

A REPORT ON THE ECONOMIC VALUE AND IMPACT OF THE MA RECREATIONAL WILD STRIPED BASS FISHERY

CONTENTS

1. REPORT SUMMARY
2. EXPLANATION OF FBJ ANALYSIS
3. SPREADSHEET WITH TABLES ONE, TWO AND THREE

REPORT SUMMARY **24 August 2016**

This most recent report identifies the economic value of the *recreational* wild striped bass (WSB) fishery in Massachusetts and compares it to the economic value of the *commercial* marine fishing industry in the Commonwealth. To ensure scientific accuracy and independent credibility, an earlier version of this analysis was reviewed by two senior fisheries economists at NOAA (Drs. Scott Steinback and Sabrina Lovell), co-authors of NOAA's September 2013 Report called "The Economic Contribution of Marine Angler Expenditures in the United States, 2011." Because of their generous contributions of time, insight and experience, it was possible to make this economic analysis even more detailed and relevant to the management decisions regarding our limited and valuable marine fisheries resources. I am most grateful for their professional input and guidance on this study.

The basic conclusions of this report show that the MA recreational WSB fishery is one of the most economically valuable in the state, rivaling the MA sea scallop fishery in its spending and economic impacts on the economy of the Commonwealth.

1. In its annual direct spending effects, the MA recreational WSB fishery is on average worth over **130** times the value of annual commercial WSB fishery landings in MA.
2. In its annual direct spending, the MA recreational WSB fishery totals, on average during the ten years from 2006 to 2015, over three and a half times (or **361.3%** of) the total landed value of MA commercial landings of finfish, and almost 90 percent (or **88.9%**) of the worth of the total annual landings of the entire MA seafood industry.

3. The average economic impacts¹ on sales, income and profits (“value added”) of the recreational WSB fishery are **88-112%** of those for the MA commercial finfish industry, making them approximately equal in their overall economic impact.²
4. The average economic impacts (in dollars) of the MA recreational WSB fishery are **22-26%** of those for the entire MA commercial seafood industry between 2006 and 2015.
5. Even in its currently depleted condition, the MA recreational WSB fishery rivals the MA sea scallop fishery in its economic contributions. The value of annual landings in MA of sea scallops have averaged just over **half** (or **52.2%** of) that of all MA seafood industry landings from 2006 to 2014, while the average annual worth of expenditures by WSB anglers is a larger percentage (**88.9%**) of the value of all MA seafood industry landings.
6. Were the MA recreational WSB fishery managed for recreational abundance as a game species, rather than being commercially overexploited for a minimum value, the economic significance of this fishery in both its spending and economic impacts (based on the peak year of WSB angling trips in 2007) would increase by the following amounts (based on NOAA data): **\$290 million** (or 93%) in direct spending; and 150% increases in the form of **3,964 more jobs**; **\$428 million** in more sales; **\$196 million** in more income; and **\$289 million** in more profits.

This recently completed analysis shows that the MA recreational WSB fishery, rather than being just a playground for the idle rich, is one of the most important MA marine fisheries in its economic impact. These results suggest that the MA recreational WSB fishery ought to be managed for its maximum economic contribution and value as an exclusively recreational fishery by declaring striped bass a game species in Massachusetts coastal waters. This strategic shift would allow this important fishery to be managed for better conservation and abundance, assuring us of a healthy recreational sport fishery in MA for many years to come. Massachusetts could once again become known as “the place to go” for great saltwater fishing as a worldwide tourist angling destination.

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¹ These impacts need to be compared separately, as they are not independent categories. Summing them up, as I did in the earlier report, involved some (unquantifiable) multiple counting due to these measurement overlaps.

² The jobs and sales impacts are for 2006 to 2014; the income impacts are measured from 2009-2014 and the profit (“value added”) impacts are from 2007-2014, due to unavailable data for the earlier years.

Explanation of FBJ Analysis of the Economics of the MA Striped Bass Fishery

Frederic B. Jennings Jr., Ph.D. – 24 August 2016

The attached analysis reveals the economic importance of the MA recreational wild striped bass (WSB) fishery. The spreadsheet has three tables showing that the direct annual expenditures of MA recreational WSB anglers averages almost **90%** of the value of annual commercial landings for *the entire MA seafood industry!* When the full economic impacts of these two sectors are compared, the average annual impact of the MA recreational WSB fishery on sales, income and profits is **22-26%** of the impact of the entire MA commercial seafood industry over the last 10 years. These results show that the MA recreational WSB fishery is by far one of the most important marine fisheries in this state, perhaps rivaled only by the MA scallop fishery in its full economic impact.

Table One shows the annual recreational catch of WSB in MA from 2006 to 2015 (with the percentage loss therein relative to the peak catch in 2006). The next three lines show the same annual data for recreational WSB fishing trips in MA (compared to the peak in 2007). Then angler expenditures per trip are shown for each year by mode, based on NOAA data from 2006 to 2013 (extrapolated for subsequent years using regional Consumer Price Index [CPI] data). The number of WSB trips are then applied to expenditures per trip to derive total angler expenditures per year by mode on WSB fishing trips and related equipment for 2006 to 2015. The next set of lines shows similar data for the economic impact of MA recreational WSB angling on jobs, sales, income and profits, while the final set of lines in **Table One** shows the economic value and impact per fish caught in each year. Finally, the last three columns in the lower half of **Table One** compare the actual 2015 annual WSB recreational spending and impact (per year and per fish) to what it would have been in 2015 with the number of WSB angling trips taken in 2007 and in 2014.

