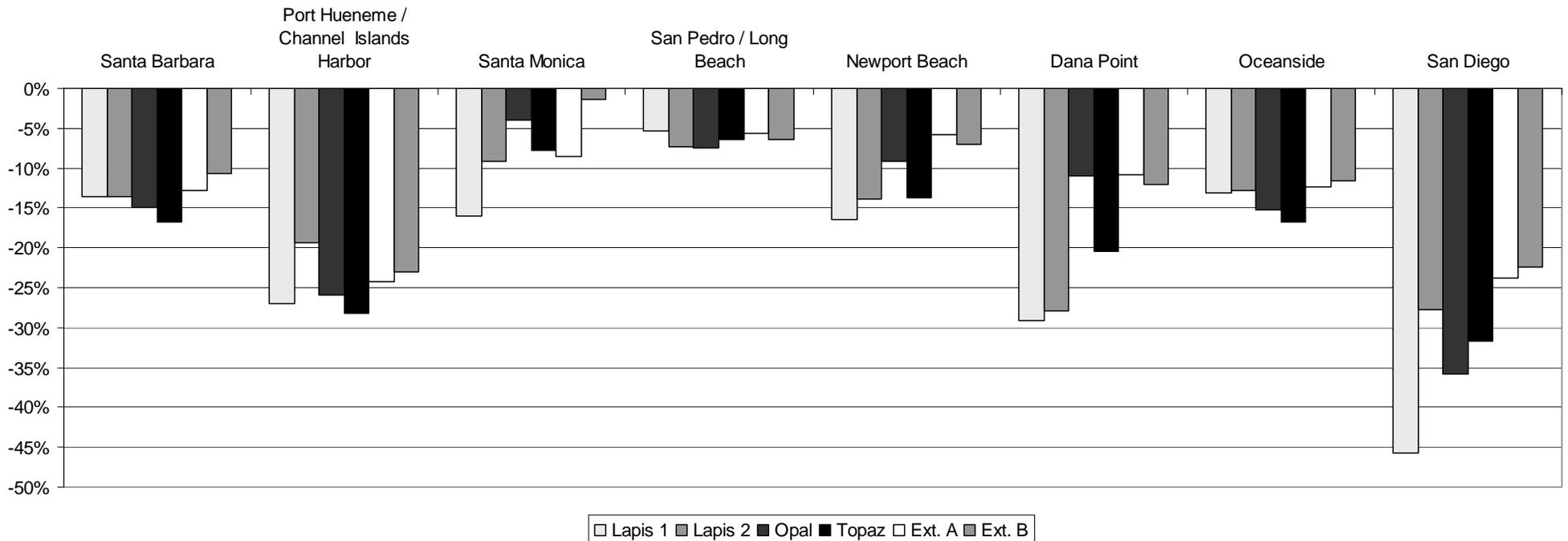


Table 21: Estimated Annual Net Economic Impact on CPFV Fisheries by Port (Reduction in Profit)

Fishery	Baseline GER	Estimated Costs	Baseline NER (Profit)	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
				% Reduction in Profit	% Reduction in Profit					
Santa Barbara	100%	67%	33%	7.5%	13.5%	13.5%	15.0%	16.8%	12.7%	10.6%
Port Hueneme / Channel Islands Harbor	100%	61%	39%	11.8%	27.0%	19.3%	25.9%	28.2%	24.2%	23.0%
Santa Monica	100%	74%	26%	0.0%	16.0%	9.1%	4.0%	7.8%	8.5%	1.3%
San Pedro / Long Beach	100%	65%	35%	0.0%	5.4%	7.3%	7.5%	6.4%	5.6%	6.4%
Newport Beach	100%	62%	38%	0.0%	16.4%	13.9%	9.2%	13.7%	5.8%	7.0%
Dana Point	100%	79%	21%	0.0%	29.0%	27.9%	11.0%	20.4%	10.7%	12.1%
Oceanside	100%	62%	38%	0.0%	13.1%	12.7%	15.2%	16.7%	12.3%	11.7%
San Diego	100%	82%	18%	2.1%	45.7%	27.7%	35.8%	31.7%	23.8%	22.4%
Study Region	—	—	—	3.0%	18.8%	15.3%	14.8%	17.1%	12.6%	11.6%

Figure 7: Estimated Annual Net Economic Impact on CPFV Fisheries by Port (% Reduction in Profit)



5. Results for Recreational Fisheries

We summarize here our analyses of the potential impacts on the 17 recreational fisheries (i.e., Barracuda, Bonito, Ca. Halibut, Calico Bass, Croaker, Lobster, Mackerels, Rockfish, Rock Crab, Scallops, Sheephead, Sand Bass, Squid, Surf Perch, Thresher Shark, White Seabass, and Yellowtail). The results for recreational fisheries are broken out by user group (i.e., dive, kayak, and private vessel) and by county (i.e., Santa Barbara, Ventura, Los Angeles, Orange, and San Diego).

5.1 Potential Impacts on Recreational Fishing Grounds (Area and Value)

MPA proposals vary considerably in their effects, both between and across fisheries. Each proposal affects the recreational fisheries differently. Due to the large number of fisheries, user groups, and counties considered, we present potential impacts on total recreational fishing grounds (both in terms of total area and total value) in Tables A.5–A.18 in the Appendix.

Appendix A: Summary Tables of Potential Impacts

Table A.1 Percentage Area of Total Commercial Fishing Grounds Affected by Port

Port	Fishery	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
Santa Barbara	Ca. Halibut (Hook & Line)	3.7%	9.0%	9.4%	9.6%	10.5%	8.8%	6.3%
	Ca. Halibut (Trawl)	0.0%	3.5%	4.3%	3.0%	4.2%	4.4%	2.4%
	Coastal Pelagics	—	—	—	—	—	—	—
	Live Bait	—	—	—	—	—	—	—
	Lobster	5.8%	9.6%	9.6%	10.1%	10.6%	8.8%	7.8%
	N. Fishery (Hook & Line)	9.8%	13.6%	13.6%	14.0%	14.6%	12.9%	10.5%
	N. Fishery (Trap)	1.6%	6.6%	6.1%	6.6%	11.0%	8.9%	8.7%
	Rock Crab	3.9%	9.4%	9.4%	9.9%	10.5%	8.6%	6.4%
	Sablefish	—	—	—	—	—	—	—
	Sea Cucumber (Diving)	10.4%	14.5%	14.5%	15.6%	15.8%	13.3%	10.9%
	Sea Cucumber (Trawl)	0.0%	2.3%	2.3%	2.6%	2.6%	2.0%	1.1%
	Spot Prawn	0.0%	12.9%	12.9%	5.6%	13.3%	12.9%	0.0%
	Squid	—	—	—	—	—	—	—
	Swordfish	—	—	—	—	—	—	—
	Thornyhead	—	—	—	—	—	—	—
Urchin	7.2%	12.7%	12.5%	12.8%	13.9%	12.2%	10.4%	
Ventura	Ca. Halibut (Hook & Line)	9.2%	13.2%	16.7%	13.3%	16.8%	18.3%	15.0%
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	—	—	—	—	—	—	—
	Live Bait	—	—	—	—	—	—	—
	Lobster	0.1%	2.3%	1.7%	1.8%	2.8%	2.7%	2.3%
	N. Fishery (Hook & Line)	—	—	—	—	—	—	—
	N. Fishery (Trap)	10.5%	12.3%	13.2%	13.3%	13.2%	12.7%	13.1%
	Rock Crab	1.8%	1.8%	2.3%	1.8%	3.2%	3.3%	2.6%
	Sablefish	—	—	—	—	—	—	—
	Sea Cucumber (Diving)	11.7%	15.1%	14.0%	15.0%	16.5%	14.5%	15.9%
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Squid	3.1%	9.4%	8.8%	9.0%	8.8%	7.6%	7.4%
	Swordfish	—	—	—	—	—	—	—
	Thornyhead	—	—	—	—	—	—	—
Urchin	—	—	—	—	—	—	—	
Port Hueneme	Ca. Halibut (Hook & Line)	7.1%	12.4%	14.9%	13.0%	15.0%	15.4%	11.3%
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	3.8%	8.3%	8.2%	7.6%	8.9%	7.1%	6.2%
	Live Bait	—	—	—	—	—	—	—
	Lobster	1.0%	4.0%	3.1%	3.5%	4.3%	4.2%	4.3%
	N. Fishery (Hook & Line)	7.0%	15.4%	15.4%	13.5%	16.3%	14.4%	7.3%
	N. Fishery (Trap)	0.0%	8.1%	6.9%	8.1%	13.0%	13.4%	10.8%
	Rock Crab	0.0%	1.5%	0.7%	1.5%	3.0%	2.0%	2.0%
	Sablefish	—	—	—	—	—	—	—
	Sea Cucumber (Diving)	9.5%	14.7%	15.0%	15.3%	16.4%	14.3%	11.9%
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	25.6%	25.6%	29.5%	25.6%	25.6%	29.0%	35.8%
	Squid	4.0%	11.2%	10.6%	10.2%	10.6%	9.4%	8.2%
	Swordfish	—	—	—	—	—	—	—
	Thornyhead	—	—	—	—	—	—	—
Urchin	5.5%	7.9%	8.3%	7.8%	8.0%	8.3%	8.2%	

Table A.1 (continued) Percentage Area of Total Commercial Fishing Grounds Affected by Port

