

The Potential Economic and Conservation Impacts of Proposed Marine Recreational Fishing Closures in Southern California

Prepared for the:

American Sportfishing Association

225 Reinekers Lane
Alexandria, Virginia 22314

By:

Southwick Associates, Inc.

Fernandina Beach, Florida



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Executive Summary

This study reports the economic impacts of sportfishing to Southern California, the potential economic losses if proposed sportfishing closures are instituted and the associated conservation funding impacts. A number of government data sources have been used to develop these estimates, and maps are provided highlighting the areas to be closed and how these would impact anglers.

The U.S. Department of Commerce's National Marine Fisheries Service (NMFS) reports 1.5 million people fish California's marine waters. NMFS reports these anglers spend over \$3.0 billion annually in the state. Over two-thirds of California's marine fishing occurs in the southern region (San Diego county up through Santa Barbara county) (CRFS, 2009). The economic impacts from all recreational fishing trips in Southern California's marine waters are substantial, and benefit a wide range of coastal businesses from marinas and boat dealers to restaurants and hotels:

Retail sales = \$2.1 billion (\$455 per fishing trip)

Jobs = 15,995 (every 172 fishing trips supports one new California job)

State and local tax revenues = \$257.4 million (\$57 per trip)

Total sales stimulated throughout California's economy as a result of marine sportfishing = \$2.5 billion (\$916 per trip)

The best way to express the economics of marine fishing in Southern California is, if all saltwater fishing ceased, and anglers did not spend their money elsewhere in California, California's economy would shrink by \$2.5 billion dollars, nearly 16,000 jobs would be lost, and state tax revenues would fall by over \$250 million.

Potential Economic Losses from Proposed Closed Areas

The Marine Life Protection Act (MLPA) process is proposing to close many areas of the coast to recreational fishing. Data provided by Ecotrust were combined with state and federal fisheries data sources to estimate the economic losses each closure would place on the California economy. See Table E-1 for the top level results. The extreme is Proposal 3 which would create 135 percent greater economic losses than the least harmful proposal, Proposal 2. However, Proposal 2 should not be considered harmless and could result in lost retail sales of up to \$136 million and eliminate nearly 870 jobs in California. State and local government could expect annual tax revenues to shrink by \$13.8 million. Combined with the recent economic downturn, closures would represent another stumbling block for California's economy and treasury.

***PLEASE NOTE:** Data were only available from the MLPA process to estimate the potential economic losses from 16 specific fish species. Information on the overall economic impact of recreational shellfish harvests and diving were not available. Therefore, the possible economic losses from restricting shellfish harvest and diving are not included here as the magnitude of these losses could be reasonably estimated within the limited time frame available. Readers should also note the economic impacts reported*

here are undercounted due to a lack of economic-related data from the MLPA process for specific and common species such as lingcod (for private boat fishing) and mackerel from party and charter boats. Impacts on shoreline fishing (pier, surf, docks) were not provided either. We make efforts to estimate impacts from lost shoreline fishing as this represents 76 percent of Southern California’s marine recreational fishing activity.

Table E-1: Potential Annual Economic Losses per Proposal

Type of Trip:	Expenditures	Jobs	Total Sales	Value Added	State & Local Tax Revenues
Proposal 1	\$176,394,807	1,379	\$216,237,216	\$112,293,982	\$21,996,432
Proposal 2	\$110,707,610	866	\$135,820,104	\$70,548,023	\$13,805,239
Proposal 3	\$260,409,731	2,029	\$318,624,474	\$165,354,173	\$32,473,094

The losses presented in Table E-1 represent the possible losses from each proposal. Recognizing anglers’ largest expenditures are for charter fees and boat-related costs, services which are normally provided by independent businesses, a disproportionate share of recreational fishing closures will be borne by California’s small businesses. Recognizing the “double whammy” from the recent economic downturn, and the difficulty small businesses have accessing capital, opportunities to migrate to other business activities are very limited if not completely unavailable.

Please note that, in all three proposals, shoreline anglers are expected to be impacted the most. Shoreline anglers are generally lower income than boat-based anglers.

Wildlife Viewing and Other Activities Are Not Equal Economic Substitutes for Fishing

An argument is often made that, in areas closed to fishing, wildlife viewing and non-fishing kayaking would replace lost angler dollars. While wildlife viewing is a worthwhile and positive activity, the economic impacts are not equal:

- The U.S. Fish and Wildlife Service provides comparisons between sportfishing and wildlife viewing. In 2006, the average California angler spent \$1,396 annually for travel and equipment. The average wildlife viewer spent \$641 annually for travel and equipment. To maintain economic impacts, more than two new wildlife viewers will be needed to replace each lost angler. Considering there are currently no road blocks to wildlife viewing in California, creating new wildlife viewers may be a difficult proposition.
- Based on information from the Outdoor Industries Association, nearly four times more wildlife viewers are needed to replace the travel-related dollars injected into the local economy annually by one average angler (See Appendix B).
- Considering the additional equipment required to fish compared to wildlife viewing and kayaking (costlier boats, fuel, fishing tackle, electronics, bait, trailers, etc.), anglers spend more in the local economy. (Appendix B).
- There are 39 percent more anglers in the U.S. than kayakers (Outdoor Industries Foundation, 2006). Replacing anglers with non-fishing kayakers will be difficult.

