



2014

Recreational Boating and Fiscal Analysis Study



September 2014



This report was produced on behalf of the Maryland Department of Natural Resources.

Report Author and Project Lead

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Environmental Finance Center



The Environmental Finance Center (EFC) is located at the National Center for Smart Growth Research and Education at the University of Maryland in College Park. The EFC is a regional center developed by the Environmental Protection Agency to assist communities and watershed organizations in identifying innovative and sustainable ways of implementing and financing their resource protection efforts throughout the Mid-Atlantic region. The EFC is non-advocacy in nature and has assisted communities and organizations in developing effective sustainable strategies for specific watershed protection

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I. Introduction

On May 2, 2013 Governor O'Malley signed into law Senate Bill 90 (SB 90) which capped the Vessel Excise Tax (VET), which formerly stood at 5% of the value of a vessel at the time of its registration, at a maximum of \$15,000 for any vessel. SB 90 also required: "That the Department of Natural Resources shall submit a report on or before August 1 of 2014, 2015, and 2016 to the Governor and, in accordance with § 2-1246 of the State Government Article, the General Assembly that describes the effect of the limitation on the vessel excise tax enacted by Section 1 of this Act during the preceding fiscal year on:

- (1) the number and type of vessels registered in the State; and
- (2) the health of the boating industry."

This report aims to fulfill the reporting requirements of SB 90 for fiscal year 2014, reporting boat registrations information, revenues from the vessel excise tax (VET), and changes in those factors over time. It also reports revenues available to the Waterway Improvement Fund (WIF), including Maryland Fuel Tax revenues made available under SB 90. The report compares Maryland's experience with respect to boat registrations in fiscal year (FY) 2014, when SB 90 changed the tax environment facing some boaters, with the experience of neighboring states that did not have a change in tax policy over the same period and this comparison is evaluated. Finally, the report summarizes results from a survey of marine trade enterprise owners' perceptions of current markets (FY 2014) compared to their markets in FY 2013.

It should be noted that the economic "effect of the limitation on the vessel excise tax" is not estimated here. The economic effect of the \$15,000 cap on the VET is dependent on its effect on marginal boat registrants who would not have registered their boat in Maryland in the absence of SB 90. Some of the boats valued above \$300,000 registering in Maryland in FY 2014 may qualify as being "marginal" in the economic sense that the word is used here. Also, some of them may be boats that would have been registered in FY 2013 but which, when their owner saw the gains to waiting, were not registered until FY 2014. Since we do not have a way to distinguish boats that were going to be registered in Maryland independent of SB 90 and boats that registered because of SB 90, we do not attempt to estimate the economic effect of the cap on the VET.

In an earlier study¹, we used a logit probability model to estimate the demand effect of a change in the incidence of the VET on boat registrations in Maryland. That probability-based demand model became superfluous after SB 90 was adopted because with the cap on VET costs, we now have revealed preference information from the marketplace. However, this market information would require additional information about registrants, or buyers of boats valued at \$300,000 and up in order to be useful to an empirical analysis of SB 90's economic effect. In the meantime, we report available data about high end boat registrations in both Maryland and neighboring States, Maryland's VET revenues and we discuss the limited inferences which can be drawn from these data.

¹ Recreational Boating and Fiscal Analysis Study Final Report, UMD EFC, for MD DNR, 2013.

II. Registrations of High End Vessels in Maryland and Neighboring States

A. Registrations in Maryland

Maryland registrations of boats valued at \$300,000 and greater have risen for the second (fiscal) year in a row. In FY 2013, boats valued at \$300,000 and up rose about 49 percent from a very low FY 2012 figure. Following that increase, after implementation of the VET cap, registrations increased by over 36 percent from FY 2013 to FY 2014. Maryland boat registration data including numbers, summary values and VET revenue generation is reported in Table 1: Maryland Fiscal Year Higher-End Boat Registrations, 2003 to 2014.