Port	Fishery	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
San Pedro / Terminal Island	Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	3.0%	8.7%	8.5%	7.3%	9.0%	7.6%	5.4%
	Live Bait	0.0%	5.0%	4.7%	4.6%	4.6%	3.5%	2.3%
	Lobster	0.4%	7.1%	6.3%	6.3%	6.5%	6.6%	7.0%
	N. Fishery (Hook & Line)	8.6%	13.5%	13.5%	14.2%	14.9%	12.7%	9.1%
	N. Fishery (Trap)	0.0%	6.1%	7.1%	7.5%	8.7%	8.8%	8.7%
	Rock Crab	0.0%	2.1%	1.5%	0.4%	2.8%	2.2%	1.6%
	Sablefish	0.0%	18.9%	38.1%	48.2%	36.8%	38.5%	20.8%
	Sea Cucumber (Diving)	7.1%	13.3%	13.7%	14.3%	14.9%	12.7%	9.6%
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	0.0%	3.9%	3.4%	7.6%	5.3%	2.6%	4.4%
	Squid	3.6%	9.9%	9.5%	9.3%	9.4%	8.4%	7.8%
	Swordfish	—	—	—	—	—	—	—
Thornyhead	0.0%	18.9%	38.1%	48.2%	36.8%	38.5%	20.8%	
Urchin	5.9%	9.3%	9.7%	9.2%	9.4%	9.6%	8.9%	
Dana Point	Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	—	—	—	—	—	—	—
	Live Bait	0.0%	5.7%	4.3%	0.0%	4.3%	0.2%	0.7%
	Lobster	0.0%	4.5%	4.1%	5.3%	6.0%	2.4%	4.1%
	N. Fishery (Hook & Line)	—	—	—	—	—	—	—
	N. Fishery (Trap)	0.0%	14.5%	12.3%	2.7%	9.7%	2.4%	2.7%
	Rock Crab	0.0%	11.4%	7.5%	2.7%	9.6%	2.6%	3.0%
	Sablefish	0.0%	18.9%	38.1%	48.2%	36.8%	38.5%	20.8%
	Sea Cucumber (Diving)	—	—	—	—	—	—	—
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	0.0%	7.6%	9.7%	16.4%	15.8%	7.7%	8.0%
	Squid	—	—	—	—	—	—	—
	Swordfish	0.9%	1.6%	1.7%	2.3%	1.8%	1.7%	1.7%
Thornyhead	0.0%	18.9%	38.1%	48.2%	36.8%	38.5%	20.8%	
Urchin	0.0%	4.6%	3.8%	3.0%	4.6%	2.8%	3.0%	
Oceanside	Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	—	—	—	—	—	—	—
	Live Bait	0.0%	1.5%	12.1%	13.6%	12.3%	11.9%	6.4%
	Lobster	0.5%	10.5%	9.6%	11.0%	10.2%	9.9%	9.8%
	N. Fishery (Hook & Line)	—	—	—	—	—	—	—
	N. Fishery (Trap)	0.0%	9.8%	7.0%	8.4%	9.4%	7.0%	6.8%
	Rock Crab	0.0%	4.5%	2.2%	2.3%	0.2%	0.0%	0.0%
	Sablefish	0.0%	18.9%	38.1%	48.2%	36.8%	38.5%	20.8%
	Sea Cucumber (Diving)	—	—	—	—	—	—	—
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	0.0%	8.5%	8.5%	8.5%	8.5%	8.5%	8.5%
	Squid	—	—	—	—	—	—	—
	Swordfish	—	—	—	—	—	—	—
Thornyhead	0.0%	18.9%	38.1%	48.2%	36.8%	38.5%	20.8%	
Urchin	0.0%	21.3%	25.3%	32.0%	25.3%	25.3%	25.3%	

Table A.1 (continued): Percentage Area of Total Commercial Fishing Grounds Affected by Port

Port	Fishery	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
San Diego	Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	—	—	—	—	—	—	—
	Live Bait	0.0%	0.0%	0.0%	2.9%	0.1%	0.3%	0.3%
	Lobster	0.0%	8.1%	7.0%	8.3%	6.8%	6.6%	6.5%
	N. Fishery (Hook & Line)	0.0%	5.7%	6.0%	6.5%	6.1%	6.7%	6.7%
	N. Fishery (Trap)	0.0%	7.5%	6.0%	7.3%	6.9%	5.6%	5.5%
	Rock Crab	0.0%	12.3%	9.3%	11.1%	10.3%	9.5%	9.5%
	Sablefish	—	—	—	—	—	—	—
	Sea Cucumber (Diving)	0.0%	37.5%	21.8%	25.8%	21.1%	19.4%	19.4%
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	0.0%	12.9%	11.9%	11.9%	11.7%	11.4%	11.6%
	Squid	—	—	—	—	—	—	—
	Swordfish	0.1%	0.6%	0.8%	1.0%	0.8%	0.8%	0.7%
	Thornyhead	—	—	—	—	—	—	—
	Urchin	0.0%	20.7%	13.0%	18.4%	11.1%	8.3%	7.8%

Table A.2: Percentage Value of Total Commercial Fishing Grounds Affected by Port

Port	Fishery	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
Santa Barbara	Ca. Halibut (Hook & Line)	5.6%	13.3%	13.8%	14.5%	16.3%	12.7%	7.7%
	Ca. Halibut (Trawl)	0.0%	6.9%	8.3%	5.7%	8.4%	8.6%	5.9%
	Coastal Pelagics	—	—	—	—	—	—	—
	Live Bait	—	—	—	—	—	—	—
	Lobster	3.4%	7.5%	7.5%	7.9%	10.7%	7.3%	7.7%
	N. Fishery (Hook & Line)	9.4%	12.9%	12.9%	13.3%	13.6%	11.6%	9.3%
	N. Fishery (Trap)	4.3%	7.0%	6.9%	7.0%	10.4%	7.4%	8.4%
	Rock Crab	4.0%	9.5%	9.5%	9.5%	11.0%	9.3%	7.0%
	Sablefish	—	—	—	—	—	—	—
	Sea Cucumber (Diving)	9.9%	11.8%	11.8%	12.2%	12.5%	11.3%	9.7%
	Sea Cucumber (Trawl)	0.0%	2.9%	2.9%	2.9%	3.5%	2.8%	2.7%
	Spot Prawn	0.0%	12.2%	12.2%	6.8%	12.3%	12.2%	0.0%
	Squid	—	—	—	—	—	—	—
	Swordfish	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	
Urchin	6.6%	7.8%	7.5%	7.9%	8.2%	7.5%	6.9%	
Ventura	Ca. Halibut (Hook & Line)	7.0%	9.0%	14.9%	9.2%	13.7%	17.7%	15.7%
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	—	—	—	—	—	—	—
	Live Bait	—	—	—	—	—	—	—
	Lobster	0.0%	1.7%	1.2%	1.5%	2.4%	2.2%	1.7%
	N. Fishery (Hook & Line)	—	—	—	—	—	—	—
	N. Fishery (Trap)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Rock Crab	3.5%	3.5%	3.5%	3.5%	3.6%	3.6%	3.5%
	Sablefish	—	—	—	—	—	—	—
	Sea Cucumber (Diving)	0.3%	17.4%	11.7%	14.8%	23.9%	15.3%	21.5%
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Squid	3.0%	10.1%	9.4%	13.2%	5.0%	4.4%	4.5%
	Swordfish	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	
Urchin	—	—	—	—	—	—	—	
Port Hueneme	Ca. Halibut (Hook & Line)	6.2%	8.1%	14.0%	8.5%	12.5%	16.6%	14.7%
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	0.8%	4.3%	4.7%	3.5%	5.8%	3.5%	3.0%
	Live Bait	—	—	—	—	—	—	—
	Lobster	3.1%	4.9%	4.6%	4.9%	5.3%	5.4%	5.5%
	N. Fishery (Hook & Line)	0.2%	20.0%	20.0%	14.8%	22.6%	17.3%	0.2%
	N. Fishery (Trap)	0.0%	1.7%	1.4%	1.7%	2.7%	2.8%	2.2%
	Rock Crab	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Sablefish	—	—	—	—	—	—	—
	Sea Cucumber (Diving)	14.2%	17.5%	16.0%	16.9%	19.1%	16.8%	16.1%
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	26.1%	26.1%	27.5%	26.1%	26.1%	27.3%	29.7%
	Squid	2.9%	11.1%	10.7%	14.2%	6.2%	5.8%	6.2%
	Swordfish	—	—	—	—	—	—	—
Thornyhead	—	—	—	—	—	—	—	
Urchin	3.4%	8.7%	4.9%	7.7%	8.9%	6.3%	6.2%	

Table A.2 (continued): Percentage Value of Total Commercial Fishing Grounds Affected by Port