Implications to Conservation:

Reducing sportfishing will have a direct impact on marine conservation. All conservation efforts require dollars. Anglers are the major source of aquatic conservation funding. There is an excise tax on sportfishing equipment and boat fuel with 100 percent of the revenues dedicated to fisheries and wetland conservation: the Federal Aid in Sport Fish Restoration Trust Fund. In fiscal year 2009, anglers provided California with over \$20 million in excise tax revenues for fisheries and marine habitat conservation, benefitting all marine and aquatic life.

In addition, anglers must purchase a license every year. This generates an even bigger source of revenue. In 2009, the State reported California's anglers paid \$60 million for sportfishing licenses. One hundred percent of these funds go to fisheries and habitat conservation in California. Any diversion of these funds to other purposes would disqualify the State from receiving its share of federal sport fish excise tax revenues.

Actions that reduce marine sportfishing would have a direct impact on conservation funding. Recognizing the State's limited abilities to replace any source of funding, imposing sportfishing restrictions would certainly reduce the \$80 million contributed by anglers annually for fisheries and habitat conservation.

Anglers Will Not Shift 100% of Their Fishing Effort to Other Areas:

Some anglers, after closures, will shift their fishing to other locations. How many will shift, and if they will fish as often, is unknown. Based on empirical data, overall fishing activity will decrease once areas are off limits to anglers. Any first year economics student knows when prices go up, demand goes down. If something costs more, less will be sold. This is true for fishing. In 2005, the American Sportfishing Association (ASA) analyzed years of fishing license data for approximately 35 states, including California. The purpose was to identify optimal license prices. The analysis showed that, for every \$1 increase in license prices, sales of annual saltwater licenses in California fall by 40,000 and 24,000 fewer 1-day licenses are sold. By requiring anglers to travel further, to put up with more crowding at the remaining places, or to receive a lesser quality experience while fishing secondary spots, closures represent a defacto price or cost increase. When the cost of fishing goes up, fewer people will fish. (Data source: <http://www.asafishing.org/asa/statistics/reports/fishornot.html>].

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Introduction

Marine recreational fishing remains an important activity for thousands of California residents and visitors. These individuals spend significant amounts of money pursuing their activity. These expenditures support many businesses along the California coast as well as inland. Many of these businesses are directly related to fishing such as party boats, marinas and tackle shops. However, many more businesses are supported by anglers including hotels, restaurants, general stores, and more.

This report was developed to help readers gain a better appreciation of marine recreational fishing's economic impacts (retail sales, jobs, tax revenues, etc.). These measures are not to be confused with economic values. Economic values measure the personal benefits derived by individuals from their sportfishing participation. While it is true that, if anglers did not fish, they might spend their dollars elsewhere, there is no guarantee these dollars would be spent in the same amounts nor would these dollars necessarily be spent among coastal businesses. Certainly, many coastal businesses now dependent on sportfishing would suffer to some minor or major extent as a result of reductions in sportfishing participation. This report serves to explain the statewide economic activity generated by anglers for their ocean sport fishing activities in Southern California and the potential economic losses from each proposed closure, and to explain the conservation losses that could accrue to California.

Potential Economic Losses from Proposed Recreational Fishing Closures

This section describes the data sources and methods used to estimate the economic impacts of marine recreational fishing in Southern California. Given only two weeks were permitted to review and analyze the proposed closure areas, only existing and readily available data were used in this analysis. The assumptions used in this analysis are explained throughout the text. The three major data sources used include the State's CRFS survey, Ecotrust's assessment of the percentage and value of fishing locations that would be lost, and the National Marine Fisheries Service's economic impact information for California.

Data Sources

Participation Estimates: CRFS

Participation is reported by the number of trips taken by marine recreational fishermen. Marine recreational fishing trips are estimated by the California Recreational Fisheries Survey (CRFS). CRFS, launched in January 2004, is a combination angler intercept and telephone survey that estimates trips taken and the number of fish caught by residents and nonresidents combined.

All participation estimates used in this analysis were obtained from the California Recreational Fisheries Survey (CRFS) website. This website can be accessed at <http://www.recfin.org/forms/est2004.html>. CRFS was created by the California Department of Fish and Game (DFG) and the Pacific States Marine Fisheries Commission (PSMFC) to provide better monthly estimates of fishing activity compared to previous federally-managed coastal fishing surveys. Marine fishing trips can be estimated according to a number of variables. These variables include trips targeting specific species, trips made by boat, shore, or man-made structures, numbers of fish caught, and more.

Trips data are provided for distinct regions within California. One region is the Southern California region. This regional aligns with boundaries as defined by the Marine Life Protection Act Initiative for Southern California and includes the counties of San Diego, Orange, Los Angeles, Ventura and Santa Barbara.

Data on the number of trips for specific species were obtained from the CRFS website. The species for which data were downloaded were those presented in the Ecotrust assessment of anglers' preferred fishing locations (described next). The specific variables entered into the CRFS website to obtain the number of trips were:

Coastal district: Southern California (San Diego through Santa Barbara)
Marine Areas: All

Fishing Mode: All fishing modes

Time Span: Jan-Dec, 2008

Results were the number of trips for each species, reported by fishing mode (man made, shore, charter/party boat or private boat). A summary of the results are presented in Tables 1 - 2.

