Economic and Participation Impacts from a Ban on Traditional Fishing Tackle in California

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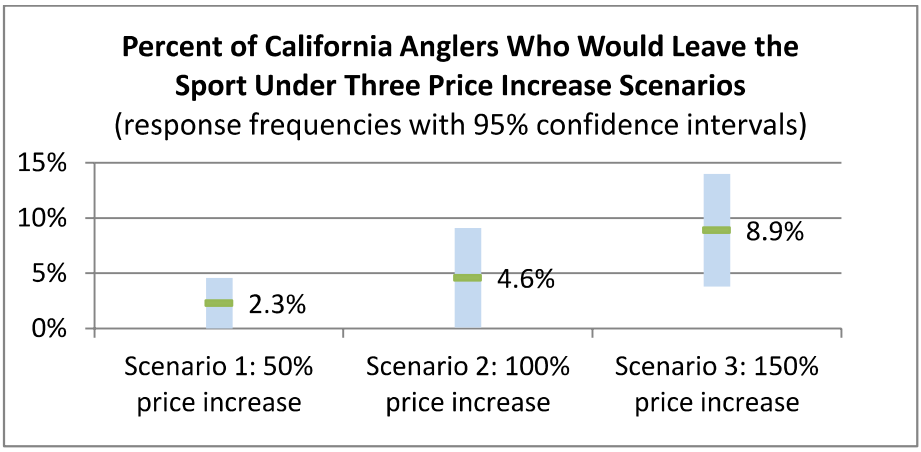
Executive Summary

This paper examines the economic issues associated with requiring California anglers to switch to alternative tackle composed of metals other than lead. The best available data sources were utilized and augmented with information obtained via surveys of California anglers. The results suggest that a ban on lead in fishing tackle would likely reduce angler activity in the state, which would in turn negatively impact the recreational fishing industry and the people who depend on sportfishing for a living, while reducing the conservation dollars available to California.

Key Results:

1. In a survey of 37 tackle manufacturers, all of which reported that at least one of their products contains lead, less than 25% said they could currently produce their product using a lead substitute. After looking at the price impact of producing non-lead lures, flies, and terminal tackle, manufactures indicated that their costs would double on average.

2. Based on a survey of California anglers, a typical angler spends about $80 dollars per year on lures, flies, and terminal tackle. If a lead ban were to cause prices for these items to double, the survey results suggest that 4.6% of anglers would leave the sport. This would correspond to a loss of nearly 80,000 anglers in California.



3. The California survey results also suggest that some of the anglers who would continue to fish would fish fewer days as a result of the increased prices. If the prices were to double, an estimated 18.1% of anglers would fish fewer days (21.4% fewer days on average). Combined with the lost anglers, this would reduce total angler days and expenditures in recreational fishing:
    a. 2 million fewer angler days
    b. $173 million in lost expenditures

4. The projected reduction in angler expenditures would cause economic hardship for individuals, businesses, and communities dependent upon recreational fishing. If prices for lures, flies and terminal tackle were to double, an estimated 76,987 anglers would leave the sport, and nearly

300,000 anglers would fish less. This reduction in angler participation would cause an estimated $173 million loss in expenditures from recreational fishing.

This $173 million in recreational fishing expenditures currently supports[1]:

a. 2,582 jobs
b. $113.6 million in salaries and wages
c. $24.2 million in state and local tax revenue
d. $26.4 million in federal tax revenue

5. Fish and wildlife conservation will suffer from the loss in recreational fishing expenditures. Angler's licenses and excise taxes are an important funding source for the California Department of Fish and Wildlife's conservation efforts. With a doubling of prices for lures, flies and terminal tackle, decreases in anglers and their spending will cause a direct loss of an estimated $2.94 million in revenue from reduced license sales and a $504,000 reduction in its allocation of excise tax revenues from the federal Wildlife Restoration Trust Fund. In total, California stands to lose nearly $3.5 million in conservation funding annually if the proposed fishing tackle restrictions go into effect, impacting all fish and wildlife, not just sportfish species.

Introduction

Since 2010, a number of efforts have been made nationally to ban lead in fishing tackle. Although these national efforts have been unsuccessful, individual states have advanced proposals, and in some cases taken action, to enforce lead bans for some types of fishing tackle (ASA, 2015). California is one of the states to have put forth a proposal to ban lead in fishing tackle. In September of 2014, fishing tackle was identified as one of a number of products of concern with respect to toxicity by the California Department of Toxic Substances Control (DTSC, 2014).

The American Sportfishing Association commissioned this study to quantify the effects a California ban on lead in fishing tackle would have on angler participation and economic activity in recreational fishing. Southwick Associates conducted surveys of tackle manufacturers and recreational anglers in California and combined these results with previous economic analyses of anglers in California to gauge the effects of the proposed ban.

