

WRITTEN TESTIMONY IN FAVOR OF SB-1452 AND HB-2506

Frederic B. Jennings Jr., Ph.D.

24 March 2013

My name is Frederic B. Jennings Jr. ("Fred"). I have a B.A. in economics from Harvard College and a Ph.D. in economics from Stanford University. I also have the honor of serving as MA State Co-Chair of Stripers Forever, a national group seeking to conserve wild striped bass (*morone saxatilis*) on the Atlantic coast.

There is a multiplicity of ways to consider the economics of the Massachusetts fishery for wild striped bass (WSB). A study commissioned by Stripers Forever in 2005 by Robert Southwick, a well-known fisheries economist, based on 2003 data, offers some useful perspectives on the relative value and overall economic impact of the commercial and recreational WSB fisheries in Massachusetts. Here are some of the 2003 data presented in the Southwick Study:

2003 WILD STRIPED BASS FISHERY DATA FOR MASSACHUSETTS FROM THE 2005 SOUTWICK STUDY

ECONOMIC IMPACTS	COMMERCIAL	RECREATIONAL
MA Sales (at dock)	\$1.8 million	n.a.
MA Retail Sales	\$6.2 million	\$649.7 million
Total Economic Impact	\$24.2 million	\$1,158.0 million
Salaries, Wages and Profits	\$17.8 million	\$294.7 million
Jobs (Full-Time Equivalent)	524 jobs	10,986 jobs
IMPACTS PER WEIGHT HARVESTED	COMMERCIAL	RECREATIONAL
MA Sales (at dock)	\$1.72 per pound	n.a.
MA Retail Sales	\$5.83 per pound	\$132.90 per pound
Total Economic Impact	\$22.97 per pound	\$236.86 per pound
Salaries, Wages and Profits	\$16.91 per pound	\$60.27 per pound
Jobs (Full-Time Equivalent)	0.992 per ton	4.5 per ton
STATE TAX IMPACT	COMMERCIAL	RECREATIONAL
Sales and Motor Fuel Taxes	n.a.	\$39.1 million
Income Taxes	n.a.	\$13.8 million

According to NOAA Fisheries Service data, the recreational catch data (including fish released) for wild striped bass in Massachusetts were as follows, for 2003, 2006, 2011 and 2012 (preliminary) were:

YEAR	2003	2006	2011	2012
Recreational Catch	4,768,810	8,124,766	1,228,699	1,346,773
% difference from 2006	-41.3%	0.0%	-84.9%	-83.4%

There are several different ways that one might consider these data; I will review just a few of them.

The recreational WSB fishery has a significantly larger economic impact on Massachusetts than does the commercial WSB fishery: Look at the direct economic impact on “MA Retail Sales”; the recreational WSB fishery impact on direct retail expenditures is **over 100 times** that of the commercial WSB fishery. For their total economic impact, once secondary and indirect expenditure effects are taken into account, the recreational WSB fishery has **almost 50 times** the impact of the commercial WSB fishery; its overall economic impact on the Massachusetts economy exceeds that of the commercial fishery by over **one billion dollars**. The same story is seen for their relative impact on salaries, wages and jobs.

The relative value of live fish in the ocean for recreational purposes far exceeds their value dead in the market for commercial purposes: When a fishery is managed for commercial purposes, the fish only have value when killed and sold to a market as food. But when fish are managed for their recreational value – as live fish in the ocean, for the pursuit of which are recreational expenditures incurred – they can be of far greater economic value. The per-pound data from the Southwick Study show that very clearly: in terms of their impact on “MA Retail Sales,” a wild striped bass sold in the supermarket gets about **\$6.00 per pound**, while one that is caught recreationally from the ocean is shown to be worth about **\$133.00 per pound** based on what anglers spend to catch them. This implies that every wild striped bass sold in the market (for \$6.00/pound) costs the Massachusetts economy about \$127.00 for every pound of fish sold. With an annual commercial quota (in 2003) of 1,055,496 pounds, that means the state is losing about \$134 million per year of direct expenditures in its commercial WSB fishery. If the entire economic impact is taken into account, then the full economic loss per pound of fish sold in the market commercially is \$213.89/pound, bringing the total loss of economic activity in this state on the commercial sale of these fish to over \$225 million per year. The point is that, if people are willing to pay \$133.00 per pound to pursue these fish recreationally (which is a minimum measure of the value to them), then it makes no economic sense to kill them off (as food) for but a small fraction of this return.