Port	Fishery	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
San Pedro / Terminal Island	Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	0.5%	6.5%	5.6%	5.0%	5.2%	2.8%	2.3%
	Live Bait	0.0%	2.5%	2.1%	2.8%	2.4%	1.5%	1.1%
	Lobster	0.1%	7.1%	6.6%	6.2%	7.3%	7.3%	7.3%
	N. Fishery (Hook & Line)	6.7%	11.7%	11.7%	12.3%	13.1%	10.9%	7.3%
	N. Fishery (Trap)	0.0%	6.0%	8.7%	9.5%	7.6%	6.5%	8.7%
	Rock Crab	0.0%	0.1%	0.1%	0.0%	0.1%	0.1%	0.1%
	Sablefish	0.0%	11.8%	29.4%	37.3%	29.7%	29.5%	25.8%
	Sea Cucumber (Diving)	1.8%	10.0%	11.5%	10.3%	9.8%	11.3%	12.0%
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	0.0%	2.5%	2.3%	1.3%	1.6%	0.4%	1.2%
	Squid	2.2%	9.3%	8.4%	10.4%	5.8%	4.7%	5.0%
	Swordfish	—	—	—	—	—	—	—
Thornyhead	0.0%	23.6%	28.2%	44.6%	37.4%	28.3%	20.8%	
Urchin	3.4%	10.0%	10.3%	9.9%	9.8%	10.3%	11.2%	
Dana Point	Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	—	—	—	—	—	—	—
	Live Bait	0.0%	8.2%	6.7%	0.0%	4.7%	0.2%	0.7%
	Lobster	0.0%	8.7%	8.0%	10.9%	12.4%	3.0%	7.5%
	N. Fishery (Hook & Line)	—	—	—	—	—	—	—
	N. Fishery (Trap)	0.0%	32.7%	30.4%	2.6%	8.6%	2.4%	2.6%
	Rock Crab	0.0%	10.3%	7.0%	1.9%	6.4%	1.7%	2.1%
	Sablefish	0.0%	11.8%	29.4%	37.3%	29.7%	29.5%	25.8%
	Sea Cucumber (Diving)	—	—	—	—	—	—	—
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	0.0%	4.0%	4.3%	12.9%	10.1%	4.1%	4.1%
	Squid	—	—	—	—	—	—	—
	Swordfish	1.6%	7.5%	7.5%	19.1%	9.4%	7.4%	7.4%
Thornyhead	0.0%	27.2%	27.8%	46.9%	39.7%	28.0%	19.2%	
Urchin	0.0%	13.4%	11.8%	0.9%	3.9%	1.6%	2.4%	
Oceanside	Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	—	—	—	—	—	—	—
	Live Bait	0.0%	0.2%	1.3%	1.4%	1.3%	1.2%	0.7%
	Lobster	0.4%	11.9%	6.2%	7.5%	7.4%	7.6%	7.7%
	N. Fishery (Hook & Line)	—	—	—	—	—	—	—
	N. Fishery (Trap)	0.0%	3.0%	0.8%	1.0%	1.3%	0.8%	0.8%
	Rock Crab	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
	Sablefish	0.0%	11.8%	29.4%	37.3%	29.7%	29.5%	25.8%
	Sea Cucumber (Diving)	—	—	—	—	—	—	—
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	0.0%	12.9%	12.9%	12.9%	12.9%	12.9%	12.9%
	Squid	—	—	—	—	—	—	—
	Swordfish	—	—	—	—	—	—	—
Thornyhead	0.0%	26.3%	27.9%	46.3%	39.2%	28.0%	19.6%	
Urchin	0.0%	5.9%	38.6%	52.7%	37.3%	38.6%	38.6%	

Table A.2 (continued): Percentage Value of Total Commercial Fishing Grounds Affected by Port

Port	Fishery	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
San Diego	Ca. Halibut (Hook & Line)	—	—	—	—	—	—	—
	Ca. Halibut (Trawl)	—	—	—	—	—	—	—
	Coastal Pelagics	—	—	—	—	—	—	—
	Live Bait	0.0%	0.0%	0.0%	3.1%	0.1%	0.3%	0.3%
	Lobster	0.0%	24.1%	14.1%	18.9%	16.2%	13.6%	13.1%
	N. Fishery (Hook & Line)	0.0%	10.6%	12.6%	14.1%	12.6%	13.9%	13.9%
	N. Fishery (Trap)	0.0%	18.0%	11.8%	14.8%	15.0%	11.5%	11.2%
	Rock Crab	0.0%	9.0%	8.8%	10.5%	7.8%	7.9%	7.9%
	Sablefish	—	—	—	—	—	—	—
	Sea Cucumber (Diving)	0.0%	36.6%	17.9%	27.2%	15.6%	15.2%	15.2%
	Sea Cucumber (Trawl)	—	—	—	—	—	—	—
	Spot Prawn	0.0%	13.6%	11.7%	12.4%	11.8%	11.5%	11.6%
	Squid	—	—	—	—	—	—	—
	Swordfish	0.1%	0.6%	0.8%	1.0%	0.8%	0.8%	0.7%
	Thornyhead	—	—	—	—	—	—	—
	Urchin	0.0%	18.9%	5.4%	11.2%	5.9%	4.2%	3.0%

Table A.3: Percentage Area of Total CPFV Fishing Grounds Affected by Port

Port	Fishery	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
Santa Barbara	Barracuda	8.3%	8.3%	8.3%	8.9%	9.2%	8.3%	9.0%
	Ca. Halibut	9.5%	11.6%	11.6%	12.4%	13.3%	11.2%	11.0%
	Calico Bass	9.3%	12.5%	12.5%	13.1%	13.9%	11.9%	11.1%
	Lingcod	7.1%	10.9%	10.9%	11.1%	11.8%	10.4%	8.6%
	Rockfish	7.2%	10.7%	10.7%	10.8%	11.4%	10.3%	8.6%
	Ca. Scorpionfish	8.5%	8.7%	8.7%	9.6%	9.8%	8.5%	9.5%
	Ca. Sheephead	6.6%	12.1%	12.1%	12.2%	13.2%	11.3%	8.8%
	Sand Bass	0.0%	2.7%	2.7%	2.7%	6.3%	2.7%	3.0%
	Whitefish	9.2%	10.6%	10.6%	11.3%	11.5%	10.6%	11.1%
	White Seabass	8.1%	11.8%	11.8%	12.4%	13.0%	11.2%	10.2%
Port Hueneume / Channel Islands Harbor	Barracuda	5.9%	8.4%	7.7%	8.3%	9.0%	8.2%	8.2%
	Ca. Halibut	14.6%	19.2%	17.7%	18.4%	19.3%	19.1%	19.0%
	Calico Bass	4.5%	7.7%	7.0%	7.8%	8.8%	7.4%	7.8%
	Lingcod	10.4%	11.6%	11.2%	11.4%	11.7%	11.7%	11.6%
	Rockfish	11.6%	12.6%	12.3%	12.5%	12.7%	12.8%	12.5%
	Ca. Scorpionfish	6.9%	9.4%	8.6%	9.1%	9.9%	9.4%	9.3%
	Ca. Sheephead	5.4%	7.8%	7.1%	7.6%	8.0%	7.9%	7.7%
	Sand Bass	0.0%	4.0%	2.7%	3.4%	4.1%	4.0%	4.3%
	Whitefish	10.8%	14.2%	13.1%	13.7%	14.9%	14.2%	14.1%
	White Seabass	10.1%	15.3%	13.7%	14.6%	15.6%	15.5%	14.9%
Santa Monica	Barracuda	0.0%	4.7%	7.2%	3.5%	3.8%	6.4%	1.1%
	Ca. Halibut	0.0%	4.4%	5.5%	4.0%	3.9%	4.7%	1.8%
	Calico Bass	0.0%	4.9%	5.3%	4.7%	4.7%	4.8%	3.8%
	Lingcod	0.0%	8.5%	8.9%	5.4%	6.5%	7.3%	4.9%
	Rockfish	0.0%	10.8%	11.1%	7.0%	7.9%	8.7%	6.5%
	Ca. Scorpionfish	0.0%	4.3%	5.5%	2.5%	2.8%	3.9%	2.6%
	Ca. Sheephead	0.0%	8.0%	8.1%	7.8%	7.8%	7.9%	6.9%
	Sand Bass	0.0%	2.0%	3.7%	0.9%	1.5%	3.7%	0.6%
	Whitefish	0.0%	2.5%	4.1%	2.2%	2.3%	3.5%	1.2%
	White Seabass	0.0%	6.2%	6.8%	5.1%	5.6%	6.9%	4.5%
San Pedro / Long Beach	Barracuda	0.0%	5.1%	4.5%	4.3%	4.8%	4.0%	2.9%
	Ca. Halibut	0.0%	2.5%	3.6%	3.2%	2.9%	3.1%	3.5%
	Calico Bass	0.6%	4.8%	5.9%	5.8%	5.3%	5.1%	5.7%
	Lingcod	0.4%	11.6%	11.3%	11.8%	11.5%	10.0%	9.0%
	Rockfish	0.3%	10.5%	10.1%	10.6%	10.3%	9.2%	10.1%
	Ca. Scorpionfish	0.2%	4.0%	4.2%	4.9%	4.3%	3.0%	4.2%
	Ca. Sheephead	0.1%	6.3%	6.6%	5.9%	6.9%	4.9%	5.4%
	Sand Bass	0.0%	0.9%	1.9%	0.8%	1.1%	1.9%	1.9%
	Whitefish	0.2%	6.5%	7.0%	5.4%	7.3%	5.8%	5.2%
	White Seabass	0.0%	6.1%	6.0%	5.8%	5.6%	5.2%	4.2%

Table A.3 (continued): Percentage Area of Total CPFV Fishing Grounds Affected by Port