Table Two then summarizes this last comparison between 2015 actual data with what it would have been with the number of WSB trips in 2007 and 2014 to show implied losses in direct expenditures due to declining recreational WSB catches and trips of almost **\$300 million** in the 8 years since 2007, and of over **\$126 million** in just one single year alone. The annual losses in economic impact on jobs, sales, income and profits due to declining WSB trips for those years are much larger. Were the 2007 trips taken in 2015, the state would have seen a 93% increase in **3,964 more jobs**, and almost a 150% increase in sales of **\$428 million**; in income of **\$196 million**; and in profits of **\$289 million**. In just a single year, since 2014, the decline in the WSB recreational fishery due to fewer WSB trips has denied us a 40% spending boost of **\$126 million**; a 65% job increase of **1,744 jobs**; and a 65% rise in sales (**\$189 million**), incomes (**\$87 million**) and profits (**\$127 million**). These shortfalls translate directly into annual losses in tax revenues for the MA state economy.

Table Three compares the size and economic importance of the MA commercial and recreational WSB fisheries thus:

- (1) In dollar value, the recreational WSB fishery spends **132 times** the annual value of MA commercial WSB landings.
- (2) MA direct recreational WSB spending averages **3.6 times** the average value of MA commercial finfish landings.
- (3) The recreational WSB fishery spends an average of **89%** of the full value of MA commercial seafood landings.
- (4) The recreational WSB fishery is worth **87.6%** of the entire MA finfish industry in its impact on sales; for income, it is worth **1% more** than the finfish industry's impact; and its profit impact is **12% higher** than that for all finfish.
- (5) The sales and income impact of the MA recreational WSB fishery is worth **22%** of that of the entire MA seafood industry, while the MA recreational WSB fishery's profit impact is worth **26%** of that of the MA seafood industry.

BOTTOM LINE: The spending effects and full economic impacts of the *MA recreational WSB fishery* – with respect to its role in the state's economy (and thus on jobs and taxable revenues) – makes it one of our most important fisheries. With a healthy WSB fishery – managed for conservation and abundance – the economic impact of the MA recreational WSB fishery would double or more, growing to more than half the economic impact of the entire MA seafood industry.

The relative economic value and impact of the *MA commercial WSB fishery* is quite trivial when compared with the value of the *MA recreational WSB fishery*, with a negligible economic contribution to our state's economy. Making WSB a gamefish, and ending the wasteful commercial harvest of this valuable sport fish, should have a major positive impact on the MA state economy by allowing the WSB fishery to recover from its currently depleted state, with a potential economic impact of far more than \$500 million per year (as suggested in **Table Two**). We need to rethink our approach to the management of this extremely valuable fishery in the Commonwealth of Massachusetts.

Respectfully submitted,

Frederic B. Jennings Jr., Ph.D.

TABLE ONE: REVENUE IMPACT OF DECLINING WILD STRIPED BASS RECREATIONAL FISHING TRIPS COMPARED TO THE COMMERCIAL FISHERY IN MA FROM 2006 TO 2015