Table 1: Maryland Fiscal Year Higher-End Boat Registrations, 2003 to 2014

Fiscal Year	Greater than \$300,000 Boats			Greater than \$150,000 Boats		
	Value of Sales	MD Reg Sales	VET	Value of Sales	MD Reg Sales	VET
2003	109,330,248	221	4,066,423	218,953,867	767	8,177,540
2004	140,455,658	292	4,888,201	281,331,083	983	10,198,115
2005	165,858,389	326	5,473,237	306,402,975	1023	10,792,382
2006	170,658,796	322	5,877,360	306,625,173	983	11,227,926
2007	152,171,479	295	5,230,345	270,868,012	875	9,811,416
2008	153,656,559	309	5,438,117	268,755,505	869	10,092,178
2009	101,131,185	183	3,736,480	178,770,669	561	6,688,871
2010	65,452,395	137	2,486,779	127,130,165	438	4,895,848
2011	68,156,530	147	2,452,984	134,317,936	468	5,010,790
2012	50,786,246	98	1,793,337	111,956,742	402	4,212,831
2013	72,541,423	146	2,855,838	132,223,447	435	5,231,132
2014	118,036,919	199	2,711,849	190,421,821	555	5,748,475

Source: MD DNR COIN Database.

The trend for numbers of boats valued at \$300,000 and up registering each fiscal year since 2005 is shown graphically in Figure 1a: Maryland Fiscal Year Higher-End Boat Registrations. For reference, we include a graph of registrations of boats valued at \$150,000 and up along with the targeted \$300,000 and up registrations. We do not expect registrations of boats valued below \$300,000 to be affected by the VET cap. The \$150,000 and up graph is included as information about registrations lower in the higher end of boat values.

Figure 1b: Value of Maryland Higher-End Boat Registrations shows how the total value of higher-end boat registrations has tracked over the past 12 years. The graph shows the increases in the total market value of higher-end boats registered in each of the past two fiscal years with a larger increase occurring in 2014. The value of registrations of boats between \$150,000 and less than \$300,000 and boats of \$300,000 and up both increased in both years.