Port	Fishery	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
Newport Beach	Barracuda	0.0%	3.9%	4.8%	5.6%	7.1%	3.1%	2.0%
	Ca. Halibut	0.0%	3.9%	3.5%	2.1%	3.1%	1.0%	1.5%
	Calico Bass	0.0%	6.0%	5.1%	3.6%	4.2%	2.2%	2.8%
	Lingcod	0.0%	11.2%	10.1%	10.4%	12.1%	5.1%	8.0%
	Rockfish	0.0%	9.8%	8.9%	10.6%	11.2%	4.3%	8.1%
	Ca. Scorpionfish	0.0%	7.7%	6.1%	2.1%	6.9%	2.0%	2.2%
	Ca. Sheephead	0.0%	8.3%	7.0%	7.0%	8.7%	1.8%	4.7%
	Sand Bass	0.0%	4.7%	3.7%	1.1%	2.3%	1.0%	1.2%
	Whitefish	0.0%	6.2%	5.4%	4.3%	5.9%	2.3%	3.0%
	White Seabass	0.0%	8.7%	6.8%	7.0%	8.1%	3.8%	3.5%
Dana Point	Barracuda	0.0%	4.5%	3.7%	3.3%	7.4%	3.1%	2.5%
	Ca. Halibut	0.0%	7.4%	6.6%	4.2%	6.1%	1.9%	3.0%
	Calico Bass	0.0%	11.9%	10.9%	7.5%	8.3%	4.9%	6.0%
	Lingcod	0.0%	13.8%	13.1%	8.2%	12.4%	7.8%	8.2%
	Rockfish	0.0%	17.6%	16.7%	12.6%	16.4%	12.1%	12.7%
	Ca. Scorpionfish	0.0%	12.4%	12.1%	12.7%	12.9%	6.9%	10.1%
	Ca. Sheephead	0.0%	10.7%	9.9%	4.3%	9.4%	3.7%	4.2%
	Sand Bass	0.0%	8.5%	6.9%	2.0%	4.4%	1.9%	2.2%
	Whitefish	0.0%	21.6%	21.8%	12.8%	18.0%	13.4%	13.8%
	White Seabass	0.0%	7.4%	6.8%	3.9%	3.8%	1.1%	1.4%
Oceanside	Barracuda	0.0%	8.1%	6.4%	7.6%	7.5%	4.2%	3.0%
	Ca. Halibut	0.0%	4.6%	5.9%	6.8%	8.2%	5.8%	5.8%
	Calico Bass	0.0%	7.8%	6.1%	7.3%	7.3%	5.0%	5.0%
	Lingcod	0.0%	6.4%	6.0%	6.9%	7.8%	5.9%	5.8%
	Rockfish	0.0%	6.6%	7.1%	8.2%	7.1%	7.0%	6.9%
	Ca. Scorpionfish	0.0%	7.4%	5.9%	7.1%	6.7%	5.8%	5.8%
	Ca. Sheephead	0.0%	8.4%	6.7%	7.9%	7.8%	5.6%	5.5%
	Sand Bass	0.0%	5.7%	6.9%	6.9%	8.4%	5.9%	6.0%
	Whitefish	0.0%	7.5%	7.7%	8.8%	10.2%	7.6%	7.7%
	White Seabass	0.0%	9.6%	7.8%	10.9%	9.3%	6.1%	3.3%
San Diego	Barracuda	2.7%	8.4%	7.6%	8.6%	8.1%	6.1%	5.6%
	Ca. Halibut	1.5%	9.4%	7.7%	9.1%	8.7%	6.9%	6.8%
	Calico Bass	0.2%	9.8%	7.6%	10.2%	8.6%	6.1%	6.5%
	Lingcod	8.7%	12.8%	12.5%	13.1%	12.8%	12.3%	12.2%
	Rockfish	9.6%	12.4%	12.4%	12.7%	12.4%	12.6%	12.6%
	Ca. Scorpionfish	1.2%	7.9%	6.9%	7.9%	7.4%	6.6%	6.5%
	Ca. Sheephead	1.3%	7.8%	7.1%	8.6%	7.6%	6.2%	6.7%
	Sand Bass	0.0%	10.2%	8.0%	9.9%	8.9%	7.0%	6.9%
	Whitefish	3.0%	12.9%	11.3%	13.7%	12.7%	10.0%	10.4%
	White Seabass	1.8%	13.3%	11.6%	14.5%	13.0%	9.9%	7.4%

Table A.4: Percentage Value of Total CPFV Fishing Grounds Affected by Port

Port	Fishery	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
Santa Barbara	Barracuda	2.7%	2.7%	2.7%	3.0%	3.3%	2.7%	2.8%
	Ca. Halibut	5.5%	10.1%	10.1%	11.6%	13.4%	9.1%	8.2%
	Calico Bass	1.2%	6.0%	6.0%	6.8%	9.3%	5.2%	3.8%
	Lingcod	4.8%	10.1%	10.1%	10.9%	11.4%	9.4%	7.0%
	Rockfish	3.7%	7.9%	7.9%	8.4%	8.5%	7.4%	5.2%
	Ca. Scorpionfish	3.7%	3.7%	3.7%	3.8%	4.3%	3.7%	3.8%
	Ca. Sheephead	5.3%	9.6%	9.6%	10.6%	10.9%	9.0%	7.1%
	Sand Bass	0.0%	2.9%	2.9%	2.9%	6.1%	2.9%	1.6%
	Whitefish	8.2%	9.2%	9.2%	10.6%	10.1%	9.2%	9.6%
	White Seabass	3.6%	7.4%	7.4%	8.2%	9.1%	6.8%	5.6%
Port Hueneume / Channel Islands Harbor	Barracuda	3.4%	11.0%	8.4%	10.7%	12.4%	10.9%	10.3%
	Ca. Halibut	12.0%	23.6%	16.7%	22.8%	23.3%	20.1%	19.5%
	Calico Bass	3.3%	16.2%	9.6%	15.4%	17.9%	14.0%	14.3%
	Lingcod	10.6%	14.4%	12.9%	14.2%	14.8%	14.5%	13.5%
	Rockfish	12.1%	14.9%	13.9%	14.8%	15.2%	15.1%	14.0%
	Ca. Scorpionfish	4.3%	14.2%	9.6%	13.5%	16.2%	13.0%	11.7%
	Ca. Sheephead	7.0%	15.9%	11.1%	15.3%	15.5%	13.6%	13.1%
	Sand Bass	0.0%	3.8%	1.5%	3.4%	3.9%	2.8%	2.5%
	Whitefish	5.2%	16.3%	9.9%	15.5%	18.1%	13.2%	12.6%
	White Seabass	6.6%	16.8%	11.7%	16.0%	16.8%	14.9%	13.9%
Santa Monica	Barracuda	0.0%	7.1%	5.5%	1.3%	3.2%	5.4%	0.4%
	Ca. Halibut	0.0%	4.0%	5.6%	1.7%	3.1%	5.6%	0.3%
	Calico Bass	0.0%	8.0%	4.8%	3.1%	6.1%	4.6%	0.8%
	Lingcod	0.0%	7.8%	2.2%	0.7%	1.6%	2.0%	0.3%
	Rockfish	0.0%	8.1%	3.5%	0.6%	1.4%	3.3%	0.4%
	Ca. Scorpionfish	0.0%	4.1%	0.8%	0.8%	1.5%	0.6%	0.3%
	Ca. Sheephead	0.0%	7.8%	3.4%	2.7%	4.9%	2.8%	1.2%
	Sand Bass	0.0%	3.9%	1.5%	0.3%	0.9%	1.5%	0.0%
	Whitefish	0.0%	6.1%	3.5%	2.9%	3.8%	2.8%	1.4%
	White Seabass	0.0%	7.4%	5.8%	2.1%	4.8%	5.4%	0.4%
San Pedro / Long Beach	Barracuda	0.0%	1.3%	2.4%	1.9%	1.8%	2.1%	1.6%
	Ca. Halibut	0.0%	1.3%	2.1%	2.7%	1.9%	1.3%	2.1%
	Calico Bass	0.0%	3.2%	4.5%	5.0%	4.1%	3.5%	4.5%
	Lingcod	0.0%	5.5%	6.2%	5.9%	5.4%	4.8%	6.1%
	Rockfish	0.0%	5.3%	5.2%	4.7%	4.9%	4.6%	5.0%
	Ca. Scorpionfish	0.0%	2.5%	3.7%	2.6%	2.7%	3.4%	3.6%
	Ca. Sheephead	0.0%	3.4%	4.9%	5.4%	4.5%	3.3%	4.8%
	Sand Bass	0.0%	0.2%	0.8%	0.3%	0.4%	0.7%	0.8%
	Whitefish	0.0%	1.9%	3.1%	3.4%	2.4%	2.4%	2.8%
	White Seabass	0.0%	5.7%	8.1%	10.3%	7.6%	5.2%	4.8%

Table A.4 (continued): Percentage Value of Total CPFV Fishing Grounds Affected by Port

Port	Fishery	C.I. MPAs	Lapis 1	Lapis 2	Opal	Topaz	Ext. A	Ext. B
Newport Beach	Barracuda	0.0%	13.9%	11.6%	5.7%	7.4%	4.1%	1.1%
	Ca. Halibut	0.0%	22.1%	19.5%	14.8%	20.8%	12.8%	1.8%
	Calico Bass	0.0%	8.7%	7.3%	6.9%	9.6%	4.0%	4.8%
	Lingcod	0.0%	2.4%	1.8%	0.7%	2.1%	0.6%	14.0%
	Rockfish	0.0%	16.8%	13.4%	6.6%	14.0%	3.2%	5.6%
	Ca. Scorpionfish	0.0%	6.5%	5.2%	1.4%	2.8%	1.3%	0.7%
	Ca. Sheephead	0.0%	5.4%	5.1%	5.8%	5.5%	2.1%	5.3%
	Sand Bass	0.0%	13.7%	11.9%	9.0%	10.2%	3.6%	1.5%
	Whitefish	0.0%	2.4%	2.3%	1.9%	3.9%	2.2%	3.4%
	White Seabass	0.0%	8.8%	7.8%	2.1%	5.5%	1.8%	3.7%
Dana Point	Barracuda	0.0%	7.9%	7.4%	2.3%	3.7%	2.1%	1.9%
	Ca. Halibut	0.0%	13.3%	13.3%	5.9%	9.4%	6.1%	2.4%
	Calico Bass	0.0%	11.2%	11.2%	5.7%	9.3%	5.9%	2.4%
	Lingcod	0.0%	10.0%	9.7%	4.8%	8.3%	4.1%	6.6%
	Rockfish	0.0%	13.1%	12.7%	2.2%	9.0%	2.8%	6.5%
	Ca. Scorpionfish	0.0%	4.4%	3.9%	0.6%	1.9%	0.7%	5.1%
	Ca. Sheephead	0.0%	16.9%	16.6%	8.1%	13.9%	9.2%	3.6%
	Sand Bass	0.0%	9.0%	8.2%	3.1%	3.4%	1.0%	0.9%
	Whitefish	0.0%	6.8%	6.3%	7.6%	8.0%	5.7%	9.7%
	White Seabass	0.0%	5.1%	5.5%	6.6%	7.9%	5.4%	1.4%
Oceanside	Barracuda	0.0%	5.4%	5.2%	6.4%	7.8%	5.0%	3.8%
	Ca. Halibut	0.0%	8.4%	7.9%	9.3%	9.4%	7.8%	5.4%
	Calico Bass	0.0%	7.3%	5.5%	6.6%	5.4%	5.4%	5.0%
	Lingcod	0.0%	5.9%	5.3%	6.6%	6.9%	5.3%	7.7%
	Rockfish	0.0%	9.0%	8.1%	9.5%	10.3%	7.5%	5.3%
	Ca. Scorpionfish	0.0%	6.0%	5.2%	6.0%	7.8%	4.8%	5.2%
	Ca. Sheephead	0.0%	9.3%	13.0%	15.1%	17.0%	13.0%	7.5%
	Sand Bass	0.0%	6.1%	5.6%	7.1%	8.1%	5.4%	4.9%
	Whitefish	0.0%	14.0%	8.8%	11.5%	9.9%	4.8%	13.0%
	White Seabass	0.0%	12.9%	8.7%	11.5%	8.9%	5.8%	4.1%
San Diego	Barracuda	0.7%	22.0%	11.6%	15.7%	14.9%	10.0%	4.4%
	Ca. Halibut	0.1%	13.2%	9.6%	11.6%	10.6%	9.5%	5.5%
	Calico Bass	0.0%	9.6%	8.7%	9.9%	8.8%	9.8%	9.4%
	Lingcod	2.4%	12.7%	7.0%	9.1%	8.0%	6.3%	9.3%
	Rockfish	2.5%	15.4%	8.6%	11.3%	10.3%	8.0%	9.7%
	Ca. Scorpionfish	0.4%	10.7%	6.7%	9.0%	6.1%	4.3%	6.0%
	Ca. Sheephead	0.2%	17.9%	8.8%	11.2%	11.7%	9.2%	7.8%
	Sand Bass	0.0%	18.2%	10.6%	14.2%	12.6%	8.6%	4.1%
	Whitefish	0.4%	13.9%	11.6%	5.7%	7.4%	4.1%	8.8%
	White Seabass	0.1%	22.1%	19.5%	14.8%	20.8%	12.8%	7.1%