Overview of Manufacturer and Angler Surveys

Two surveys were used to estimate impacts on angler participation and economic activity. First, a survey of 37 fishing tackle manufacturers was implemented to gauge manufacturers' ability to produce products that do not contain lead. Approximately 25% of these manufacturers indicated that it was

[1] It is important to note that economic losses in recreational fishing would coincide to a degree with gains in other sectors since anglers who leave the sport will shift some of their spending to other activities. Nevertheless, this shift would cause hardship for those economically dependent upon recreational fishing. In particular, if fewer out-of-state anglers choose to visit California, their spending that helps drive the state's economy would be lost.

technically feasible to currently switch to non-lead substitutes. These 25% indicated that the costs of producing non-lead substitutes would be substantially higher than producing products containing lead (an approximately 100% increase on average for lures, flies, and other terminal tackle). These manufacturer responses provided a basis for choosing price increase scenarios in the consumer survey.

A survey of California anglers was then implemented to gauge how fishing participation would change with a lead ban. The survey included 450 respondents from a sample of California recreational anglers[2]. These respondents were asked how their fishing behavior would change under three alternative price increase scenarios. These responses were used to estimate how the number of anglers and angler-days would change as a result of a price increase. Applying angler spending profiles to these participation numbers allows us to estimate the effect a lead ban would have on angler expenditures and economic impacts.

Impacts on Angler Participation and Economic Activity

To estimate how many anglers would leave the sport as a result of price increases, respondents of the California angler survey were asked the following question: "If the retail price of lures, flies and terminal tackle (sinkers and metal leaders primarily) increased by XX%, on average, would you continue to fish?" (where "XX%" is a placeholder for three price scenarios: +50%,+ 100%, and +150%). The responses to this question are included in Table 1. These results suggest that the number of anglers who will leave the sport would increase in tandem with progressively larger price increases; 2.3% would stop fishing with a 50% increase, 4.6% with a 100% increase, and 8.9% with a 150% increase.

Table 1. Change in angler participation under alternative pricing scenarios

	Pricing Scenario		
Response	50% increase	100% increase	150% increase
Continue to fish	83.1%	72.5%	68.8%
Discontinue fishing	2.3%	4.6%	8.9%
Don't know	14.7%	22.8%	22.3%
Sample Size	166	140	142

As a follow-up, those anglers who indicated they would continue to fish were asked if they would fish less as a result of the increase in tackle prices. Additionally, those who indicated they would fish less were asked to estimate how much less they were likely to fish. The average responses to these questions (aggregated across the three price change scenarios) are included in Table 2. These results suggest that 18.1% of anglers would fish less, and these anglers would fish 21.4% less on average. This would result in an overall reduction of 3.9% in angler days in California after a doubling in prices for lures, flies, and terminal tackle.

[2] To correct for potential response bias, the survey results were weighted based on four population characteristics (age, residency, avidity, and household income). The U.S. Fish and Wildlife Service's *2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation* was used to represent the target population (USFWS, 2011). Details of the weighting procedure are included in the appendix.

Table 2. Change in angler fishing days for those who would continue fishing

	% Change
Percent of Anglers who would fish less	18.1%
Average percent reduction in days fished	21.4%
Total percent reduction in days fished	3.9%

Reductions in angler participation would have consequences for the recreational fishing industry in California. With a price doubling, nearly 80,000 anglers who fish in California would leave the sport. Additionally, some anglers would fish less with price increases. By applying the average spending profile for an angler in California (ASA, 2013), we were able to estimate the lost direct spending from this reduction in angler participation (Table 3). The combined effect of lost angler participation would lead to an estimated loss of over $170 million in fishing expenditures with a doubling in prices for lures, flies, and terminal tackle.

Table 3. Lost angler participation and spending under alternative pricing scenarios

Pricing Scenario	Lost Anglers	Lost Days of Fishing*	Lost Direct Spending
50% Increase	38,494	1,563,942	$124,476,005
100% Increase	76,987	2,013,604	$172,942,704
150% Increase	148,953	3,564,168	$311,978,791

** Includes the combined effect of both anglers leaving the sport and anglers fishing less*

A loss in recreational angler expenditures would have ripple effects throughout the California economy as rounds of additional expenditures occur as a result of consumer expenditures (Table 4). This would reduce the economic output that occurs as a result of recreational fishing expenditures by an estimated $331 million with a price doubling.