	Year:	2006	2007	2008	2009	2010	2011
Recreational Catch of WSB in MA, 2000-2015		8,124,766	5,646,880	4,027,374	2,627,003	2,012,483	1,228,699
% of WSB Caught relative to Peak Year in 2006		100.0%	69.5%	49.6%	32.3%	24.8%	15.1%
% of WSB Catch Shortfall relative to Peak in 2006		0.0%	30.5%	50.4%	67.7%	75.2%	84.9%
Recreational WSB Fishing Trips in MA, 2000-2015		2,816,805	3,014,182	2,829,096	2,157,200	1,967,823	1,560,356
% of MA WSB Trips relative to Peak Year in 2007		93.5%	100.0%	93.9%	71.6%	65.3%	51.8%
% of MA WSB Trip Shortfall relative to Peak in 2007		6.5%	0.0%	6.1%	28.4%	34.7%	48.2%
CPI data for Boston - Brockton area (1984=100)		223.1	227.4	235.4	233.8	237.4	243.9
RECREATIONAL ANGLER EXPENDITURES PER TRIP	Year:	2006	2007	2008	2009	2010	2011
Recreational Shore Fishing Expenditures per trip per year		\$77.33	\$78.36	\$74.02	\$79.47	\$76.97	\$52.69
Recreational Pvt Boat Fishing Expenditures per trip per year		\$30.25	\$30.25	\$31.64	\$34.29	\$34.35	\$58.85
Recreational For-Hire Fishing Expenditures per trip per year		<u>\$149.65</u>	<u>\$151.45</u>	<u>\$139.27</u>	<u>\$147.13</u>	<u>\$152.46</u>	<u>\$274.06</u>
Total Recreational Direct Trip Expenditures per trip per year		<u>\$56.19</u>	<u>\$56.66</u>	<u>\$55.78</u>	<u>\$61.13</u>	<u>\$54.07</u>	<u>\$70.48</u>
Recreational Durable Equipment Expenses per trip per year		<u>\$112.26</u>	<u>\$110.52</u>	<u>\$111.37</u>	<u>\$121.71</u>	<u>\$125.66</u>	<u>\$186.15</u>
Total Recreational Trip and Equipment Expenditures per trip per year:		<u>\$168.44</u>	<u>\$167.18</u>	<u>\$167.16</u>	<u>\$182.84</u>	<u>\$179.73</u>	<u>\$256.63</u>
Average of above (assumes 50% durable eqpt expenses scaled upward)		\$112.31	\$111.92	\$111.47	\$121.99	\$116.90	\$163.55
RECREATIONAL ANGLING ECONOMIC IMPACTS PER TRIP							
Employment Impacts per Recreational Trip by Mode							
Employment Impacts per Trip of Shore Fishing Trips by year	0.0011	0.0011	0.0010	0.0011	0.0011	0.0006	0.0006
Employment Impacts per Trip of Private Boat Fishing Trips by year	0.0003	0.0003	0.0003	0.0003	0.0003	0.0005	0.0005
Employment Impacts per Trip of For-Hire Fishing Trips by Year	0.0023	0.0024	0.0022	0.0023	0.0024	0.0039	0.0039
Employment Impacts per Trip of Durable Eqpt Purchases by Year	0.0006	0.0006	0.0006	0.0007	0.0007	0.0016	0.0016
Total Employment Impacts per Recreational Angling Trip:	0.0013	0.0013	0.0013	0.0014	0.0013	0.0023	0.0023
Sales Impacts per Recreational Trip by Mode							
Sales Impacts per Trip of Shore Fishing Trips by year	\$111.03	\$112.51	\$106.28	\$114.10	\$110.51	\$76.57	\$76.57
Sales Impacts per Trip of Private Boat Fishing Trips by year	\$33.83	\$33.83	\$35.38	\$38.35	\$38.42	\$66.80	\$66.80
Sales Impacts per Trip of For-Hire Fishing Trips by Year	\$226.01	\$228.73	\$210.32	\$222.19	\$230.24	\$450.51	\$450.51
Sales Impacts per Trip of Durable Eqpt Purchases by Year	<u>\$99.07</u>	<u>\$97.54</u>	<u>\$98.29</u>	<u>\$107.42</u>	<u>\$110.91</u>	<u>\$187.02</u>	<u>\$187.02</u>
Total Sales Impacts per Recreational Angling Trip:	<u>\$175.25</u>	<u>\$174.39</u>	<u>\$173.78</u>	<u>\$190.40</u>	<u>\$182.33</u>	<u>\$284.19</u>	<u>\$284.19</u>
Income Impacts per Recreational Trip by Mode							
Income Impacts per Trip of Shore Fishing Trips by year	n.a.	n.a.	n.a.	\$40.84	\$39.55	\$27.87	\$27.87
Income Impacts per Trip of Private Boat Fishing Trips by year	n.a.	n.a.	n.a.	\$14.04	\$14.07	\$24.68	\$24.68
Income Impacts per Trip of For-Hire Fishing Trips by Year	n.a.	n.a.	n.a.	\$77.90	\$80.72	\$216.52	\$216.52
Income Impacts per Trip of Durable Eqpt Purchases by Year	n.a.	n.a.	n.a.	<u>\$36.64</u>	<u>\$37.83</u>	<u>\$84.80</u>	<u>\$84.80</u>
Total Income Impacts per Recreational Angling Trip:	n.a.	n.a.	n.a.	<u>\$66.39</u>	<u>\$63.51</u>	<u>\$123.87</u>	<u>\$123.87</u>
Value Added Impacts per Recreational Trip by Mode							
Value Added Impacts per Trip of Shore Fishing Trips by year	\$65.74	\$66.61	\$62.93	\$67.56	\$65.43	\$45.17	\$45.17
Value Added Impacts per Trip of Private Boat Fishing Trips by year	\$20.74	\$20.74	\$21.69	\$23.51	\$23.55	\$40.88	\$40.88
Value Added Impacts per Trip of For-Hire Fishing Trips by Year	\$134.84	\$136.46	\$125.48	\$132.57	\$137.36	\$317.87	\$317.87
Value Added Impacts per Trip of Durable Eqpt Purchases by Year	<u>\$49.79</u>	<u>\$49.02</u>	<u>\$49.39</u>	<u>\$53.98</u>	<u>\$55.73</u>	<u>\$130.72</u>	<u>\$130.72</u>
Total Value Added Impacts per Recreational Angling Trip:	<u>\$95.32</u>	<u>\$94.94</u>	<u>\$94.53</u>	<u>\$103.59</u>	<u>\$98.56</u>	<u>\$192.24</u>	<u>\$192.24</u>
TOTAL RECREATIONAL WSB ANGLER EXPENDITURES PER YEAR							
Recreational Shore Fishing WSB Trip Expenditures	\$88,956,652	\$103,050,215	\$90,406,147	\$75,976,979	\$51,118,139	\$38,924,693	\$38,924,693