Table A.5: Percentage Area of Total Recreational Fishing Grounds Affected by County for Channel Islands MPAs

		Channel Island MPAs																
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail
Santa Barbara	Dive			0.2%	0.0%	0.0%	3.4%		2.8%		1.6%						5.4%	3.7%
	Kayak			0.0%	0.0%		0.0%						0.0%			0.0%		
	Private Vessel	0.0%		1.2%	0.0%		0.0%		10.3%				0.0%			0.2%	0.6%	0.0%
Ventura	Dive	0.0%		14.9%	13.6%		7.2%		0.0%		14.2%	0.0%	0.0%				9.1%	13.3%
	Kayak	0.0%		0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%
	Private Vessel	6.3%	11.9%	7.9%	3.4%	0.0%	7.5%	0.0%	1.6%							0.0%	6.1%	4.7%
Los Angeles	Dive	0.0%	0.0%	0.6%	0.1%	0.0%	0.6%		0.0%		0.0%	0.0%	0.0%				4.4%	1.7%
	Kayak	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	4.8%	0.0%
	Private Vessel	0.0%	0.0%	0.1%	0.2%	0.0%	0.0%	0.0%	0.6%			0.5%	0.0%		0.0%	0.0%	0.4%	0.4%
Orange	Dive		0.0%	0.0%	0.0%	0.0%	0.0%		0.0%		0.0%	0.0%	0.0%				0.0%	0.0%
	Kayak	0.0%	0.0%	0.1%	0.0%		0.0%	0.0%	0.0%			0.0%	0.0%	0.0%		0.0%	0.0%	0.0%
	Private Vessel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			0.0%	0.0%		0.0%	0.0%	0.5%	0.0%
San Diego	Dive	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%		0.0%	0.0%	0.0%				0.0%	0.0%
	Kayak	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	0.0%	0.0%
	Private Vessel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			0.0%	0.0%		0.0%	0.0%	0.0%	0.0%

Table A.6: Percentage Area of Total Recreational Fishing Grounds Affected by County for Lapis Proposal 1

		Lapis Proposal 1																
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail
Santa Barbara	Dive			6.6%	10.9%	16.3%	7.4%		7.6%		6.6%						7.3%	3.7%
	Kayak			7.5%	7.3%		0.0%						1.0%			4.9%		
	Private Vessel	0.3%		7.9%	5.6%		0.0%		11.6%				0.0%			0.4%	3.9%	0.3%
Ventura	Dive	0.0%		18.7%	16.9%		13.4%		12.2%		16.9%	0.0%	13.8%				11.4%	14.3%
	Kayak	14.3%		10.7%	14.2%		16.2%	13.0%	13.5%	0.0%		18.8%	22.1%	6.5%		3.2%	12.4%	28.5%
	Private Vessel	8.7%	11.9%	9.3%	9.0%	0.0%	9.0%	0.0%	3.6%							24.8%	7.7%	10.7%
Los Angeles	Dive	15.8%	27.3%	14.6%	13.5%	50.6%	10.4%		28.2%		19.9%	26.3%	25.7%				12.2%	15.2%
	Kayak	12.0%	21.1%	6.5%	8.9%		9.7%	14.4%	17.5%	0.0%		9.9%	8.7%	24.0%		8.9%	12.6%	16.5%
	Private Vessel	2.9%	3.3%	4.7%	5.1%	0.0%	5.1%	1.3%	8.4%			5.5%	5.1%		2.6%	6.6%	7.8%	4.1%
Orange	Dive		5.3%	4.9%	16.6%	55.6%	8.1%		7.7%		8.1%	13.1%	25.4%				11.4%	6.0%
	Kayak	3.4%	14.9%	4.3%	10.2%		9.1%	3.2%	27.9%			15.9%	9.8%	19.2%		4.6%	15.9%	19.7%
	Private Vessel	1.5%	1.9%	4.9%	5.3%	10.3%	6.3%	1.6%	11.2%			19.0%	4.7%		0.0%	1.3%	7.2%	1.6%
San Diego	Dive	11.3%	14.2%	18.2%	21.6%	25.1%	9.9%		42.5%		30.7%	36.6%	15.9%				8.7%	6.8%
	Kayak	32.3%	20.9%	14.8%	24.5%		17.8%	29.9%	21.5%	21.6%		29.3%	16.8%	44.4%		29.0%	16.8%	12.9%
	Private Vessel	4.2%	2.9%	9.1%	11.4%	15.9%	11.8%	9.9%	8.5%			8.5%	8.0%		12.1%	1.5%	8.8%	1.7%

Table A.7: Percentage Area of Total Recreational Fishing Grounds Affected by County for Lapis Proposal 2

		Lapis Proposal 2																
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail
Santa Barbara	Dive			6.6%	10.9%	16.3%	7.4%		7.6%		6.6%						8.2%	3.7%
	Kayak			9.3%	4.3%		0.0%						1.0%			3.7%		
	Private Vessel	0.3%		7.9%	5.6%		0.0%		11.6%				0.0%			0.4%	3.9%	0.3%
Ventura	Dive	0.0%		19.4%	17.2%		14.6%		18.9%		15.9%	9.1%	18.1%				13.2%	14.3%
	Kayak	15.6%		14.5%	20.9%		14.6%	19.8%	21.9%	0.0%		18.2%	17.3%	20.3%		13.6%	20.1%	8.5%
	Private Vessel	6.5%	11.9%	10.5%	6.6%	0.0%	8.6%	3.3%	3.6%							0.0%	7.9%	9.5%
Los Angeles	Dive	1.9%	4.1%	14.4%	13.2%	50.6%	11.5%		28.2%		18.3%	25.4%	28.5%				15.1%	11.5%
	Kayak	8.5%	12.4%	6.7%	9.7%		10.9%	6.0%	15.6%	0.0%		14.6%	9.0%	2.6%		4.6%	12.0%	13.8%
	Private Vessel	5.8%	5.8%	6.0%	6.4%	0.0%	8.1%	4.2%	8.1%			6.9%	6.6%		8.2%	8.0%	7.3%	4.6%
Orange	Dive		5.3%	4.8%	15.0%	54.0%	8.2%		7.3%		6.6%	13.6%	21.8%				9.1%	4.6%
	Kayak	2.5%	7.0%	4.7%	8.4%		10.3%	3.2%	22.1%			14.9%	6.2%	9.6%		3.9%	13.8%	14.2%
	Private Vessel	5.1%	2.3%	5.2%	4.9%	8.3%	6.0%	1.2%	9.7%			18.9%	4.8%		0.0%	1.5%	7.0%	2.0%
San Diego	Dive	9.9%	11.7%	11.8%	12.9%	0.4%	7.4%		16.7%		14.0%	16.4%	9.2%				8.4%	8.8%
	Kayak	14.7%	8.9%	9.6%	12.2%		12.9%	16.5%	6.5%	5.0%		20.5%	11.5%	15.8%		20.6%	11.9%	9.4%
	Private Vessel	3.6%	2.4%	7.2%	9.3%	11.2%	9.5%	7.9%	7.5%			8.1%	6.0%		18.4%	1.2%	7.5%	1.6%

Table A.8: Percentage Area of Total Recreational Fishing Grounds Affected by County for Opal Proposal