The Impact on State Tax Revenues of the recreational WSB fishery is significantly larger than that of the commercial WSB fishery: Due to data limitations, the Southwick Study did not analyze the state taxes paid by the commercial fishery, although most (if not all) of their “Sales and Motor Fuel Taxes” are probably written off as business expenses; their gross income (before deducting expenses) from the sale of wild striped bass at the dock can be estimated (as \$1.72/pound x 1,055,496 pounds) at \$1.8 million. So while the recreational WSB fishery is contributing over \$50 million to state tax revenues based on its total economic impact of \$1.16 billion, the economic impact on expenditures of the commercial fishery (\$24 million) amounts to less than half of the impact of the recreational fishery on state tax collections! The economic importance to the state economy in Massachusetts of the recreational WSB fishery far exceeds the impact of the commercial WSB fishery, according to the findings in the Southwick Study.

A SIMPLE ATTEMPT TO UPDATE THESE DATA TO THE CURRENT PERIOD

The Southwick Study (p. 20) has a chart showing a close correlation between fishing effort (number of fishing trips) and the striped bass population, based on WSB stock assessments data from the Atlantic States Marine Fisheries Commission (ASMFC) and the National Marine Fisheries Service (NMFS) Marine Recreational Fisheries Statistics Survey (MRFSS) data for 2001. Since recreational catch statistics serve as a proxy for the population of fish out there in the ocean, and the number of fishing trips will likely be an important determinant of fishing expenditures, a rough updating of these numbers from 2003 to the present can be achieved by using the percentage changes in the recreational catch data for WSB in Massachusetts to approximate the long-term trend in recreational expenditures within this fishery.

The assumption underlying the results presented below: On the previous page, it was shown that the recreational catch of WSB in Massachusetts peaked in 2006 at over 8 million fish (including those WSB that were caught and then released by recreational anglers). In 2003, the recreational catch was 41.3% below that level; in 2011, the catch had declined in only five years by 84.9%; the decline after six years in 2012 from 2006 was 83.4%. I use these figures to adjust the 2003 recreational data accordingly, to show the equivalent data for 2006 (to set the standard for the peak year) and then will consider the economic losses seen in this fishery in 2011 and 2012, relative to 2006, due to the declining recreational catch. The numbers for the commercial sector are not adjusted; the commercial quota has stayed at around 1.0 million pounds, and the market prices for striped bass have seen no dramatic changes either since 2003.

ESTIMATED 2006 WILD STRIPED BASS FISHERY DATA FOR MASSACHUSETTS

ECONOMIC IMPACTS	COMMERCIAL	RECREATIONAL
MA Sales (at dock)	\$1,819,354	n.a.
MA Retail Sales	\$6,156,450	\$1,106,986,055
Total Economic Impact	\$24,242,457	\$1,972,944,640
Salaries, Wages and Profits	\$17,844,542	\$502,055,779
Jobs (Full-Time Equivalent)	524	18,717.2
IMPACTS PER POUND HARVESTED	COMMERCIAL	RECREATIONAL
MA Sales (at dock)	\$1.72	n.a.
MA Retail Sales	\$5.83	\$132.90
Total Economic Impact	\$22.97	\$236.86
Salaries, Wages and Profits	\$16.91	\$60.27
Jobs (Full-Time Equivalent) per ton of fish	\$0.99	4.5
STATE TAX IMPACT	COMMERCIAL	RECREATIONAL
Sales and Motor Fuel Taxes	n.a.	\$66,626,143
Income Taxes	n.a.	\$23,503,404