Recreational Private Boat WSB Trip Expenditures	\$48,502,022	\$49,316,302	\$47,971,391	\$38,134,851	\$43,695,473	\$44,775,621	\$44,775,621
Recreational For-Hire WSB Trip Expenditures	<u>\$9,438,590</u>	<u>\$10,444,595</u>	<u>\$12,743,113</u>	<u>\$13,093,925</u>	<u>\$4,835,781</u>	<u>\$16,639,503</u>	<u>\$16,639,503</u>
Recreational Direct WSB Trip Expenditures per year	<u>\$146,897,264</u>	<u>\$162,811,112</u>	<u>\$151,120,651</u>	<u>\$127,205,754</u>	<u>\$99,649,394</u>	<u>\$100,339,817</u>	<u>\$100,339,817</u>
Recreational Durable Equipment WSB Expenditures per year	<u>\$316,204,302</u>	<u>\$333,138,180</u>	<u>\$315,085,092</u>	<u>\$262,549,561</u>	<u>\$247,286,393</u>	<u>\$290,464,255</u>	<u>\$290,464,255</u>
Recreational Total WSB Expenditures per year:	<u>\$463,101,566</u>	<u>\$495,949,291</u>	<u>\$466,205,750</u>	<u>\$389,755,315</u>	<u>\$346,935,787</u>	<u>\$390,804,072</u>	<u>\$390,804,072</u>
TOTAL RECREATIONAL WSB ANGLING ECONOMIC IMPACTS PER YEAR							
Employment Impacts of Recreational WSB Fishery by Mode							
Employment Impacts of Shore WSB Fishing Trips by year	1,238	1,435	1,258	1,058	711	449	449
Employment Impacts of Private Boat WSB Fishing Trips by year	464	472	458	365	417	351	351
Employment Impacts of For-Hire WSB Fishing Trips by Year	148	164	200	205	76	234	234
Employment Impacts of Durable Eqpt Purchases for WSB by Year	<u>1,695</u>	<u>1,786</u>	<u>1,689</u>	<u>1,407</u>	<u>1,326</u>	<u>2,450</u>	<u>2,450</u>
Total Employment Impacts of Recreational WSB Fishery:	<u>3,545</u>	<u>3,856</u>	<u>3,606</u>	<u>3,035</u>	<u>2,531</u>	<u>3,485</u>	<u>3,485</u>
Sales Impacts of Recreational WSB Fishery by Mode							
Sales Impacts of Shore WSB Fishing Trips by Year (\$000)	\$127,722,642	\$147,957,887	\$129,803,551	\$109,086,751	\$73,394,550	\$56,568,706	\$56,568,706
Sales Impacts of Private Boat WSB Fishing Trips by Year (\$000)	\$54,241,745	\$55,152,602	\$53,648,041	\$42,648,516	\$48,866,626	\$50,827,253	\$50,827,253
Sales Impacts of For-Hire WSB Fishing Trips by Year (\$000)	\$14,254,789	\$15,774,114	\$19,245,053	\$19,774,597	\$7,303,105	\$27,352,651	\$27,352,651
Sales Impacts of Durable Eqpt Purchases for WSB by Year (\$000)	<u>\$279,071,458</u>	<u>\$294,016,811</u>	<u>\$278,083,532</u>	<u>\$231,717,351</u>	<u>\$218,246,758</u>	<u>\$291,821,920</u>	<u>\$291,821,920</u>
Total Sales Impacts of Recreational WSB Fishery:	<u>\$475,290,633</u>	<u>\$512,901,413</u>	<u>\$480,780,177</u>	<u>\$403,227,215</u>	<u>\$347,811,038</u>	<u>\$426,570,531</u>	<u>\$426,570,531</u>
Income Impacts of Recreational WSB Fishery by Mode							
Income Impacts of Shore WSB Fishing Trips by Year (\$000)	n.a.	n.a.	n.a.	\$39,040,284	\$26,266,875	\$20,593,642	\$20,593,642
Income Impacts of Private Boat WSB Fishing Trips by Year (\$000)	n.a.	n.a.	n.a.	\$15,617,713	\$17,894,771	\$18,776,910	\$18,776,910
Income Impacts of For-Hire WSB Fishing Trips by Year (\$000)	n.a.	n.a.	n.a.	\$6,932,514	\$2,560,228	\$13,146,134	\$13,146,134
Income Impacts of Durable Eqpt Purchases for WSB by Year (\$000)	n.a.	n.a.	n.a.	<u>\$79,040,518</u>	<u>\$74,445,577</u>	<u>\$132,311,298</u>	<u>\$132,311,298</u>
Total Income Impacts of Recreational WSB Fishery:	n.a.	n.a.	n.a.	<u>\$140,631,029</u>	<u>\$121,167,451</u>	<u>\$184,827,983</u>	<u>\$184,827,983</u>
Value Added Impacts of Recreational WSB Fishery by Mode							
Value Added Impacts of Shore WSB Fishing Trips by Year (\$000)	\$75,622,624	\$87,603,791	\$76,854,625	\$64,588,472	\$43,455,708	\$33,368,955	\$33,368,955
Value Added Impacts of Private Boat WSB Fishing Trips by Year (\$000)	\$33,256,610	\$33,814,736	\$32,892,667	\$26,148,547	\$29,960,597	\$31,105,208	\$31,105,208
Value Added Impacts of For-Hire WSB Fishing Trips by Year (\$000)	\$8,504,544	\$9,411,020	\$11,481,660	\$11,797,996	\$4,357,074	\$19,299,759	\$19,299,759
Value Added Impacts of Durable Eqpt Purchases for WSB by Year (\$000)	<u>\$140,239,105</u>	<u>\$147,749,301</u>	<u>\$139,743,036</u>	<u>\$116,442,922</u>	<u>\$109,673,265</u>	<u>\$203,975,804</u>	<u>\$203,975,804</u>
Total Value Added Impacts of Recreational WSB Fishery:	<u>\$257,622,883</u>	<u>\$278,578,848</u>	<u>\$260,971,989</u>	<u>\$218,977,936</u>	<u>\$187,446,645</u>	<u>\$287,749,725</u>	<u>\$287,749,725</u>
RECREATIONAL WSB ANGLER EXPENDITURES AND IMPACTS PER FISH							
Recreational WSB Angler Expenditures per Fish Caught:	\$57.00	\$87.83	\$115.76	\$148.37	\$172.39	\$318.06	\$318.06
Recreational WSB Angling Sales Impact per Fish Caught:	\$58.50	\$90.83	\$119.38	\$153.49	\$172.83	\$347.17	\$347.17
Recreational WSB Angling Income Impact per Fish Caught:	n.a.	n.a.	n.a.	\$53.53	\$60.21	\$100.43	\$100.43
Recreational WSB Angling Value Added Impact per Fish Caught:	\$31.71	\$49.33	\$64.80	\$83.36	\$93.14	\$234.19	\$234.19