		Opal Proposal																	
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail	
Santa Barbara	Dive			8.4%	13.1%	17.8%	8.4%		10.3%		6.6%						8.5%	3.7%	
	Kayak			6.4%	5.3%		0.0%						1.0%			4.0%			
	Private Vessel	0.4%		9.6%	6.8%		0.0%		12.3%				0.0%			0.4%	4.8%	0.3%	
Ventura	Dive	0.0%		17.4%	15.6%		12.5%		9.8%		16.2%	0.0%	10.5%					12.6%	15.2%
	Kayak	9.3%		8.4%	15.9%		12.0%	10.9%	11.6%	0.0%		13.8%	17.5%	3.4%		0.0%	9.9%	10.4%	
	Private Vessel	6.8%	11.9%	9.3%	9.6%	0.0%	9.0%	0.0%	5.2%							20.7%	9.1%	19.7%	
Los Angeles	Dive	11.4%	27.9%	14.4%	9.5%	13.5%	7.9%		40.5%		26.8%	19.6%	17.3%					14.6%	17.0%
	Kayak	9.2%	4.0%	3.5%	4.6%		3.8%	3.9%	11.8%	0.0%		9.5%	2.6%	6.5%		5.8%	10.2%	17.1%	
	Private Vessel	5.1%	4.4%	4.6%	5.0%	30.0%	5.6%	1.9%	8.4%			5.8%	1.7%		0.3%	7.8%	7.6%	5.5%	
Orange	Dive		15.9%	3.5%	10.6%	8.7%	6.1%		5.0%		6.6%	7.2%	8.0%					8.4%	4.9%
	Kayak	2.0%	4.2%	2.4%	4.7%		2.7%	0.0%	7.8%			3.1%	1.6%	10.5%		3.2%	4.8%	16.5%	
	Private Vessel	5.0%	3.3%	3.7%	3.2%	18.1%	3.9%	1.1%	9.6%			21.4%	2.7%		0.0%	1.6%	6.0%	2.5%	
San Diego	Dive	13.4%	15.8%	16.1%	18.2%	6.7%	10.4%		20.7%		19.8%	23.4%	13.3%					11.2%	11.2%
	Kayak	18.7%	10.4%	12.6%	15.7%		17.9%	20.9%	5.8%	14.7%		28.9%	13.9%	17.8%		25.5%	15.4%	12.0%	
	Private Vessel	4.5%	3.2%	7.1%	9.8%	10.5%	10.4%	10.4%	9.6%			9.2%	6.3%		23.8%	1.5%	9.4%	2.4%	

Table A.9: Percentage Area of Total Recreational Fishing Grounds Affected by County for Topaz Proposal

		Topaz Proposal																	
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail	
Santa Barbara	Dive			9.9%	15.9%	25.5%	10.0%		12.2%		8.4%							9.1%	3.7%
	Kayak			11.2%	13.7%		0.0%						27.6%			3.4%			
	Private Vessel	0.5%		12.0%	10.7%		5.7%		11.9%				0.0%			0.8%	5.9%	0.3%	
Ventura	Dive	3.7%		16.8%	19.1%		15.3%		12.8%		17.9%	33.6%	18.4%					12.3%	14.6%
	Kayak	12.9%		10.9%	17.3%		22.9%	13.4%	13.8%	16.8%		20.0%	22.7%	8.9%		1.8%	13.0%	23.5%	
	Private Vessel	7.6%	11.9%	12.2%	16.1%	0.0%	35.1%	0.0%	3.6%							17.2%	12.1%	11.9%	
Los Angeles	Dive	16.6%	39.4%	15.8%	14.1%	48.8%	11.0%		28.2%		24.3%	27.6%	26.2%					12.5%	15.4%
	Kayak	9.5%	9.3%	5.7%	6.6%		10.4%	9.9%	15.0%	0.0%		10.9%	4.8%	16.4%		7.4%	11.6%	17.5%	
	Private Vessel	4.4%	4.6%	4.8%	5.3%	7.9%	5.1%	1.8%	8.0%			5.3%	3.0%		6.8%	8.1%	6.8%	5.0%	
Orange	Dive		13.8%	4.8%	15.1%	66.7%	8.2%		6.8%		7.0%	13.1%	17.3%					9.5%	5.6%
	Kayak	6.8%	7.7%	3.8%	5.8%		9.7%	2.4%	21.4%			16.9%	4.1%	14.4%		10.0%	10.4%	20.8%	
	Private Vessel	5.3%	2.8%	4.6%	3.7%	13.9%	5.8%	3.0%	10.6%			26.6%	3.4%		0.0%	2.4%	6.5%	2.1%	
San Diego	Dive	13.9%	16.1%	20.4%	13.0%	18.8%	8.0%		20.7%		21.5%	24.4%	9.1%					9.9%	9.9%
	Kayak	17.0%	13.8%	15.1%	20.7%		22.3%	22.1%	8.9%	15.2%		32.6%	15.3%	18.9%		25.2%	14.2%	13.1%	
	Private Vessel	4.1%	2.6%	8.6%	8.7%	15.7%	11.2%	9.8%	8.1%			7.6%	5.6%		18.1%	1.2%	8.3%	1.8%	

Table A.10: Percentage Area of Total Recreational Fishing Grounds Affected by County for External Proposal A

		External Proposal A																
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail
Santa Barbara	Dive			5.2%	8.6%	12.6%	6.4%		6.4%		6.6%						9.0%	3.7%
	Kayak			10.9%	6.1%		0.0%						1.0%			3.7%		
	Private Vessel	0.3%		6.5%	4.5%		0.0%		10.9%				0.0%			0.4%	3.4%	0.2%
Ventura	Dive	0.0%		20.6%	18.1%		15.6%		22.8%		16.8%	28.2%	22.0%				13.3%	13.8%
	Kayak	18.9%		17.5%	21.8%		19.1%	24.0%	26.5%	0.0%		23.4%	24.2%	24.7%		13.6%	24.4%	2.7%
	Private Vessel	6.5%	11.9%	11.1%	7.4%	0.0%	16.5%	2.6%	2.2%							0.0%	8.8%	5.6%
Los Angeles	Dive	25.7%	40.3%	10.1%	10.4%	16.5%	8.2%		20.7%		18.3%	12.8%	21.9%				17.8%	13.8%
	Kayak	8.5%	3.7%	5.6%	7.1%		10.1%	6.0%	19.6%	0.0%		15.0%	6.8%	2.6%		4.5%	10.4%	11.4%
	Private Vessel	5.5%	5.5%	6.2%	6.7%	0.0%	6.4%	4.1%	7.1%			5.8%	4.3%		11.2%	7.7%	6.0%	4.1%
Orange	Dive		5.3%	2.4%	6.2%	7.9%	4.4%		3.8%		4.8%	6.4%	5.1%				7.0%	4.0%
	Kayak	1.7%	2.3%	2.5%	2.0%		9.3%	0.0%	8.1%			2.7%	1.5%	10.8%		2.3%	4.6%	11.4%
	Private Vessel	4.9%	2.5%	3.2%	2.8%	2.7%	3.7%	0.9%	6.4%			16.9%	2.1%		0.0%	1.3%	4.7%	1.6%
San Diego	Dive	6.3%	7.9%	11.3%	6.7%	0.4%	6.1%		14.8%		12.3%	15.5%	4.5%				6.1%	6.1%
	Kayak	10.1%	8.6%	9.3%	12.3%		12.2%	10.2%	6.1%	6.9%		19.5%	11.0%	14.4%		18.1%	10.0%	7.8%
	Private Vessel	3.0%	1.5%	4.4%	5.8%	5.0%	4.3%	6.3%	6.4%			5.9%	3.7%		9.6%	0.8%	6.4%	1.3%

Table A.11: Percentage Area of Total Recreational Fishing Grounds Affected by County for External Proposal B

		External Proposal B																
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail
Santa Barbara	Dive			3.8%	5.9%	0.0%	6.2%		6.9%		11.0%						8.9%	3.7%
	Kayak			8.6%	9.8%		0.0%						0.0%			0.1%		
	Private Vessel	0.3%		5.1%	5.9%		0.0%		10.3%				0.0%			0.2%	3.7%	0.2%
Ventura	Dive	0.0%		19.7%	16.9%		13.6%		17.7%		17.7%	30.0%	17.7%				11.7%	13.8%
	Kayak	10.5%		12.3%	20.1%		13.9%	11.3%	11.7%	4.3%		17.3%	24.4%	13.8%		0.0%	16.4%	1.8%
	Private Vessel	6.5%	11.9%	9.3%	5.7%	0.0%	15.6%	9.0%	1.6%							0.0%	7.5%	5.6%
Los Angeles	Dive	0.0%	0.0%	13.0%	8.6%	22.4%	6.9%		0.0%		20.7%	17.1%	25.2%				11.3%	8.6%
	Kayak	0.0%	2.4%	4.2%	6.4%		5.8%	0.2%	13.2%	0.0%		19.0%	2.6%	0.0%		0.4%	9.3%	9.0%
	Private Vessel	0.5%	0.5%	4.9%	5.4%	0.0%	5.2%	1.5%	6.2%			5.2%	2.4%		12.1%	0.5%	3.9%	2.6%
Orange	Dive		5.0%	3.1%	7.6%	9.5%	5.9%		4.6%		4.2%	7.3%	5.7%				4.7%	2.5%
	Kayak	1.6%	1.9%	2.8%	3.2%		5.1%	0.0%	9.2%			3.0%	1.8%	10.4%		2.2%	5.0%	9.6%
	Private Vessel	0.7%	1.2%	3.6%	3.2%	6.6%	3.7%	1.0%	8.6%			16.0%	2.7%		0.0%	0.2%	4.0%	1.0%
San Diego	Dive	5.7%	7.2%	10.6%	6.0%	0.4%	5.8%		14.8%		11.6%	13.8%	3.9%				5.3%	5.3%
	Kayak	9.9%	6.2%	9.0%	11.7%		11.6%	10.2%	6.1%	4.3%		17.6%	10.6%	9.6%		16.4%	6.7%	6.4%
	Private Vessel	2.3%	0.8%	4.9%	6.7%	7.1%	6.0%	5.7%	7.8%			6.4%	3.9%		9.6%	0.2%	4.1%	1.1%

Table A.12: Percentage Value of Total Recreational Fishing Grounds Affected by County for Channel Islands MPAs