Table 1: Total Marine Recreational Fishing Trips in California, by Mode:*

<u>mode</u>	<u>Number of trips (x 1,000)</u>	<u>Standard Error</u>
Man-made structure	1,930.97	2.13
Shore/surf	1,168.99	4.67
Charter or party boat	297.80	7.76
Private vessel	640.46	1.22
TOTAL	4,038.23	

* Actual trips only. No double-counting is associated with these figures, as encountered with species-specific trips estimates (described below).

Table 2: Total Marine Recreational Fishing Trips in Southern California (San Diego through Santa Barbara counties) by Mode:*

<u>Mode</u>	<u>Number of trips (x 1,000)</u>	<u>Standard Error</u>
Man-made structure	1,406.00	2.72
Shore/surf	681.54	5.79
Charter or party boat	236.80	8.88
Private vessel	429.66	1.54
TOTAL	2,754.00	

* Actual trips only. No double-counting is associated with these figures, as encountered with species-specific trips estimates (described below).

Data concerns existed. One problem was associated with double-counting. Based on anglers targeting multiple species per trip, it was not possible to acquire data explaining the percentage of marine trips that targeted specific species. To develop an idea of the percentage of trips attributable to specific species – a required necessity in this analysis – we prorated trips across species. The results, as presented in Table 3, report the percentage of trips in which specific species were caught. Necessary assumptions included:

- 1) The target species are roughly assumed to be those top species caught, based on anglers expecting to catch these and rig accordingly, and
- 2) The target species are the primary reason for anglers departing on their trips. Any action taken to reduce the trips targeting these species will result in some level of reduced fishing activity.

At some future date, data may come available about the percentage of all fishing trips *targeting* specific species. Until then, such assumptions will be necessary.

Table 3: Estimated Percent of Marine Fishing Trips by Species (% of all trips *by mode* are presented for Shore/Pier, Charter/Party and Private boat fishing; “Total” presents the percentage of ALL Southern California Marine trips assigned to that species).

	Estimated % of total SoCal trips per mode
Barracuda	
Shore/Pier	3.9%
Charter/party	6.1%
Private boat	6.7%
Total	5.0%
Bonito	
Shore/Pier	3.2%
Charter/party	4.9%
Private boat	5.5%
Total	4.1%
Ca. Halibut	
Shore/Pier	11.2%
Charter/party	5.2%
Private boat	7.3%
Total	9.2%
Calico Bass / Kelp bass	
Shore/Pier	9.4%
Charter/party	7.4%
Private boat	7.6%
Total	8.6%
Croaker	
Shore/Pier	13.7%
Charter/party	6.8%
Private boat	6.9%
Total	10.8%
Lingcod	
Shore/Pier	0.1%
Charter/party	7.2%
Private boat	5.4%
Total	2.6%
Mackerels	
Shore/Pier	12.3%
Charter/party	7.7%
Private boat	7.7%
Total	10.3%
Rockfish	
Shore/Pier	2.8%
Charter/party	8.2%

Private boat	7.0%
Total	4.7%
Scorpionfish	
Shore/Pier	4.4%
Charter/party	8.1%
Private boat	7.1%
Total	5.7%
Sheepshead	
Shore/Pier	2.0%
Charter/party	7.4%
Private boat	5.9%
Total	3.8%
Sand bass	
Shore/Pier	10.9%
Charter/party	6.9%
Private boat	7.5%
Total	9.4%
Surf perch	
Shore/Pier	14.7%
Charter/party	5.9%
Private boat	4.8%
Total	10.7%
Thresher shark	
Shore/Pier	9.2%
Charter/party	5.1%
Private boat	6.9%
Total	8.0%
Whitefish	
Shore/Pier	n/a
Charter/party	7.0%
Private boat	4.9%
Total	2.4%
White Seabass	
Shore/Pier	2.2%
Charter/party	3.8%
Private boat	5.9%
Total	3.4%
Yellowtail	
Shore/Pier	0.1%
Charter/party	2.4%
Private boat	2.9%
Total	1.2%

Impacts on Fishing Areas Per Proposal: Ecotrust

Prior to public deliberations about which closure proposals to adopt, Ecotrust released results of surveys of recreational users and charter/party boat operators regarding the areas and value of referred fishing grounds that would be lost under each proposal. The detailed spreadsheets provided by Ecotrust listed results. For private boat and kayak fishing, losses were reported for selected species for each county and per mode. Totals for each species or each county or mode were not reported. Similar data were provided for CPFV (charter/partyboats) with no totals provided and results only listed by species and per port. Thus, to produce the data required to estimate losses imposed by the MLPA process, totals had to be generated.

Not all common or popular species were listed in the Ecotrust reports. Lingcod were not reported in the private vessel data, or leopard shark or scorpionfish. Croakers were not included with the charter/partyboat data, and other common species were missing, too. The small sample size in the Ecotrust work may have precluded collection of data for these species. The reason for their exclusion was not known.