TABLE ONE: REVENUE IMPACT OF DECLINING WILD STRIPED BASS RECREATIONAL FISHING TRIPS COMPARED TO THE COMMERCIAL FISHERY IN MA FROM 2006 TO 2015 (continued)

	Year (continued):	2012	2013	2014	2015 Prelim Est	2015 w/ 2007 trips	2015 w/ 2014 trips
Recreational Catch of WSB in MA, 2000-2015		1,367,440	1,989,972	2,103,549	1,683,598	5,646,880	2,103,549
% of WSB Caught relative to Peak Year in 2006		16.8%	24.5%	25.9%	20.7%	69.5%	25.9%
% of WSB Catch Shortfall relative to Peak in 2006		83.2%	75.5%	74.1%	79.3%	30.5%	74.1%
Recreational WSB Fishing Trips in MA, 2000-2015		1,650,954	1,761,750	1,959,099	1,209,079	3,014,182	1,959,099
% of MA WSB Trips relative to Peak Year in 2007		54.8%	58.4%	65.0%	40.1%	100.0%	65.0%
% of MA WSB Trip Shortfall relative to Peak in 2007		45.2%	41.6%	35.0%	59.9%	0.0%	35.0%
CPI data for Boston - Brockton area (1984=100)		247.7	251.1	255.2	256.7	256.7	256.7
Year:		2012	2013	2014	2015 Prelim Est	2015 w/ 2007 trips	2015 w/ 2014 trips
RECREATIONAL ANGLER EXPENDITURES PER TRIP							
Total Recreational Direct Trip Expenditures per trip per year		\$74.13	\$77.08	\$78.32	\$78.79	\$78.79	\$78.79
Recreational Durable Equipment Expenses per trip per year		<u>\$197.81</u>	<u>\$189.59</u>	<u>\$192.64</u>	<u>\$193.80</u>	<u>\$193.80</u>	<u>\$193.80</u>
Total Recreational Trip and Equipment Expenditures per trip per year:		\$271.94	\$266.67	\$270.96	\$272.59	\$272.59	\$272.59
Average of above (assumes 50% durable eqpt expenses scaled upward)		\$173.03	\$171.88	\$174.64	\$175.69	\$175.69	\$175.69
RECREATIONAL ANGLING ECONOMIC IMPACTS PER TRIP							
Employment Impacts per Recreational Trip by Mode							
Employment Impacts per Trip of Shore Fishing Trips by year		0.0007	0.0007	0.0006	0.0006	0.0006	0.0006
Employment Impacts per Trip of Private Boat Fishing Trips by year		0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
Employment Impacts per Trip of Far-Hire Fishing Trips by Year		0.0038	0.0040	0.0039	0.0039	0.0039	0.0039
Employment Impacts per Trip of Durable Eqpt Purchases by Year		<u>0.0017</u>	<u>0.0015</u>	<u>0.0016</u>	<u>0.0016</u>	<u>0.0016</u>	<u>0.0016</u>
Total Employment Impacts per Recreational Angling Trip:		0.0025	0.0024	0.0024	0.0024	0.0024	0.0024
Sales Impacts per Recreational Trip by Mode							
Sales Impacts per Trip of Shore Fishing Trips by year		\$84.00	\$70.28	\$71.41	\$71.84	\$71.84	\$71.84
Sales Impacts per Trip of Private Boat Fishing Trips by year		\$68.41	\$59.92	\$60.89	\$61.25	\$61.25	\$61.25
Sales Impacts per Trip of Far-Hire Fishing Trips by Year		\$438.97	\$445.48	\$452.65	\$455.37	\$455.37	\$455.37
Sales Impacts per Trip of Durable Eqpt Purchases by Year		<u>\$198.80</u>	<u>\$159.44</u>	<u>\$162.01</u>	<u>\$162.98</u>	<u>\$162.98</u>	<u>\$162.98</u>
Total Sales Impacts per Recreational Angling Trip:		\$300.20	\$257.09	\$261.23	\$262.80	\$262.80	\$262.80
Income Impacts per Recreational Trip by Mode							
Income Impacts per Trip of Shore Fishing Trips by year		\$30.58	\$29.62	\$30.09	\$30.27	\$30.27	\$30.27
Income Impacts per Trip of Private Boat Fishing Trips by year		\$25.25	\$27.11	\$27.55	\$27.71	\$27.71	\$27.71
Income Impacts per Trip of Far-Hire Fishing Trips by Year		\$210.94	\$219.78	\$223.32	\$224.66	\$224.66	\$224.66
Income Impacts per Trip of Durable Eqpt Purchases by Year		<u>\$90.20</u>	<u>\$73.94</u>	<u>\$75.13</u>	<u>\$75.58</u>	<u>\$75.58</u>	<u>\$75.58</u>
Total Income Impacts per Recreational Angling Trip:		\$130.97	\$118.94	\$120.85	\$121.58	\$121.58	\$121.58
Value Added Impacts per Recreational Trip by Mode							
Value Added Impacts per Trip of Shore Fishing Trips by year		\$49.54	\$45.43	\$46.16	\$46.44	\$46.44	\$46.44
Value Added Impacts per Trip of Private Boat Fishing Trips by year		\$41.89	\$39.87	\$40.51	\$40.75	\$40.75	\$40.75
Value Added Impacts per Trip of Far-Hire Fishing Trips by Year		\$309.74	\$283.88	\$288.45	\$290.18	\$290.18	\$290.18
Value Added Impacts per Trip of Durable Eqpt Purchases by Year		<u>\$138.86</u>	<u>\$109.20</u>	<u>\$110.96</u>	<u>\$111.63</u>	<u>\$111.63</u>	<u>\$111.63</u>
Total Value Added Impacts per Recreational Angling Trip:		\$203.12	\$172.58	\$175.36	\$176.42	\$176.42	\$176.42
TOTAL RECREATIONAL WSB ANGLER EXPENDITURES PER YEAR							
Recreational Share Fishing WSB Trip Expenditures		\$39,467,342	\$29,518,853	\$48,733,300	\$30,285,613	\$72,785,694	\$49,025,680