Figure 1a: Maryland Fiscal Year Higher-End Boat Registrations, FY2003 - 2014

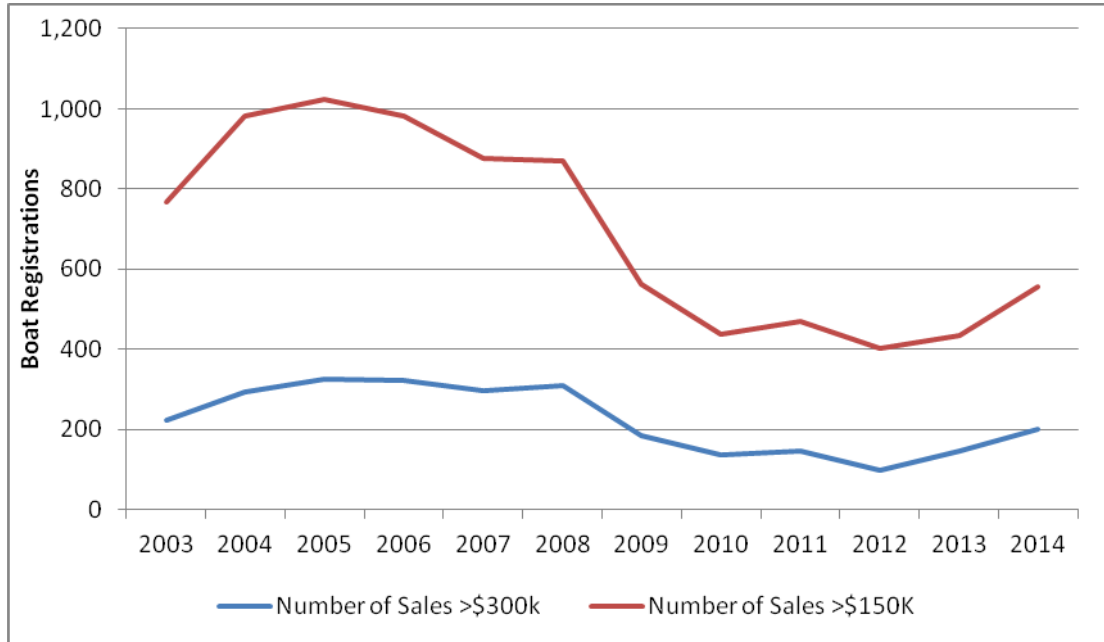
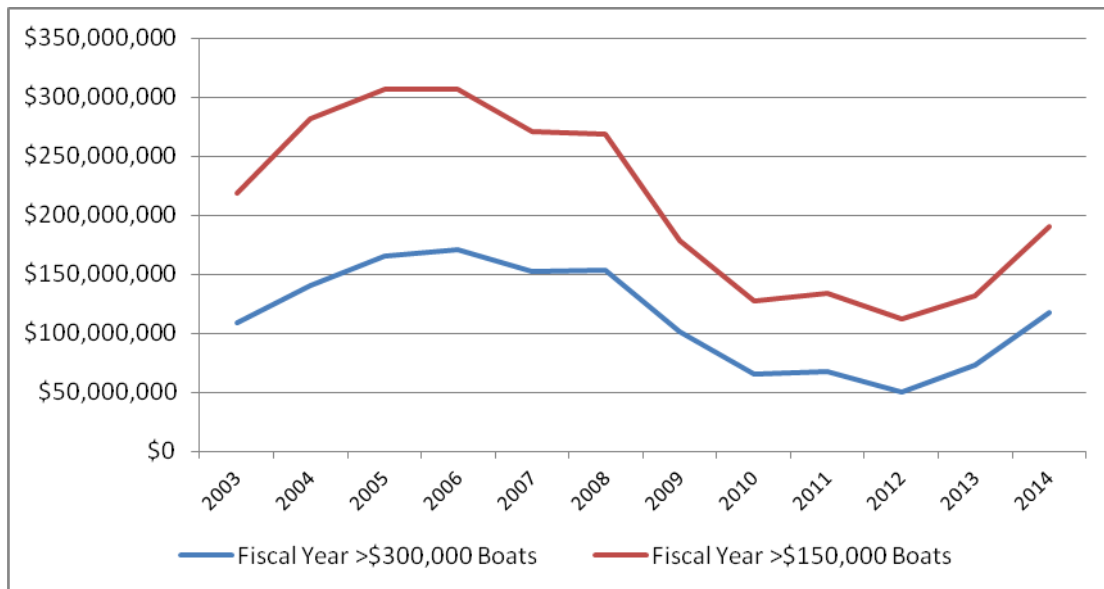
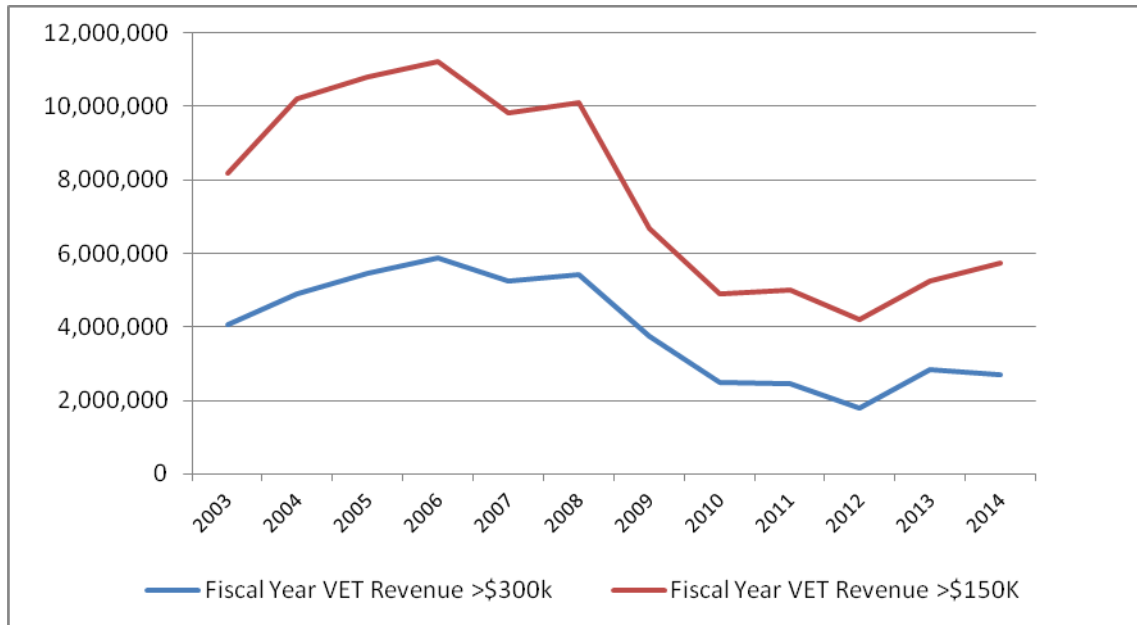


Figure 1b: Value of Maryland Higher-End Boat Registrations 2003 -2014



Trends for VET revenue from higher-end boats over the past 12 years is reported in Figure 2: VET Revenues from Higher-End Boats. This graph shows that, although the VET revenues from \$300,000 and up boats declined somewhat due to the VET cap, there was a large enough increase in registrations between \$150,000 and less than \$300,000 to compensate for that decline and total VET revenue from boats of \$150,000 value and greater increased from FY 2013 to FY 2014. It may be worth noting again, we do not expect the sale of boats valued less than \$300,000 to be affected by the VET cap.