To determine the entire percentage of anglers' fishing areas impacted by each proposal, we looked at the proportion of total trips represented by each species. We listed the trips per species, then totaled all trips. To combine trips by mode (private vessel, charter/party, kayak), we used weighted averages based on the number of trips per mode reported in CRFS. Adjustments were needed to align the Ecotrust and CRFS data. For example, Ecotrust collected and reported angling activity on a different basis than previous and ongoing efforts by various fisheries agencies (dive, kayak, private vessel, CPFV (charter/party) and shoreline/man-made). Private vessel and kayak data were combined, with 90% of weighting given to private vessel data based on various industry data resources. Other adjustments were made to combine Ecotrust's county-level data with CRFS "San Diego-Los Angeles" and "Ventura-Santa Barbara" data using reports from Southern California recreational industry representatives about the typical distribution of all recreational fishing activity across these counties.

With anglers typically catching many species per trip, and reporting multiple target species per trip, the results actually overstate the true number of fishing trips. That is fine for this purpose. By looking at the proportion of these total trips attributable to each species, the results indicate the relative importance of each species to marine fishing. These results are then used as an estimate of the total trips attributable to each species, as listed in Table 4. Please note the data in Tables 1 and 2 were not based on trips per species. The results are accurate as double-counting did not occur based on how the data were downloaded (species-specific data were not requested, only total trips regardless of species were requested).

PLEASE NOTE: Ecotrust's recreational angler survey efforts did not capture enough responses from surf, pier and other shoreline anglers to permit results. However,

according to CRFS, shoreline-based (non-boat) trips represent 76 percent of all marine fishing activity in Southern California. Ignoring the impacts of MLPA decisions on shoreline anglers would be a major disservice to California. To provide some level of information about these impacts, based on the propensity of kayak anglers to launch from shore – areas where people also frequently fish – Ecotrust’s estimated impacts to kayak anglers are used as substitute data regarding impacts to shoreline anglers. If additional research is conducted regarding the MLPA process, the process would be negligent if investigations were not conducted into shoreline-based anglers.

Table 4: Potential Lost Area and Value per Species, for each Closure Proposal

	PROPOSAL 1		PROPOSAL 2		PROPOSAL 3	
	% Area	% Value	% Area	% Value	% Area	% Value
Barracuda						
Shore/Pier	10.9%	8.6%	9.0%	3.5%	18.7%	22.5%
Charter/party	14.0%	12.4%	11.7%	9.3%	18.1%	16.2%
Private boat	5.0%	6.2%	4.3%	4.8%	6.2%	8.3%
Bonito						
Shore/Pier	9.1%	12.5%	6.1%	3.8%	20.9%	27.6%
Charter/party	<i>Economic data were not collected for this species by the MLPA process</i>					
Private boat	4.0%	5.3%	3.2%	3.7%	5.6%	7.3%
Ca. Halibut						
Shore/Pier	9.7%	13.9%	7.0%	7.4%	10.2%	20.2%
Charter/party	12.2%	13.0%	9.6%	8.5%	15.4%	15.9%
Private boat	6.7%	7.0%	4.9%	3.9%	7.6%	8.7%
Calico Bass / Kelp bass						
Shore/Pier	11.2%	14.2%	8.4%	6.5%	16.4%	28.2%
Charter/party	14.2%	15.8%	11.2%	11.3%	18.7%	20.0%
Private boat	7.1%	11.7%	5.3%	7.5%	9.4%	15.8%
Croaker						
Shore/Pier	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Charter/party	<i>Economic data were not collected for this species by the MLPA process</i>					
Private boat	6.6%	4.4%	3.6%	3.2%	10.4%	8.4%
Lingcod						
Shore/Pier	<i>Economic data were not collected for this species by the MLPA process</i>					
Charter/party	11.3%	8.6%	10.2%	5.6%	14.0%	19.5%
Private boat	<i>Economic data were not collected for this species by the MLPA process</i>					
Mackerels						
Shore/Pier	11.3%	8.6%	10.2%	5.6%	14.0%	19.5%
Charter/party	<i>Economic data were not collected for this species by the MLPA process</i>					
Private boat	5.7%	7.6%	4.4%	5.1%	5.7%	9.0%
Rockfish						