		Channel Islands MPAs																
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail
Santa Barbara	Dive			0.0%	0.0%	0.0%	0.4%		0.7%		4.3%						0.9%	0.6%
	Kayak			0.0%	0.0%		0.0%						0.0%			0.0%		
	Private Vessel	0.0%		0.4%	0.0%		0.0%		6.7%				0.0%			0.1%	0.2%	0.0%
Ventura	Dive	0.0%		0.2%	0.2%		1.5%		0.0%		3.7%	0.0%	0.0%				1.1%	12.0%
	Kayak	0.0%		0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%
	Private Vessel	6.2%	1.2%	1.0%	2.6%	0.0%	4.6%	0.0%	4.4%							0.0%	2.3%	11.0%
Los Angeles	Dive	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%		0.0%		0.0%	0.0%	0.0%				0.6%	1.0%
	Kayak	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	1.5%	0.0%
	Private Vessel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%			0.4%	0.0%		0.0%	0.0%	0.1%	0.1%
Orange	Dive		0.0%	0.0%	0.0%	0.0%	0.0%		0.0%		0.0%	0.0%	0.0%				0.0%	0.0%
	Kayak	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%			0.0%	0.0%	0.0%		0.0%	0.0%	0.0%
	Private Vessel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			0.0%	0.0%		0.0%	0.0%	0.1%	0.0%
San Diego	Dive	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%		0.0%	0.0%	0.0%				0.0%	0.0%
	Kayak	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%
	Private Vessel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			0.0%	0.0%		0.0%	0.0%	0.0%	0.0%

Table A.13: Percentage Value of Total Recreational Fishing Grounds Affected by County for Lapis Proposal 1

		Lapis Proposal 1																
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail
Santa Barbara	Dive			9.1%	13.5%	18.3%	6.1%		6.7%		9.2%						4.8%	0.6%
	Kayak			14.0%	7.0%		0.0%						1.4%			4.5%		
	Private Vessel	0.1%		9.1%	7.3%		0.0%		8.4%				0.0%			0.1%	4.1%	0.0%
Ventura	Dive	0.0%		24.3%	19.2%		17.6%		12.8%		15.6%	0.0%	13.8%				6.3%	13.5%
	Kayak	14.8%		20.2%	22.0%		15.9%	19.7%	20.1%	0.0%		33.3%	27.3%	6.5%		3.9%	17.8%	24.1%
	Private Vessel	10.7%	1.2%	2.1%	8.2%	0.0%	6.5%	0.0%	8.7%							24.8%	4.8%	16.2%
Los Angeles	Dive	22.4%	16.3%	14.4%	19.0%	83.8%	12.3%		28.2%		5.6%	25.3%	16.6%				11.8%	14.4%
	Kayak	13.2%	19.6%	8.8%	15.5%		17.2%	17.8%	26.1%	0.0%		17.5%	6.8%	24.0%		11.2%	16.4%	17.9%
	Private Vessel	2.5%	2.3%	2.6%	5.0%	0.0%	7.6%	0.9%	9.1%			7.1%	0.9%		3.1%	9.0%	10.7%	5.8%
Orange	Dive		7.0%	23.5%	74.7%	77.4%	24.2%		17.6%		12.1%	58.4%	79.2%				19.8%	13.8%
	Kayak	2.1%	22.2%	13.9%	24.9%		29.4%	4.8%	37.5%			36.1%	27.1%	15.2%		9.8%	34.2%	25.0%
	Private Vessel	2.5%	3.6%	4.2%	12.0%	8.2%	15.2%	3.2%	10.4%			20.7%	5.3%		0.0%	3.7%	12.1%	2.7%
San Diego	Dive	29.3%	52.7%	42.4%	54.4%	50.4%	33.5%		41.1%		38.1%	56.3%	36.1%				31.5%	17.9%
	Kayak	49.3%	50.2%	30.8%	52.0%		39.4%	41.0%	39.5%	61.8%		58.4%	45.4%	34.9%		32.7%	49.5%	41.1%
	Private Vessel	11.2%	8.2%	9.3%	26.0%	19.4%	18.4%	20.9%	10.7%			17.3%	8.2%		7.4%	1.9%	20.5%	5.2%

Table A.14: Percentage Value of Total Recreational Fishing Grounds Affected by County for Lapis Proposal 2

		Lapis Proposal 2																	
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail	
Santa Barbara	Dive			9.1%	13.5%	18.3%	6.1%		6.7%		9.2%							5.2%	0.6%
	Kayak			11.6%	1.4%		0.0%						1.4%			7.2%			
	Private Vessel	0.1%		9.1%	7.3%		0.0%		8.4%				0.0%			0.1%	4.1%	0.0%	
Ventura	Dive	0.0%		8.6%	10.1%		8.8%		8.3%		11.7%	6.8%	18.1%					13.8%	13.5%
	Kayak	14.9%		13.5%	16.3%		14.5%	13.9%	10.2%	0.0%		5.3%	15.7%	20.3%		17.1%	14.6%	11.0%	
	Private Vessel	6.4%	1.2%	3.3%	5.2%	0.0%	6.0%	3.3%	8.7%							0.0%	4.9%	13.8%	
Los Angeles	Dive	3.1%	22.4%	15.5%	17.7%	82.0%	11.8%		28.2%		29.6%	30.5%	11.4%					6.6%	11.4%
	Kayak	7.6%	6.9%	5.9%	14.4%		6.8%	5.2%	6.5%	0.0%		5.2%	5.1%	2.6%		3.8%	12.0%	12.1%	
	Private Vessel	5.5%	7.0%	5.1%	6.6%	0.0%	10.6%	3.2%	8.5%			9.8%	1.9%		7.3%	9.7%	10.4%	5.9%	
Orange	Dive		7.0%	19.4%	66.4%	75.2%	21.9%		17.1%		11.0%	54.1%	71.4%					16.3%	13.1%
	Kayak	1.7%	13.0%	12.9%	20.8%		30.1%	4.8%	31.5%			34.4%	23.0%	5.9%		8.0%	31.9%	9.6%	
	Private Vessel	4.9%	4.3%	4.2%	10.8%	5.3%	13.4%	2.3%	9.4%			20.4%	4.3%		0.0%	6.1%	12.0%	3.0%	
San Diego	Dive	10.2%	3.9%	9.2%	9.5%	0.2%	9.5%		13.2%		7.6%	10.6%	8.4%					8.0%	7.7%
	Kayak	4.6%	3.5%	9.0%	6.6%		9.5%	7.9%	4.0%	3.2%		10.7%	9.7%	6.3%		12.7%	4.2%	5.4%	
	Private Vessel	6.2%	4.5%	6.4%	11.3%	17.6%	10.1%	9.3%	6.5%			8.2%	6.2%		18.8%	2.0%	8.4%	2.8%	

Table A.15: Percentage Value of Total Recreational Fishing Grounds Affected by County for Opal Proposal

		Opal Proposal																	
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail	
Santa Barbara	Dive			11.3%	14.5%	20.9%	7.4%		9.6%		9.2%							5.9%	0.6%
	Kayak			10.3%	3.1%		0.0%						1.4%			2.6%			
	Private Vessel	0.1%		11.0%	8.4%		0.0%		8.8%				0.0%			0.1%	5.1%	0.0%	
Ventura	Dive	0.0%		18.1%	13.8%		12.7%		10.6%		13.0%	0.0%	10.5%					9.0%	15.5%
	Kayak	9.1%		15.2%	15.3%		11.7%	15.6%	16.4%	0.0%		14.4%	17.7%	3.4%		0.0%	11.1%	12.0%	
	Private Vessel	6.8%	1.2%	2.1%	7.7%	0.0%	6.5%	0.0%	11.8%							20.7%	7.4%	19.9%	
Los Angeles	Dive	21.5%	53.8%	11.7%	11.4%	17.1%	9.4%		40.5%		38.1%	17.8%	10.1%					15.6%	18.6%
	Kayak	6.7%	4.6%	3.2%	8.1%		6.5%	4.8%	11.3%	0.0%		6.3%	1.8%	6.5%		5.3%	10.9%	15.3%	
	Private Vessel	2.7%	4.7%	1.7%	5.2%	9.7%	7.2%	0.9%	8.0%			9.2%	0.2%		0.4%	7.9%	14.7%	10.6%	
Orange	Dive		19.7%	8.6%	18.0%	12.2%	13.8%		6.5%		10.1%	15.2%	19.3%					16.6%	15.2%
	Kayak	0.6%	8.9%	2.4%	4.0%		3.5%	0.0%	4.7%			5.6%	3.5%	5.9%		6.6%	3.5%	10.9%	
	Private Vessel	4.6%	5.2%	2.0%	5.2%	17.6%	7.3%	1.9%	10.3%			28.1%	1.2%		0.0%	6.3%	17.0%	4.9%	
San Diego	Dive	15.4%	7.6%	16.7%	18.2%	21.0%	17.6%		16.7%		14.2%	21.6%	15.3%					12.8%	10.9%
	Kayak	6.4%	4.9%	11.6%	10.7%		15.4%	9.1%	2.9%	10.7%		18.4%	12.0%	5.7%		13.7%	6.2%	7.4%	
	Private Vessel	8.0%	5.7%	8.0%	16.1%	8.6%	13.0%	13.0%	8.0%			11.2%	8.0%		23.9%	2.4%	11.2%	4.0%	

Table A.16: Percentage Value of Total Recreational Fishing Grounds Affected by County for Topaz Proposal