Figure 2: VET Revenues from Higher-End Boats, 2003 - 2014



Total VET revenues have generally been in decline since FY 2006. In FY 2014, revenues from the VET stood at just over 50 percent of their FY 2005 value. These figures include all boats qualifying for the registration requirement entering in each fiscal year, and not just \$150,000 and up boats. How important are the higher-end boats to Maryland’s VET revenues and, particularly, to its temporal trends? Figure 3 reports the share of total VET revenues contributed by higher end boats from 2005 onward. In terms of share of total VET revenue, there does not appear to be a dramatic change over the period. \$150,000 and up boats contribute between 30 and 40 percent of the total and \$300,000 and up boats contribute from 13 to 22 percent over the period.

Figure 3: High-End Boat Contributions to Vet Revenues

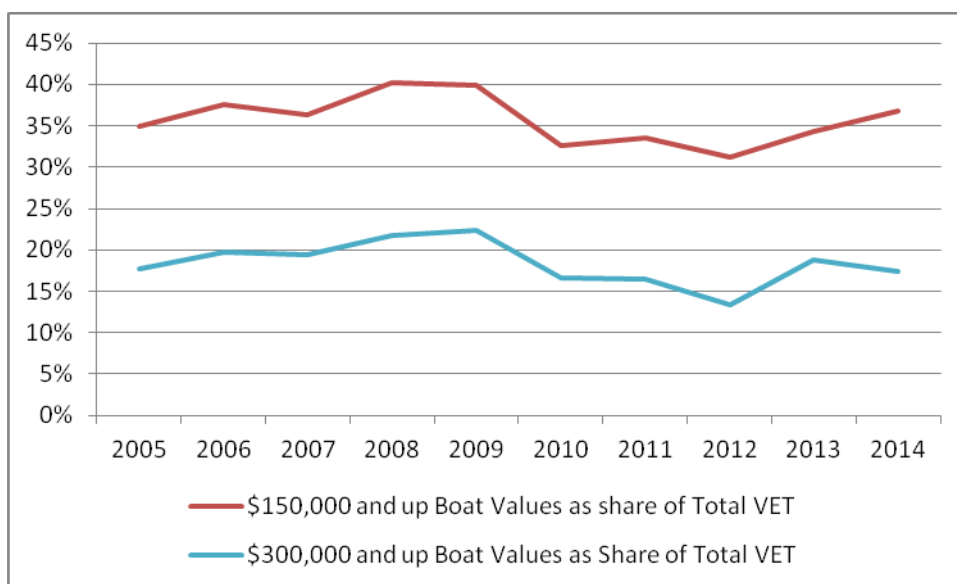
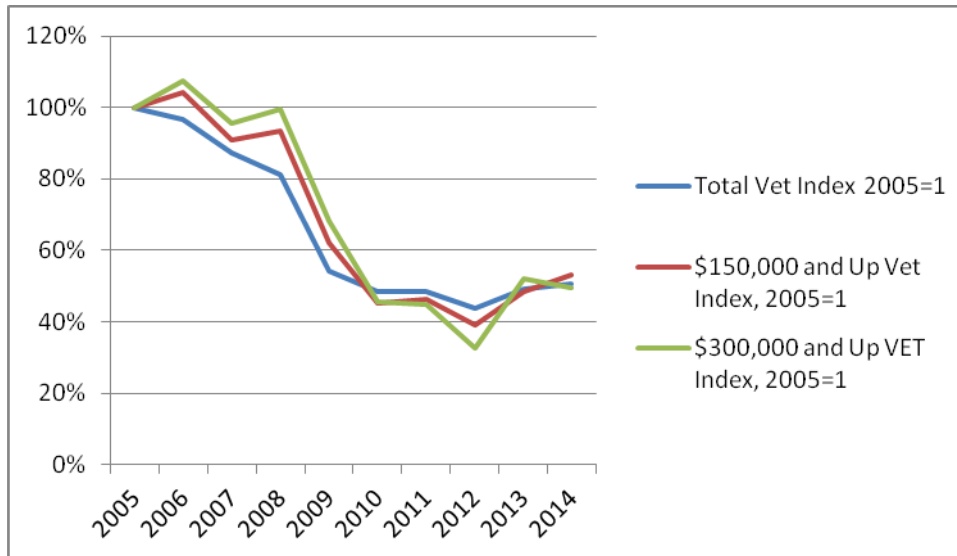