The estimated and duly adjusted data for 2006 suggests that the recreational impact in 2006 increased dramatically, relative to the commercial impact (that is assumed to be constant). Now we consider the estimated decline in the economic impact of the recreational fishery in 2011 and 2012 from the peak year in 2006, as shown in the tables and accompanying explanations below, with regard to: the loss in direct recreational retail sales after 2006; the loss in total recreational economic impact after 2006; the loss in Recreational Salaries and Wages, and also in Jobs, after 2006; and the loss in recreationally-generated state tax revenues after 2006. Each of these four categories of loss is separately calculated for 2011 and 2012, relative to the peak year in 2006.

ESTIMATED 2011 WILD STRIPED BASS FISHERY DATA FOR MASSACHUSETTS

ECONOMIC IMPACTS	COMMERCIAL	RECREATIONAL
MA Sales (at dock)	\$1,819,354	n.a.
MA Retail Sales	\$6,156,450	\$167,408,226
Total Economic Impact	\$24,242,457	\$298,366,144
Salaries, Wages and Profits	\$17,844,542	\$75,925,317
Jobs (Full-Time Equivalent)	524	2,831
IMPACTS PER POUND HARVESTED	COMMERCIAL	RECREATIONAL
MA Sales (at dock)	\$1.72	n.a.
MA Retail Sales	\$5.83	\$132.90
Total Economic Impact	\$22.97	\$236.86
Salaries, Wages and Profits	\$16.91	\$60.27
Jobs (Full-Time Equivalent) per ton of fish	\$0.99	4.5
STATE TAX IMPACT	COMMERCIAL	RECREATIONAL
Sales and Motor Fuel Taxes	n.a.	\$10,075,795
Income Taxes	n.a.	\$3,554,393

The Five-Year Loss in Direct Recreational Retail Sales from 2006 to 2011: In 2006, in the peak year, MA direct retail sales in the recreational WSB fishery are estimated to be \$1.1 billion, up from \$650 million in 2003. In 2011, they declined with the recreational catch of WSB (by an assumed 84.9%) to \$167 million, an estimated loss in direct retail sales to the state's economy of \$939.6 million.

The Five-Year Loss in Total Recreational Economic Impact from 2006 to 2011: In 2006, in the peak year, the total economic impact of the recreational WSB fishery in Massachusetts was estimated to be almost \$2.0 billion, up from \$1.2 billion in 2003. In 2011, this impact had declined with the recreational catch of WSB (by 84.9% by assumption) to under \$300 million, an estimated loss in total economic impact to the state's economy of about \$1.7 billion.

The Five-Year Loss in Recreational Salaries, Wages and Jobs from 2006 to 2011: Wages and salaries in the recreational WSB fishery are estimated by this method to have fallen from over \$500 million in 2006 to about \$76 million, for a estimated loss of \$426 million, while the number of jobs in the recreational WSB fishery in Massachusetts were 18,700 in 2006, but in five years had fallen to under 3,000 jobs, for a loss of almost 16,000 jobs.

The Five-Year Loss in Recreational State Tax Revenues from 2006 to 2011: In 2006, the state tax revenues generated by the recreational WSB fishery are estimated to be just over \$90 million. By 2011, these tax revenues are estimated to be about \$13.6 million, for a loss of about \$76 million.

With a slight rise in the Massachusetts recreational WSB catch in 2012, relative to 2011, the losses in each category were reduced somewhat, relative to 2011. The estimated results for 2012, relative to 2006, appear below, in the same format as presented immediately above for 2011.