Shore/Pier	13.8%	13.8%	8.1%	5.2%	26.4%	31.8%
Charter/party	25.4%	18.8%	23.0%	15.5%	26.5%	21.4%
Private boat	9.2%	9.6%	7.2%	7.2%	12.1%	12.8%
Ca. Scorpionfish						
Shore/Pier	<i>Economic data were not collected for this species by the MLPA process</i>					
Charter/party	16.3%	12.8%	12.7%	8.8%	19.6%	14.2%
Private boat	<i>Economic data were not collected for this species by the MLPA process</i>					
Ca. Sheepshead						
Shore/Pier	21.2%	25.4%	14.3%	8.3%	18.3%	28.0%
Charter/party	19.2%	23.7%	12.8%	12.6%	20.0%	23.2%
Private boat	11.9%	17.0%	9.5%	11.0%	13.4%	21.8%
Sand bass						
Shore/Pier	11.3%	13.9%	7.8%	6.8%	12.9%	23.7%
Charter/party	10.9%	9.2%	8.5%	5.9%	15.2%	12.1%
Private boat	4.4%	4.1%	3.1%	1.8%	6.0%	6.9%
Surf perch						
Shore/Pier	<i>Economic data were not collected for this species by the MLPA process</i>					
Charter/party	<i>Economic data were not collected for this species by the MLPA process</i>					
Private boat	7.2%	9.1%	4.4%	7.6%	7.1%	4.8%
Shark*						
Shore/Pier	14.1%	11.7%	12.0%	8.4%	16.9%	25.2%
Charter/party	1.2%	2.1%	0.01%	1.1%	2.3%	3.9%
Private boat	3.7%	4.7%	4.4%	5.1%	6.1%	10.1%
Whitefish						
Shore/Pier	<i>not a common shoreline species</i>					
Charter/party	19.6%	23.2%	15.9%	16.8%	23.1%	26.1%
Private boat	<i>Economic data were not collected for this species by the MLPA process</i>					
White Seabass						
Shore/Pier	10.9%	11.6%	8.1%	4.4%	15.5%	30.1%
Charter/party	17.5%	16.3%	12.8%	10.5%	22.5%	23.0%
Private boat	7.8%	11.2%	5.8%	5.6%	10.1%	20.6%
Yellowtail						
Shore/Pier	<i>not a common shoreline species</i>					
Charter/party	12.2%	12.4%	8.8%	5.4%	12.8%	25.1%
Private boat	3.1%	4.5%	2.3%	3.0%	4.1%	7.1%

* Shark was reported as thresher shark in the Ecotrust data. The thresher info was applied to all types of sharks to help account for their importance to local fisheries.

Expenditure and Economic Impact Estimates: NMFS

Expenditure data were obtained from “Fisheries Economics of the United States, 2006 - Economics and Sociocultural Status and Trends Series” released by the National Marine

Fisheries Service (NMFS). Data were provided for trip and equipment-specific expenditures and economic impacts. Information was separated into three categories: party/charter fishing, private/rental boat fishing and shore fishing (including piers and other man-made structures). The same information source provided estimates on the total California marine fishing trips. The former was divided by the latter to estimate the average impact and expenditure per trip.

The expenditures and impacts from NMFS were for 2006. Recognizing the level of statistical error associated with all the data sources used, updating the 2006 results to 2008 levels was not regarded as useful.

Economic impact information from NMFS were developed using the IMPLAN modeling system. The impacts reported by NMFS included:

- Angler expenditures: the total amount spent by anglers to go fishing, including travel and equipment expenses.
- Jobs: The total jobs supported in all sectors of the state economy as a result of anglers' expenditures.
- Sales: the total sales stimulated in all sectors of the state economy as a result of anglers' expenditures.
- Value-Added: the dollar value of products and services produced (such as fishing tackle) minus the dollar value of all materials and services purchased from other firms.

Not included in the NNFS results were tax revenues. Tax revenues were estimated using IMPLAN-derived tax estimates as reported in the American Sportfishing Association's (ASA) "Sportfishing in America" publication. This document provides tax impacts for California sportfishing, and was based on angler expenditures. A ratio was derived by comparing state and local tax revenues (\$160.8 million) to expenditures (\$1.29 billion) in the ASA report, and applying the resulting ratio (.1247, or 12.47 cents per angler dollar) to the NMFS angler expenditure estimates to arrive at tax impacts for marine sportfishing. The impacts and expenditure data are presented in Tables 5 through 7.

Table 5. Economic Impacts of Marine Recreational Fishing in California, 2006.

	<u>Expenditures</u>	<u>Jobs</u>	<u>Total Sales</u>	<u>Value Added</u>	<u>State & Local Tax Revenues</u>
Shorebased	\$1,004,154,913	7,792	\$1,220,575,982	\$632,433,758	\$125,218,118
Party/Charter	\$877,002,275	7,132	\$1,092,185,247	\$571,082,927	\$109,362,184
Private	\$1,145,071,812	8,530	\$1,386,414,772	\$714,800,315	\$142,790,455
TOTAL	\$3,026,229,000	23,454	\$3,699,176,000	\$1,918,317,000	\$377,370,756

Economic estimates specific for Southern California were developed by applying the proportion of California's total marine fishing trips that occur in Southern California to the economic impacts reported by NMFS, per the trips data reported in Tables 1 and 2. This was done for each mode and then summed to arrive at the final proportion. This

proportion was then applied to the economic impacts reported in Table 5. Table 6 presents the economic impacts from marine recreational fishing for Southern California.

Table 6. Economic Impacts of Marine Recreational Fishing in Southern California, 2006.