Figure 4: Index Values for VET Revenue and Shares from High End Boats



Since VET contributions from higher end boats are shares of a falling total, we provide information in Figure 4 about trends for total VET revenues alongside greater than \$150,000 and greater than \$300,000 contributions reported as index values, setting each variable equal to one at its 2005 value². Total VET revenues from boats valued less than \$150,000 fell faster from 2005 to 2010 than higher end boats. VET contributions from less than \$150,000 value boats then leveled off between 2010 and 2012, while higher end boats continued to fall. Then in 2013 and 2014, VET revenues from boats valued at \$150,000 and up rose, even as revenues from \$300,000 and up boats declined in 2014 due to the VET cap.

We noted in the introduction that we have no way at present of saying how many additional boats of greater than \$300,000 value, if any, registered in Maryland due to the VET cap. Without being able to account for that additionality, we cannot say how much VET revenue was lost or gained due to the cap. We can, however, measure the value of the wealth transfer to registrants of higher end boats. This is the difference between what was received as tax revenue from boats registering in the fiscal year and what would have been generated from those same registrations in the absence of SB 90. Using data compiled by MD DNR's Licensing and Registration Service, the value of this upward distribution of wealth was \$1.47 million.

B. Registrations in Neighboring States

While the implementation of the VET cap in Maryland prevents us from knowing what would have happened if it was not implemented, we might interpret the experience of neighboring states who did not implement a change in tax policy as an indicator of what might have happened in Maryland, without the cap. For this, we consider the recent experiences of Virginia and North Carolina.

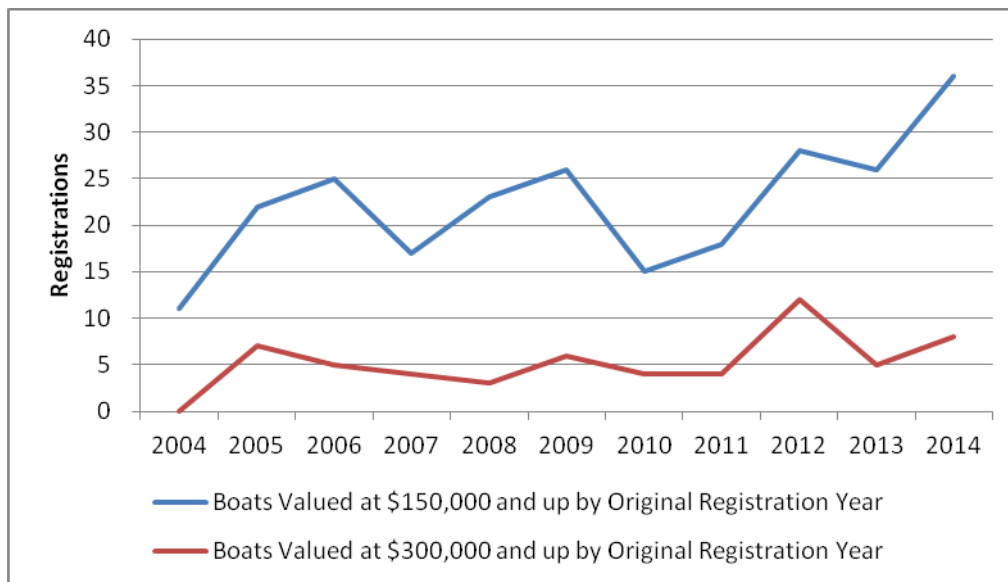
Virginia has a 2 percent tax on the value of a vessel registered in the state, up to a maximum of \$2,000. In addition, Virginia collects a one-time title fee (\$7) when the boat is registered and a registration fee that must be renewed every three years of \$27 to \$45, depending on length. On top of the one-time vessel titling tax and recurring registration fees, Virginia also allows annual taxes on boats as personal property. The personal property tax rate is set by the counties. Rates range from nothing to \$4.57 per hundred dollars of value. Because of these varying personal property tax rates, it is difficult to compare

² Treating total VET revenues and the portions provided by various categories of registered boats as indexes with a common starting place allows us to see change among variables with disparate measurement units more precisely.

the effect of taxes in Virginia with that of the VET in Maryland. That is not what we seek to do with the following description of recent trends for high end boat registrations in Virginia. Rather, our point in this description is that, given Virginia’s market for high end boat registrations and no significant change in its tax regime over the past several years, this is the way new registrations of high end boats have progressed there.