Recreational Private Boat WSB Trip Expenditures		\$54,950,548	\$68,969,563	\$62,235,558	\$39,523,136	\$102,198,098	\$62,608,946
Recreational Far-Hire Fishing WSB Trip Expenditures		<u>\$15,091,363</u>	<u>\$24,785,401</u>	<u>\$20,429,296</u>	<u>\$8,661,357</u>	<u>\$18,986,707</u>	<u>\$20,551,863</u>
Recreational Direct WSB Trip Expenditures per year		\$109,509,253	\$123,273,818	\$131,398,154	\$78,470,106	\$193,970,499	\$132,186,489
Recreational Durable Equipment WSB Expenditures per year		<u>\$326,570,672</u>	<u>\$334,004,012</u>	<u>\$377,401,017</u>	<u>\$234,314,501</u>	<u>\$409,225,242</u>	<u>\$306,989,885</u>
Recreational Total WSB Expenditures per year:		\$436,079,925	\$457,277,829	\$508,799,171	\$312,784,607	\$603,195,741	\$439,176,374
TOTAL RECREATIONAL WSB ANGLING ECONOMIC IMPACTS PER YEAR							
Employment Impacts of Recreational WSB Fishery by Mode							
Employment Impacts of Shore WSB Fishing Trips by year		455	358	570	352	352	352
Employment Impacts of Private Boat WSB Fishing Trips by year		431	583	484	305	305	305
Employment Impacts of Far-Hire WSB Fishing Trips by Year		213	368	289	122	122	122
Employment Impacts of Durable Eqpt Purchases for WSB by Year		<u>2,756</u>	<u>2,608</u>	<u>3,083</u>	<u>1,902</u>	<u>1,902</u>	<u>1,902</u>
Total Employment Impacts of Recreational WSB Fishery:		3,854	3,918	4,425	2,682	6,446	4,425
Sales Impacts of Recreational WSB Fishery by Mode							
Sales Impacts of Shore WSB Fishing Trips by Year (\$000)		\$57,345,959	\$38,315,409	\$63,255,720	\$39,310,662	\$39,310,662	\$39,310,662
Sales Impacts of Private Boat WSB Fishing Trips by Year (\$000)		\$62,368,708	\$67,383,442	\$60,804,301	\$38,614,207	\$38,614,207	\$38,614,207
Sales Impacts of Far-Hire WSB Fishing Trips by Year (\$000)		\$24,810,328	\$40,995,147	\$33,790,133	\$14,325,917	\$14,325,917	\$14,325,917
Sales Impacts of Durable Eqpt Purchases for WSB by Year (\$000)		<u>\$328,203,540</u>	<u>\$280,897,204</u>	<u>\$317,394,063</u>	<u>\$197,058,376</u>	<u>\$197,058,376</u>	<u>\$197,058,376</u>
Total Sales Impacts of Recreational WSB Fishery:		\$472,728,535	\$427,591,202	\$475,244,216	\$289,309,161	\$716,985,632	\$478,095,488
Income Impacts of Recreational WSB Fishery by Mode							
Income Impacts of Shore WSB Fishing Trips by Year (\$000)		\$20,878,254	\$16,146,770	\$26,657,045	\$16,566,187	\$16,566,187	\$16,566,187
Income Impacts of Private Boat WSB Fishing Trips by Year (\$000)		\$23,024,440	\$30,484,455	\$27,508,034	\$17,469,174	\$17,469,174	\$17,469,174
Income Impacts of Far-Hire WSB Fishing Trips by Year (\$000)		\$11,922,305	\$20,224,978	\$16,670,380	\$7,067,699	\$7,067,699	\$7,067,699
Income Impacts of Durable Eqpt Purchases for WSB by Year (\$000)		<u>\$148,916,507</u>	<u>\$130,261,349</u>	<u>\$147,186,153</u>	<u>\$91,382,504</u>	<u>\$91,382,504</u>	<u>\$91,382,504</u>
Total Income Impacts of Recreational WSB Fishery:		\$204,741,506	\$197,117,552	\$218,021,611	\$132,485,563	\$328,290,971	\$219,329,652
Value Added Impacts of Recreational WSB Fishery by Mode							
Value Added Impacts of Shore WSB Fishing Trips by Year (\$000)		\$33,823,304	\$24,766,075	\$40,886,838	\$25,409,381	\$25,409,381	\$25,409,381
Value Added Impacts of Private Boat WSB Fishing Trips by Year (\$000)		\$38,190,566	\$44,830,286	\$40,453,175	\$25,690,078	\$25,690,078	\$25,690,078
Value Added Impacts of Far-Hire WSB Fishing Trips by Year (\$000)		\$17,505,937	\$26,123,693	\$21,532,379	\$9,129,028	\$9,129,028	\$9,129,028
Value Added Impacts of Durable Eqpt Purchases for WSB by Year (\$000)		<u>\$229,252,559</u>	<u>\$192,386,057</u>	<u>\$217,382,699</u>	<u>\$134,964,974</u>	<u>\$134,964,974</u>	<u>\$134,964,974</u>
Total Value Added Impacts of Recreational WSB Fishery:		\$318,772,366	\$288,106,111	\$320,255,091	\$195,193,461	\$483,969,245	\$322,176,491
RECREATIONAL WSB ANGLER EXPENDITURES AND IMPACTS PER FISH							
Recreational WSB Angler Expenditures per Fish Caught:		\$318.90	\$229.79	\$241.88	\$185.78	\$106.82	\$208.78
Recreational WSB Angling Sales Impact per Fish Caught:		\$345.70	\$214.87	\$225.92	\$171.84	\$126.97	\$227.28
Recreational WSB Angling Income Impact per Fish Caught:		\$149.73	\$99.06	\$103.64	\$78.69	\$58.14	\$104.27
Recreational WSB Angling Value Added Impact per Fish Caught:		\$233.12	\$144.78	\$152.25	\$115.94	\$85.71	\$153.16