	<u>Expenditures</u>	<u>Jobs</u>	<u>Total Sales</u>	<u>Value Added</u>	<u>State & Local Tax Revenues</u>
Shorebased	\$676,204,553	5,247	\$821,943,931	\$425,885,071	\$84,322,708
Party/Charter	\$697,362,904	5,671	\$868,469,213	\$454,106,061	\$86,961,154
Private	\$768,182,970	5,722	\$930,090,328	\$479,530,998	\$95,792,416
TOTAL	\$2,063,833,599	15,995	\$2,522,771,316	\$1,308,257,597	\$257,360,050

Table 7. Per-Day Impacts for Southern California Marine Recreational Fishing

	<u>Expenditures</u>	<u>Jobs</u>	<u>Total Sales</u>	<u>Value Added</u>	<u>State & Local Tax Revenues</u>
Shorebased	\$221	0.0017	\$269	\$139	\$28
Party/Charter	\$1,349	0.0110	\$1,680	\$878	\$168
Private	\$798	0.0059	\$966	\$498	\$99
AVERAGE:	\$455	0.0035	\$556	\$288	\$57

Estimated Economics Losses from Proposed Closure Alternatives

The relative economic losses to recreational fishing between the three closure proposals were estimated by matching the average of lost fishing area and value to the marine recreational impacts reported by NMFS. This was done for each species. The areas and values lost to each proposal do not fully represent the level of sportfishing that would be lost under each proposal, but based on the lack of adequate data issued by the MLPA process and the assumptions listed in the Data Sources section, an average of the lost areas and values are used as a proxy of the percentage of trips that would be lost. The primary assumption is that anglers will reduce their fishing activity commensurate with the areas lost to fishing. If just one or two localized areas were closed to fishing, this assumption would not hold water. But given the magnitude of choice fishing areas proposed for closure, along with the earlier closures in the Channel Islands, and the increased costs and reduced benefits from fishing the remaining locations, this assumption is considered reasonable. If future research is conducted for the MLPA process, potential impacts on participation should be examined using standard stated preference methods.

The first step was to estimate the economic impacts per species. The percentage of total fishing activity assigned to each species and mode of fishing (Table 3) was applied to the total expenditures and impacts for Southern California (Table 6). The results estimate the expenditures and impacts associated with each species per mode. Details are presented in

Appendix A. Next, the results are multiplied by the amount of fishing expected to be lost per mode and species (Table 4). This is done for each proposal. The results are listed below in Table 8. The sum of the expected losses for each mode and proposal represents the total losses expected in California’s economy should the proposal be accepted and implemented.

Table 8. The Expected Harm to California’s Economy from Each Proposed Closure Alternative

	Proposal 1				
	Expenditures	Jobs	Total Sales	Value Added	State & Local Tax Revenues
Shore-based	\$ 57,087,116	443	\$ 69,390,850	\$ 35,954,432	\$ 7,118,763
Charter/Party	\$ 69,159,495	562	\$ 86,128,602	\$ 45,035,011	\$ 8,624,189
Private Boat	\$ 50,148,196	374	\$ 60,717,763	\$ 31,304,540	\$ 6,253,480
TOTAL	\$ 176,394,807	1,379	\$ 216,237,216	\$ 112,293,982	\$ 21,996,432

	Proposal 2				
	Expenditures	Jobs	Total Sales	Value Added	State & Local Tax Revenues
Shore-based	\$ 29,240,965	227	\$ 35,543,141	\$ 18,416,455	\$ 3,646,348
Charter/Party	\$ 47,401,429	385	\$ 59,031,935	\$ 30,866,678	\$ 5,910,958
Private Boat	\$ 34,065,216	254	\$ 41,245,027	\$ 21,264,891	\$ 4,247,932
TOTAL	\$ 110,707,610	866	\$ 135,820,104	\$ 70,548,023	\$ 13,805,239

	Proposal 3				
	Expenditures	Jobs	Total Sales	Value Added	State & Local Tax Revenues
Shore-based	\$ 108,964,436	846	\$ 132,449,060	\$ 68,627,646	\$ 13,587,865
Charter/Party	\$ 81,239,429	661	\$ 101,172,492	\$ 52,901,175	\$ 10,130,557
Private Boat	\$ 70,205,866	523	\$ 85,002,922	\$ 43,825,352	\$ 8,754,671
TOTAL	\$ 260,409,731	2,029	\$ 318,624,474	\$ 165,354,173	\$ 32,473,094

The results in Table 8 show that Proposal 3 presents the worst possible economic loss scenario. Up to 866 jobs, nearly \$14 million in state tax revenues and \$111 million in retail sales would be in jeopardy. Proposal 3 represents 135 percent greater losses than Proposal 2, the least damaging proposal. Proposal 1 represents 59 percent more economic losses than Proposal 2. All of these proposals present even greater threats to conservation and funding in California, with little chance of substitute revenue sources, as described in the next sections.

Wildlife Viewing and Other Recreational Activities Are Not Equal Economic Substitutes for Recreational Fishing

An argument is often made that, in areas closed to fishing, wildlife viewing and non-fishing kayaking would replace lost angler dollars. While wildlife viewing is a worthwhile and positive activity, the economic impacts are not equal:

- The U.S. Fish and Wildlife Service provides comparisons between sportfishing and wildlife viewing. In 2006, the average California angler spent \$1,396 annually for travel and equipment. The average wildlife viewer spent \$641 annually for travel and equipment. To maintain economic impacts, more than two new wildlife viewers will be needed to replace each lost angler. Considering there are currently no road blocks to wildlife viewing in California, creating new wildlife viewers may be a difficult proposition.
- Based on information from the Outdoor Industries Association, nearly four times more wildlife viewers are needed to replace the travel-related dollars injected into the local economy annually by one average angler (See Appendix B).
- Considering the additional equipment required to fish compared to wildlife viewing and kayaking (costlier boats, fuel, fishing tackle, electronics, bait, trailers, etc.), anglers spend more in the local economy. (Appendix B).
- There are 39 percent more anglers in the U.S. than kayakers (Outdoor Industries Foundation, 2006). Replacing anglers with non-fishing kayakers will be difficult.