Figure 5 shows fiscal year (July through June) original registrations of boats currently registered in Virginia. Due to the data limitation that boats in the set be currently registered (i.e., active) in Virginia, it is likely that some boats that were registered in earlier years but shifted out of Virginia in the interim are excluded. Boats documented by the US Coast Guard are also not included in this data set, as documented boats are not required to be registered or titled in Virginia. While the set of currently active high end boats registered in Virginia appears to be on an upward trend, the increased likelihood of earlier registrations dropping off the list limits confidence in these data.

Figure 5: Active Virginia Registered High End Boats by Original Registration Year



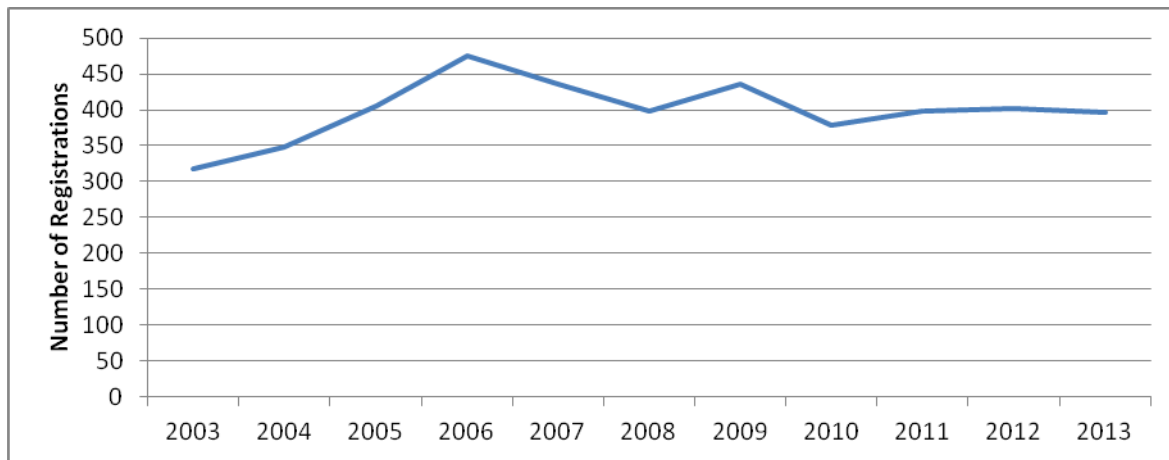
North Carolina has a 3 percent boat tax which is capped at \$1,500. Its registration fees range from \$35 for a one year registration of a vessel less than 14 feet to \$55 for a boat greater than 26 feet. A title fee of between \$35 and \$45 is applied once to vessels under the same owner(s). Like Virginia, however, North Carolina allows the assessment of an annual tax on boats as personal property. Also like Virginia, personal property tax and assessment rates are set by counties. In North Carolina, personal property tax rates range from \$0.57 to \$2.10 per hundred dollars of value.

North Carolina Wildlife Resources Commission provided a dataset of all boats registered in North Carolina from 2003 to June 30, 2014. While this is a more complete dataset than Virginia’s with respect to our goal of comparing neighboring States’ recent experience with high end boat registrations with that of Maryland, it does not include the value of the vessels registered. Since the cut-off of \$300,000 indicates where the VET cap should start to affect economic decisions, we would like to be able to compare rates of registration across states on the basis of that value cut-off.

In order to compare North Carolina’s data with Maryland’s, we used Maryland’s length and value data to estimate the probability that boats in specified size classes were valued at \$300,000 or more. We then used those Maryland-based probabilities to factor boats registered in North Carolina over the period by the same size classes. Summing across size classes provides an estimate of the number of boats in a given year that were valued at \$300,000 or more. The point estimates from this exercise are

reported graphically in Figure 6. Since we use an average probability from Maryland from 2003 to 2012, and apply this central tendency to all years in the North Carolina dataset, it is possible that our estimation approach flattens year to year variance. Clearly, it is less powerful than having the actual market values.