ESTIMATED 2012 WILD STRIPED BASS FISHERY DATA FOR MASSACHUSETTS

ECONOMIC IMPACTS	COMMERCIAL	RECREATIONAL
MA Sales (at dock)	\$1,819,354	n.a.
MA Retail Sales	\$6,156,450	\$183,495,615
Total Economic Impact	\$24,242,457	\$327,038,166
Salaries, Wages and Profits	\$17,844,542	\$83,221,494
Jobs (Full-Time Equivalent)	524	3,103
IMPACTS PER POUND HARVESTED	COMMERCIAL	RECREATIONAL
MA Sales (at dock)	\$1.72	n.a.
MA Retail Sales	\$5.83	\$132.90
Total Economic Impact	\$22.97	\$236.86
Salaries, Wages and Profits	\$16.91	\$60.27
Jobs (Full-Time Equivalent) per ton of fish	\$0.99	4.5
STATE TAX IMPACT	COMMERCIAL	RECREATIONAL
Sales and Motor Fuel Taxes	n.a.	\$11,044,046
Income Taxes	n.a.	\$3,895,958

The Six-Year Loss in Direct Recreational Retail Sales from 2006 to 2012: In 2006, in the peak year, MA direct retail sales in the recreational WSB fishery are estimated to be \$1.1 billion, up from \$650 million in 2003. In 2012, they declined with the recreational catch of WSB (by an assumed 83.4%) to \$183.5 million, an estimated loss in direct retail sales to the state’s economy of \$923.5 million.

The Six-Year Loss in Total Recreational Economic Impact from 2006 to 2012: In 2006, in the peak year, the total economic impact of the recreational WSB fishery in Massachusetts was estimated to be almost \$2.0 billion, up from \$1.2 billion in 2003. In 2011, this impact had declined with the recreational catch of WSB (by 83.4% by assumption) to about \$327 million, an estimated loss in total economic impact to the state’s economy of about \$1.6 billion.

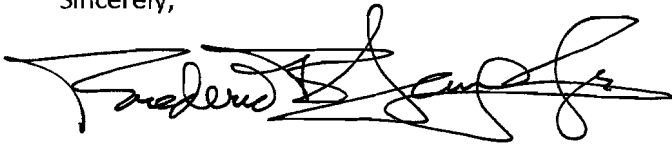
The Six-Year Loss in Recreational Salaries, Wages and Jobs from 2006 to 2012: Wages and salaries in the recreational WSB fishery are estimated by this method to have fallen from over \$500 million in 2006 to about \$83 million, for a estimated loss of \$419 million, while the number of jobs in the recreational WSB fishery in Massachusetts were 18,700 in 2006, but in six years had fallen to about 3,100 jobs, for a loss of around 15,600 jobs.

The Six-Year Loss in Recreational State Tax Revenues from 2006 to 2012: In 2006, the state tax revenues generated by the recreational WSB fishery are estimated to be just over \$90 million. By 2012, these tax revenues are estimated to be about \$14.9 million, for a loss of **over \$75 million**.

These estimates are based on the Southwick Study, adjusted in proportion to the recreational catch data published by NOAA, as a rough attempt to update these estimates to recent and current years. These two bills call for a careful analysis of the economics of the recreational fishery for WSB in the Commonwealth of Massachusetts, precisely to inform policy makers of the economic situation here.

Thank you for your attention.

Sincerely,

A handwritten signature in black ink, appearing to read "Frederic B. Jennings Jr.", written in a cursive style.

Frederic B. Jennings Jr., Ph.D.

ESTIMATED 2006 WILD STRIPED BASS FISHERY DATA FOR MASSACHUSETTS

ATTACHMENT ONE

ECONOMIC IMPACTS	COMMERCIAL	RECREATIONAL
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STATE TAX IMPACT	COMMERCIAL	RECREATIONAL
Sales and Motor Fuel Taxes	n.a.	\$10,075,795
Income Taxes	n.a.	\$3,554,393

ESTIMATED 2012 WILD STRIPED BASS FISHERY DATA FOR MASSACHUSETTS

ECONOMIC IMPACTS	COMMERCIAL	RECREATIONAL
MA Sales (at dock)	\$1,819,354	n.a.
MA Retail Sales	\$6,156,450	\$183,495,615
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