Implications to Marine Conservation Funding

Reducing sportfishing will have a direct impact on marine conservation. All conservation efforts require dollars. Anglers are the major source of aquatic conservation funding. There is an excise tax on sportfishing equipment and boat fuel with 100 percent of the revenues dedicated to fisheries and wetland conservation: the Federal Aid in Sport Fish Restoration Trust Fund. In fiscal year 2009, anglers provided California with over \$20 million in excise tax revenues for fisheries and marine habitat conservation, benefitting all marine and aquatic life.

In addition, anglers must purchase a license every year. This generates an even bigger source of revenue. In 2009, the State reported California's anglers paid \$60 million for sportfishing licenses. One hundred percent of these funds go to fisheries and habitat conservation in California. Any diversion of these funds to other purposes would disqualify the State from receiving its share of federal sport fish excise tax revenues.

Actions that reduce marine sportfishing would have a direct impact on conservation funding. Recognizing the State's limited abilities to replace any source of funding, imposing sportfishing restrictions would certainly reduce the \$80 million contributed by anglers annually for fisheries and habitat conservation.

Anglers Will Not Shift 100% of Their Fishing Effort to Other Areas

Some anglers, after closures, will shift their fishing to other locations. How many will shift, and if they will fish as often, is unknown. Based on empirical data, overall fishing activity will decrease once areas are off limits to anglers. Any first year economics student knows when prices go up, demand goes down. If something costs more, less will be sold. This is true for fishing. In 2005, the American Sportfishing Association (ASA) analyzed years of fishing license data for approximately 35 states, including California. The purpose was to identify optimal license prices. The analysis showed that, for every \$1 increase in license prices, sales of annual saltwater licenses in California fall by 40,000 and 24,000 fewer 1-day licenses are sold. By requiring anglers to travel further, to put up with more crowding at the remaining places, or to receive a lesser quality experience while fishing secondary spots, closures represent a defacto price or cost increase. When the cost of fishing goes up, fewer people will fish. (Data source: <http://www.asafishing.org/asa/statistics/reports/fishornot.html>].

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Appendix A: Detailed Impacts Per Species and Mode for each Proposal

	PROPOSAL 1 (by % value lost)				PROPOSAL 2 (by % value lost)				PROPOSAL 3 (by % value lost)			
	Retail Sales (\$)	Jobs	Sales (\$)	Value Added (\$)	Retail Sales (\$)	Jobs	Sales	Value Added (\$)	Retail Sales (\$)	Jobs	Sales	Value Added (\$)
Barracuda												
Shore/Pier	2,265,627	18	2,753,927	1,426,930	937,801	7	1,139,921	590,643	5,943,409	46	7,224,366	3,743,260
Charter/Party	5,229,292	43	6,512,361	3,405,190	3,925,545	32	4,888,724	2,556,221	6,854,184	56	8,535,940	4,463,281
Private vessel	3,194,225	24	3,867,461	1,993,965	2,514,144	19	3,044,042	1,569,431	4,297,405	32	5,203,155	2,682,615
Bonito												
Shore/Pier	2,666,564	21	3,241,277	1,679,447	799,623	6	971,963	503,616	5,879,616	46	7,146,824	3,703,082
Charter/Party												
Private vessel	2,258,204	17	2,734,158	1,409,663	1,581,557	12	1,914,897	987,272	3,109,779	23	3,765,216	1,941,250
Ca. Halibut												
Shore/Pier	10,480,001	81	12,738,709	6,600,482	5,593,259	43	6,798,749	3,522,729	15,266,100	118	18,556,335	9,614,848
Charter/Party	4,699,301	38	5,852,330	3,060,072	3,075,201	25	3,829,738	2,002,497	5,751,699	47	7,162,947	3,745,369
Private vessel	3,883,991	29	4,702,607	2,424,545	2,196,008	16	2,658,853	1,370,837	4,879,478	36	5,907,909	3,045,968
Calico Bass / Kelp bass												
Shore/Pier	9,003,245	70	10,943,675	5,670,396	4,107,850	32	4,993,197	2,587,194	17,884,438	139	21,738,992	11,263,922
Charter/Party	8,145,624	66	10,144,250	5,304,236	5,820,252	47	7,248,321	3,790,009	10,286,498	84	12,810,413	6,698,322
Private vessel	6,794,068	51	8,226,031	4,241,133	4,355,242	32	5,273,181	2,718,719	9,207,920	69	11,148,642	5,747,957
Croaker												
Shore/Pier	0	0	0	0	0	0	0	0	0	0	0	0
Charter/Party												
Private vessel	2,368,304	18	2,867,464	1,478,392	1,682,527	13	2,037,148	1,050,302	4,491,512	33	5,438,173	2,803,784
Lingcod												
Charter/Party	197,790	2	240,419	124,572	160,515	1	195,110	101,095	226,366	2	275,154	142,569
Private vessel												
Mackerels												
Shore/Pier	7,162,447	56	8,706,138	4,511,030	4,611,463	36	5,605,352	2,904,378	16,179,448	126	19,666,533	10,190,090
Charter/Party												
Private vessel	4,449,951	33	5,387,852	2,777,840	3,014,495	22	3,649,851	1,881,770	5,297,414	39	6,413,932	3,306,861
Rockfish												
Shore/Pier	2,608,806	20	3,171,070	1,643,070	975,956	8	1,186,300	614,674	5,993,773	47	7,285,584	3,774,980
Charter/Party	10,762,567	88	13,403,291	7,008,326	8,888,508	72	11,069,410	5,787,984	12,227,451	99	15,227,602	7,962,224
Private vessel	5,174,720	39	6,265,378	3,230,270	3,899,151	29	4,720,962	2,434,008	6,916,367	52	8,374,106	4,317,477
Ca. Scorpionfish												
Shore/Pier												
Charter/Party	7,196,467	59	8,962,206	4,686,167	4,933,365	40	6,143,825	3,212,489	8,006,247	65	9,970,675	5,213,477
Private vessel												