		Topaz Proposal																	
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail	
Santa Barbara	Dive			15.5%	21.8%	25.2%	11.3%		13.2%		10.9%							10.5%	0.6%
	Kayak			12.0%	13.2%		0.0%						18.9%			3.1%			
	Private Vessel	0.4%		18.2%	15.9%		7.0%		9.2%				0.0%			0.3%	7.2%	0.0%	
Ventura	Dive	1.8%		13.9%	36.4%		22.1%		11.9%		19.4%	37.8%	18.4%					7.4%	14.0%
	Kayak	13.1%		21.0%	25.6%		24.1%	19.7%	27.4%	7.1%		31.4%	25.6%	8.9%		2.2%	16.2%	21.8%	
	Private Vessel	8.0%	1.2%	6.5%	11.2%	0.0%	38.5%	0.0%	8.7%							17.2%	8.8%	15.4%	
Los Angeles	Dive	29.8%	60.6%	14.0%	17.3%	84.4%	12.9%		28.2%		19.4%	28.0%	19.9%					13.5%	16.4%
	Kayak	9.5%	9.9%	6.1%	12.9%		15.3%	12.2%	16.7%	0.0%		11.0%	3.7%	16.4%		8.6%	15.8%	18.1%	
	Private Vessel	3.1%	4.8%	2.1%	5.5%	2.5%	7.8%	1.0%	8.5%			8.4%	0.4%		6.1%	10.4%	11.7%	7.6%	
Orange	Dive		17.2%	19.8%	57.9%	80.8%	23.8%		15.4%		10.4%	55.2%	48.5%					16.9%	13.5%
	Kayak	3.6%	14.5%	9.5%	9.1%		32.6%	1.7%	22.8%			36.6%	8.6%	9.3%		22.7%	10.0%	14.9%	
	Private Vessel	6.4%	5.4%	3.1%	7.1%	12.4%	13.9%	7.1%	10.3%			44.1%	2.3%		0.0%	8.6%	12.7%	3.8%	
San Diego	Dive	15.4%	10.9%	25.6%	21.8%	28.9%	16.1%		18.2%		19.1%	25.1%	17.4%					15.2%	11.3%
	Kayak	9.8%	8.0%	17.1%	15.6%		18.6%	10.5%	5.3%	12.4%		21.0%	14.5%	5.8%		15.3%	9.2%	10.0%	
	Private Vessel	6.7%	5.0%	8.4%	15.1%	23.7%	14.8%	13.9%	6.9%			9.7%	3.1%		26.6%	2.1%	10.8%	3.3%	

Table A.17: Percentage Value of Total Recreational Fishing Grounds Affected by County for External Proposal A

		External Proposal A																
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail
Santa Barbara	Dive			7.1%	11.6%	12.0%	4.8%		5.6%		9.2%						5.7%	0.6%
	Kayak			13.3%	2.6%		0.0%						1.4%			7.2%		
	Private Vessel	0.1%		7.4%	6.3%		0.0%		8.0%				0.0%			0.1%	3.6%	0.0%
Ventura	Dive	0.0%		15.9%	19.0%		14.2%		10.0%		15.1%	28.2%	22.0%				17.3%	12.4%
	Kayak	18.1%		19.2%	23.4%		19.1%	20.1%	18.0%	0.0%		6.8%	22.0%	24.7%		17.1%	17.7%	3.8%
	Private Vessel	6.4%	1.2%	4.3%	5.2%	0.0%	15.7%	2.6%	5.7%							0.0%	5.0%	11.5%
Los Angeles	Dive	33.3%	50.6%	14.3%	13.3%	16.3%	10.4%		20.7%		30.4%	23.5%	9.6%				15.5%	12.7%
	Kayak	7.6%	4.1%	3.6%	12.4%		6.4%	5.2%	8.5%	0.0%		5.3%	3.5%	2.6%		3.8%	8.9%	10.8%
	Private Vessel	5.5%	7.3%	5.2%	6.3%	0.0%	7.7%	3.2%	7.4%			8.8%	1.6%		9.7%	8.9%	5.9%	4.0%
Orange	Dive		7.0%	7.5%	15.5%	11.1%	10.3%		6.6%		7.4%	11.5%	15.7%				8.7%	8.6%
	Kayak	0.4%	5.6%	2.1%	3.2%		28.0%	0.0%	3.8%			4.9%	3.1%	7.2%		4.3%	3.4%	8.1%
	Private Vessel	4.5%	3.6%	1.4%	4.2%	1.4%	7.1%	1.6%	5.9%			18.0%	1.1%		0.0%	5.2%	4.4%	2.2%
San Diego	Dive	6.2%	2.6%	8.6%	8.5%	0.2%	9.2%		11.6%		6.6%	10.3%	5.9%				7.5%	4.6%
	Kayak	3.7%	3.0%	8.5%	6.5%		9.2%	6.0%	3.0%	4.1%		9.8%	8.9%	4.6%		11.9%	3.5%	4.2%
	Private Vessel	1.9%	1.4%	4.6%	9.8%	3.4%	7.2%	7.2%	7.6%			7.7%	2.0%		16.4%	1.7%	7.9%	1.3%

Table A.18: Percentage Value of Total Recreational Fishing Grounds Affected by County for External Proposal B

		External Proposal B																
County	Sector	Barracuda	Bonito	Ca. Halibut	Calico Bass	Croaker	Lobster	Mackerels	Rockfish	Rock Crab	Scallops	Sheephead	Sand Bass	Squid	Surf Perch	Thresher Shark	White Seabass	Yellowtail
Santa Barbara	Dive			5.7%	2.4%	0.0%	4.9%		7.9%		13.5%						6.1%	0.6%
	Kayak			7.3%	5.6%		0.0%						0.0%			0.0%		
	Private Vessel	0.1%		5.8%	6.8%		0.0%		6.7%				0.0%			0.1%	3.7%	0.0%
Ventura	Dive	0.0%		16.8%	19.7%		15.6%		7.8%		18.7%	33.7%	17.7%				8.5%	12.4%
	Kayak	10.1%		15.9%	23.4%		13.9%	16.1%	13.8%	1.8%		7.7%	22.1%	13.8%		0.0%	11.8%	3.1%
	Private Vessel	6.4%	1.2%	1.9%	4.0%	0.0%	14.5%	9.0%	4.4%							0.0%	3.5%	11.5%
Los Angeles	Dive	0.0%	0.0%	16.6%	12.3%	20.1%	11.2%		0.0%		32.0%	26.9%	11.1%				3.3%	8.1%
	Kayak	0.1%	2.6%	2.1%	10.8%		2.8%	0.2%	5.4%	0.0%		3.6%	1.0%	0.0%		0.3%	7.6%	8.1%
	Private Vessel	0.5%	1.0%	1.9%	5.4%	0.0%	5.2%	1.2%	6.4%			9.2%	0.5%		9.8%	0.7%	3.6%	3.6%
Orange	Dive		6.7%	8.6%	17.4%	13.3%	12.7%		7.5%		4.8%	13.2%	17.7%				7.2%	8.5%
	Kayak	0.4%	4.5%	2.6%	3.9%		5.3%	0.0%	4.1%			5.4%	3.5%	11.1%		4.0%	3.9%	7.0%
	Private Vessel	0.7%	0.8%	1.8%	4.9%	3.7%	6.1%	1.8%	8.5%			11.8%	1.3%		0.0%	0.7%	4.0%	1.6%
San Diego	Dive	5.8%	2.5%	7.9%	7.7%	0.2%	8.2%		11.6%		6.0%	8.8%	4.9%				5.7%	4.3%
	Kayak	3.7%	2.8%	8.3%	6.0%		7.8%	6.0%	3.0%	2.6%		9.5%	8.8%	4.2%		11.0%	2.7%	3.7%
	Private Vessel	1.4%	1.3%	4.5%	9.3%	8.2%	7.5%	6.7%	7.7%			7.6%	2.0%		16.4%	0.2%	3.9%	1.1%

Example of Why Potential Impact on Profit (as a %) Can Exceed 100%

Cases where the potential net economic impact of a given MPA proposal on a commercial fishery exceeds 100% are not mistakes. Rather, they are directly related to how we account for operating costs.

In an effort to alleviate concerns over why potential impact can exceed 100%, we provide the following example.

The potential impact of a given MPA proposal is the impact to the baseline gross economic revenue (BGER), also known as ex-vessel landing value for the fishery. Assume a hypothetical fishery for which BGER is \$196,774 and a given MPA proposal that has a 58% impact on that fishery. To estimate gross economic impact (GEI), we multiply BGER * 58%, which equals \$114,207. Then we calculate the potential gross economic revenue (GER) if the MPA proposal went into effect by subtracting the GEI from BGER. In this case, $GER = BGER - GEI = \$82,566$.

To determine net economic revenue (NER) (i.e., profit) prior to the MPA, we consider fishermen's costs. The total estimated cost for this hypothetical fishery is 66% of BGER, or $66\% * \$196,774 = \$130,362$. NER is calculated as BGER minus estimated costs, or $\$196,774 - \$130,362 = \$66,412$.

To determine NER (i.e., profit) post impact, we consider how the MPA proposal will affect fishermen's costs. Total costs are equal to fixed costs + variable costs. Fixed costs⁸, which are calculated as a percentage of BGER, will not change. In this case, fixed costs are 42% of BGER, or $42\% * \$196,774 = \$83,457$.

However, the MPA proposal will affect fishermen's variable costs because fishermen will no longer be able to fish in certain areas. Variable costs are broken out by crew (11%) and fuel (13%) and are based on GER after considering the impact of the MPA. In this case, variable costs = fuel ($11\% * \$82,566$) + crew ($13\% * \$82,566$) = \$19,682.

Therefore, NER (i.e., profit) after the MPA proposal = $GER - \text{fixed costs} - \text{variable costs} = \$82,566 - \$83,457 - \$19,683 = -\$20,572$.

Net economic impact (NEI) after the MPA proposal (i.e., change in profit) is calculated as $BNER - NER$. In this case, $\$66,411 - (-\$20,572) = \$86,983$. Finally, to estimate the % NEI we divide NEI by BNER, or $\$86,983 / \$66,412 = 130.9\%$. Because fishermen are likely to incur fixed costs regardless of the MPA proposal, the impact of the MPA on fishermen's profit exceeds 100%.

For additional details, please see Section 12 of the *SAT Draft Methods Used to Evaluate Marine Protected Area Proposals for the MLPA South Coast Region*.

⁸ We assume fixed costs to be anything other than crew and fuel (a bit of a simplifying assumption, but generally appropriate). Examples of fixed costs could be payment on a boat, docking/mooring fees, permit fees, gear costs, etc.