TABLE TWO: ABSOLUTE AND PERCENTAGE LOSSES IN MA SALES AND ECONOMIC IMPACT DUE TO DECLINING RECREATIONAL STRIPED BASS TRIPS FROM 2007 AND 2014 TO 2015

WSB Expenditure Declines from 2007 to 2015 \$290,411,134 Percent Increase in 2015 WSB Expenditures with 2007 Trips 92.8%	WSB Expenditure Declines from 2014 to 2015 \$126,391,767 Percent Increase in 2015 WSB Expenditures with 2014 Trips 40.4%
Declines in WSB Employment Impact from 2007 to 2015 3,964 % Increase in 2015 WSB Employment Impact with 2007 Trips 147.8%	Declines in WSB Employment Impact from 2007 to 2015 1,744 % Increase in 2015 WSB Employment Impact with 2014 Trips 65.0%
Declines in WSB Sales Impact from 2007 to 2015 \$427,676,471 Percent Increase in 2015 WSB Sales Impact with 2007 Trips 147.8%	Declines in WSB Sales Impact from 2007 to 2015 \$188,786,327 Percent Increase in 2015 Sales Impact with 2014 Trips 65.3%
Declines in WSB Income Impact from 2007 to 2015 \$195,805,408 Percent Increase in 2015 WSB Income Impact with 2007 Trips 147.8%	Declines in WSB Income Impact from 2007 to 2015 \$86,844,089 Percent Increase in 2015 Income Impact with 2014 Trips 65.5%
Declines in WSB Value Added Impact from 2007 to 2015 \$288,775,783 Percent Increase in 2015 WSB Impact with 2007 Trips 147.9%	Declines in WSB Value Added Impact from 2007 to 2015 \$126,983,030 % Increase in 2015 WSB Economic Impact with 2014 Trips 65.1%