Ca. Sheepshead												
Shore/Pier	3,388,168	26	4,118,404	2,133,925	1,101,977	9	1,339,481	694,044	3,736,027	29	4,541,236	2,353,013
Charter/Party	12,264,124	100	15,273,273	7,986,105	6,528,343	53	8,130,150	4,251,101	12,034,178	98	14,986,908	7,836,369
Private vessel	7,737,189	58	9,367,931	4,829,868	5,012,762	37	6,069,285	3,129,170	9,900,930	74	11,987,716	6,180,562
Sand bass												
Shore/Pier	10,201,172	79	12,399,786	6,424,871	5,016,507	39	6,097,693	3,159,481	17,439,129	135	21,197,708	10,983,459
Charter/Party	4,416,714	36	5,500,407	2,876,059	2,833,166	23	3,528,318	1,844,890	5,814,668	47	7,241,366	3,786,373
Private vessel	2,349,791	18	2,845,048	1,466,835	1,061,336	8	1,285,031	662,529	4,012,291	30	4,857,949	2,504,635
Surf perch												
Shore/Pier	0	0	0	0	0	0	0	0	0	0	0	0
Charter/Party												
Private vessel	3,359,943	25	4,068,107	2,097,413	2,811,040	21	3,403,513	1,754,765	1,772,116	13	2,145,619	1,106,227
Shark												
Shore/Pier	7,297,957	57	8,870,854	4,596,377	5,236,382	41	6,364,957	3,297,962	15,773,939	122	19,173,627	9,934,694
Charter/Party	744,422	6	927,075	484,750	380,804	3	474,239	247,971	1,367,186	11	1,702,642	890,279
Private vessel	2,511,024	19	3,040,264	1,567,483	2,724,298	20	3,298,490	1,700,618	5,408,470	40	6,548,395	3,376,186
Whitefish												
Charter/Party	11,395,266	93	14,191,230	7,420,325	8,240,132	67	10,261,946	5,365,777	12,801,105	104	15,942,009	8,335,774
White Seabass												
Shore/Pier	1,709,619	13	2,078,085	1,076,747	653,057	5	793,808	411,307	4,427,222	34	5,381,402	2,788,339
Charter/Party	4,305,719	35	5,362,178	2,803,781	2,776,112	23	3,457,265	1,807,738	6,096,212	50	7,591,990	3,969,708
Private vessel	5,084,644	38	6,156,317	3,174,041	2,560,108	19	3,099,693	1,598,123	9,353,838	70	11,325,316	5,839,046
Yellowtail												
Charter/Party	105,721	1	128,506	66,585	46,573	0	56,611	29,333	214,968	2	261,299	135,390
Private vessel	982,142	7	1,189,145	613,093	652,547	5	790,082	407,346	1,558,346	12	1,886,793	972,783

Appendix B: Relative Expenditures by Type of Recreation

(Source: Outdoor Industries Association, 2006; American Sportfishing Association, 2002)

	Travel \$\$	Equipment \$\$	Participants	Avg Travel \$\$/Year	Avg Gear \$\$/Yr
Fishing*	\$16,205,000,000	\$6,416,000,000	32,900,000	\$492.55	\$195.02
Paddle Sports*	\$11,778,000,000	\$2,668,000,000	23,596,000	\$499.15	\$113.07
Wildlife Viewing**	\$8,591,000,000	\$8,845,000,000	66,100,000	\$129.97	\$133.81

* Recognizing the varied data sources between these estimates and the relative sample sizes, statistical significance between the sportfishing and paddlesports estimates cannot be determined. It is unknown if these numbers are significantly different. The numbers used here are national numbers, and include all types of fishing and paddle sports. The relative cost differences to fish from boats along the California coast are expected to make the average fishing trip much more costly compared to the national average reported here. The cost to access the coast by kayaks may also differ from the national average.

** The fishing and wildlife viewing estimates come from the same source and are statistically different and can be compared.