Table 4. Lost economic contributions under alternative pricing scenarios from anglers who either stop fishing or reduce their fishing activity

Pricing Scenario	Total Output	Salaries and Wages	Jobs	State and Local Taxes	Federal Taxes
50% Increase	$238,159,445	$81,794,328	1,859	$17,387,457	$19,007,192
100% Increase	$330,890,588	$113,642,242	2,582	$24,157,538	$26,407,943
150% Increase	$596,907,780	$205,004,134	4,659	$43,578,823	$47,638,425

Impacts on Conservation

Table 5 shows the potential losses in conservation dollars. Assuming the minimum price of an annual fishing license ($38.50 license fee for residents)[3] multiplied by the expected loss of 76,987 anglers, the Department would lose at least $2.94 million in license revenue annually. Considering the State annually receives approximately $61.6 million in fishing license revenues[4] , this represents a 4.8% reduction. Based on an analysis of the 2015 Federal Aid in Sportfish Restoration Fund (SFR) apportionment data released by the U.S. Fish and Wildlife Service, we estimate that each angler in California accounted for approximately $6.55 of federal revenue to the Department. The loss of 76,987 anglers due to higher prices for lures, flies, and terminal tackle could result in the loss of approximately $504,266 in federal SFR funds[5]. In total, California stands to lose nearly $3.5 million in conservation funding annually if the propose fishing tackle restrictions go into effect.

Table 5. Loss in conservation dollars under alternative pricing scenarios

Pricing Scenario	Lost License Revenue	Lost Sportfish Restoration Funds
50% Increase	$1,482,002	$252,133
100% Increase	$2,964,005	$504,266
150% Increase	$5,734,705	$975,645

Conclusion

There are several important issues to consider when determining whether a ban on lead in fishing tackle is appropriate for California. One element to consider is how a lead ban would affect angler participation and their associated economic activity. Although these results cannot be a substitute for a full cost-benefit analysis of a lead ban, the losses measured here show that such a ban has the potential to reduce angler activity in the state. This lost angler activity would in turn cause economic hardship for individuals, businesses, and communities that benefit from recreational fishing. In addition, reduced fishing activities will reduce the State's ability to continue providing effective fish and wildlife management by reducing conservation funding by nearly $3.5 million annually. These trade-offs need to be carefully considered before making decisions that could negatively impact Californians and their fish and wildlife resources for decades to come.

[3] Per price information as presented on California Department of Fish and Wildlife website.
[4] Per USFWS annual state license sales data, covering calendar year 2013 receipts.
[5] Annual apportionments per state are based on a formula that take into account each state's land area and number of certified license holders.

References

ASA (2013). Sportfishing in America: An Economic Force For Conservation. American Sportfishing Association.

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DTSC (2014). Safer Consumer Products Draft Priority Product Work Plan. California Department of Toxic Substances Control. Downloaded April 2015 from http://www.dtsc.ca.gov/.

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Appendix – California Angler Survey Response and Weighting

The Survey of California Anglers included a set of 450 completed survey responses. In order to adjust for potential response bias, results were weighted to match population characteristics for California anglers. The 2011 US Fish and Wildlife Service National Survey of Fishing, Hunting, and Wildlife-Associated Recreation (USFWS, 2011) was used as a basis to represent the population of anglers in California. Four characteristics were included for weighting in order to match proportions between the survey of California anglers and the target population (Table A1).

The weights were calculated using a rake weighting procedure from the R package anesrake, which follows method specifications from the American National Election Studies. The final weights had an estimated design effect of 1.59, with a standard deviation of 0.77 (Table A2).

Table A1. Demographic Proportions for the Survey of California Anglers Compared to the Target Population (characterized using the USFWS National Survey)

	National Survey		CA Survey	
Response	%	N	%	N
Age				
18 to 24	8.7	20	12.1	54
25 to 34	20.5	37	36.3	162
35 to 44	22.2	60	22.2	99
45 to 54	20.1	61	14.6	65
55 to 64	16.3	47	9.4	42
65 and older	12.2	43	5.4	24
Subtotal	*100*	*268*	*100*	*446*
Residency				
Residents	94.2	214	89.3	382
Nonresidents	5.8	54	10.7	46
Subtotal	*100*	*268*	*100*	*428*
Avidity				
1-5 days	46.1	129	28.7	129
6-10 days	20.4	57	32.9	148
11-25 days	19.8	44	23.3	105
26-50 days	8.2	22	10.9	49
More than 50 days	5.5	16	4.2	19
Subtotal	*100*	*268*	*100*	*450*

Table A1 (Continued)

	National Survey		CA Survey	
Response	%	N	%	N
Household Income				
Under $10,000	4.9	8	3.2	14
$10,000 to $19,999	2.8	8	6.6	29
$20,000 to $29,999	6	13	4.3	19
$30,000 to $39,999	7.8	19	8.4	37
$40,000 to $49,999	11	18	10	44
$50,000 to $74,999	20.9	40	22.7	100
$75,000 to $99,999	14.2	46	23.2	102
$100,000 to $149,999	22	49	14.8	65
$150,000 or more	10.5	20	6.8	30
Subtotal	*100*	*221*	*100*	*440*

Table A2. Rake Weight Summary

count	mean	std deviation	min	max
450	1.00	0.77	0.16	4.92