TABLE THREE: SUMMARY COMPARISONS OF MA RECREATIONAL WSB FISHERY WITH MA COMMERCIAL WSB, FINFISH AND TOTAL FISHERIES

Year:	2006	2007	2008	2009	2010	2011
Comparisons of Recreational Direct Trip Expenditures with the Value of Commercial Landings						
Total Recreational WSB Direct Expenditures / Commercial WSB Landings	146.4	180.9	131.3	128.8	97.3	122.7
Total Recreational WSB Direct Expenditures / Commercial Finfish Landings	183.7%	454.6%	383.5%	342.0%	274.8%	295.3%
Total Recreational WSB Direct Expenditures / All Commercial Seafood Landings	79.0%	118.1%	116.6%	97.3%	72.5%	68.4%
Comparisons of Recreational and Commercial Economic Impacts						
Employment Impact Comparisons						
Employment Impacts of Recreational WSB Fishery / Commercial WSB Fishery	14.3	12.2	9.0	9.0	6.3	9.9
Employment Impacts of Recreational WSB Fishery / Commercial Finfish Industry	18.0%	30.6%	26.3%	23.9%	17.7%	23.9%
Employment Impacts of Recreational WSB Fishery / Commercial Seafood Industry	7.7%	8.0%	8.0%	6.8%	4.7%	5.5%
Sales Impact Comparisons						
Sales Impacts of Recreational WSB Fishery / Commercial WSB Fishery	40.0	44.5	32.1	31.7	23.2	32.2
Sales Impacts of Recreational WSB Fishery / Commercial Finfish Industry	50.1%	111.7%	93.9%	84.1%	65.5%	77.5%
Sales Impacts of Recreational WSB Fishery / Commercial Seafood Industry	21.6%	29.0%	28.5%	23.9%	17.3%	17.9%
Income Impact Comparisons						
Income Impacts of Recreational WSB Fishery / Commercial WSB Fishery	n.a.	n.a.	n.a.	30.1	22.0	37.8
Income Impacts of Recreational WSB Fishery / Commercial Finfish Industry	n.a.	n.a.	n.a.	80.0%	62.0%	90.9%
Income Impacts of Recreational WSB Fishery / Commercial Seafood Industry	n.a.	n.a.	n.a.	22.8%	16.4%	21.0%
Value Added Impact Comparisons						
Value Added Impacts of Recreational WSB Fishery / Commercial WSB Fishery	n.a.	48.2	34.9	34.4	24.9	43.2
Value Added Impacts of Recreational WSB Fishery / Commercial Finfish Industry	n.a.	121.0%	101.9%	91.2%	70.4%	103.9%
Value Added Impacts of Recreational WSB Fishery / Commercial Seafood Industry	n.a.	31.4%	31.0%	26.0%	18.6%	24.1%

Year (continued):	2012	2013	2014	
Comparisons of Recreational Direct Trip Expenditures with the Value of Commercial Landings				
Total Recreational WSB Direct Expenditures / Commercial WSB Landings	124.4	146.1	105.2	Average 2006-2014 131.5
Total Recreational WSB Direct Expenditures / Commercial Finfish Landings	345.8%	487.0%	485.2%	361.3%
Total Recreational WSB Direct Expenditures / All Commercial Seafood Landings	70.7%	80.8%	96.9%	88.9%
Comparisons of Recreational and Commercial Economic Impacts				
Employment Impact Comparisons				
Employment Impacts of Recreational WSB Fishery / Commercial WSB Fishery	9.9	11.0	8.5	Average 2006-2014 10.0
Employment Impacts of Recreational WSB Fishery / Commercial Finfish Industry	27.5%	36.7%	39.3%	27.1%
Employment Impacts of Recreational WSB Fishery / Commercial Seafood Industry	5.6%	6.1%	7.8%	6.7%
Sales Impact Comparisons				
Sales Impacts of Recreational WSB Fishery / Commercial WSB Fishery	32.0	32.7	23.4	Average 2006-2014 32.4
Sales Impacts of Recreational WSB Fishery / Commercial Finfish Industry	88.9%	108.9%	107.9%	87.6%
Sales Impacts of Recreational WSB Fishery / Commercial Seafood Industry	18.2%	18.1%	21.6%	21.8%
Income Impact Comparisons				
Income Impacts of Recreational WSB Fishery / Commercial WSB Fishery	37.5	40.7	29.2	Average 2009-2014 32.9
Income Impacts of Recreational WSB Fishery / Commercial Finfish Industry	104.1%	135.8%	134.5%	101.2%
Income Impacts of Recreational WSB Fishery / Commercial Seafood Industry	21.3%	22.5%	26.9%	21.8%
Value Added Impact Comparisons				
Value Added Impacts of Recreational WSB Fishery / Commercial WSB Fishery	42.8	43.7	31.4	Average 2007-2014 37.9
Value Added Impacts of Recreational WSB Fishery / Commercial Finfish Industry	119.1%	145.8%	144.9%	112.3%
Value Added Impacts of Recreational WSB Fishery / Commercial Seafood Industry	24.4%	24.2%	28.9%	26.1%