Figure 6: North Carolina \$300,000 and up Point Estimates by Year



Given the data limitations, what can be inferred from the experiences of neighboring States with regard to higher end registrations in the past year? Virginia's data shows an increase in registrations of \$300,000 and up boats for the sample in the past year. However, we know that this sample excludes boats that are no longer active in Virginia and we suspect a greater likelihood that boats registered longer ago have left the set. In the most recent years, we see that in Virginia registrations of \$300,000 and up boats were lower in 2013 than in 2012 and that they only rose slightly in 2014. In the North Carolina data, we see that registrations of \$300,000 and up boats have been flat for the past two years but that those registration levels are only off their 2006 high by 17 percent. Maryland's \$300,000 and up registrations are off their 2006 high by 48 percent, even with the cap.

C. High End Boat Registrations and Macro-Economic Factors

On the basis of intuition and common sense, we may suppose that the drop off in registrations of high end boats from 2006 onward had much to do with changes in wealth resulting from the Great Recession. However, when we test this theory by indexing both high end boat registrations and the Dow Jones Industrial Average (Dow), the linkages are not so apparent.

From 2003 to 2005, even though the Dow was fairly flat, high end boat sales raced upward. Then from 2005 to 2007, while the Dow rose, high end boat sales declined. The decline in the Dow after 2007 is matched by a decline in high end boat registrations, but even after the Dow turns upward again, registrations continue to decline. The relationship between the Dow and high end boat registrations is not immediately obvious from these data.

Figure 7: Index Values of Maryland High End Boat Registrations and the DJIA, 2003 – 2013*



* Calendar years

III. Waterway Improvement Fund and the Health of the Boating Industry in Maryland

VET revenues have been a principal source of funds for Maryland’s Waterway Improvement Fund (WIF). Given credible unmet need for WIF resources and in the face of lower VET revenues, SB-90 requires the State Comptroller to apply 0.5 percent of the State’s Motor Fuel Tax revenue to the WIF, in addition to the VET funds. This requirement became effective June 1, 2013, granting one year of data for this additional funding source. In FY 2014, the Motor Fuel Tax credited to the WIF amounted to \$2,662,644. This additional funding lifted the ratio of the 2014 WIF to about 60 percent of its 2005 balance.

The health of the boating industry in Maryland is a broad topic. At a very high level of generality, its assessment might be approached by way of participation rates. The problem there, however, is that participation rates in Maryland are not known with any precision and, even if they were, we would still be faced with the question of what constitutes an optimal level of participation, given limits to the resource and issues associated with congestion.

Although information is not available for a full market assessment of the boating industry, we are able to report information from the supply side of the market. This information does not permit any analysis of economic welfare but it does provide market information about suppliers of boats and boating support services who are an explicit constituency for SB-90 and are named as participants in its mandated task force.

In July of 2014, Marine Trades Association of Maryland (MTAM) undertook a survey of its members with specific regard to: 1) member’s perception of their market relative to the prior year (i.e., better, worse

or unchanged), 2) investments made over the prior year and 3) investments planned for the coming year. Of its approximately 400 member mailing list, 35 complete survey responses were received.

In response to the question, "In terms of utilized capacity, turnover, and/or income, has business over the past 12 months compared to previous 12 months (6/2012 through 6/2013) been: better, the same, or worse?" 45.7 percent of respondents said better, 37.1 percent said the same and only 17.1 percent said worse. On a strictly numeric basis, among the sample of respondents it appears that suppliers' perceptions about markets for marine trade services have them stable or improving.

In response to the question: "Over the last 12 months, have you made investments in your business such as real estate, capital equipment, or new position personnel?" 54.2 percent said yes and 45.7 percent said no. In response to the question, "Over the next 12 months, do you plan on making investments in your business such as real estate, capital equipment, or new position personnel?" 60 percent of respondents said yes and 40 percent said no.

The small sample size and the high level of generality of the survey questions caution against placing too high a bet on these results. But, given those caveats, these survey results do provide some indication that, for suppliers of marine trade services, the declining trend in boat sales and, presumably, other marine business since 2006 may have leveled and, for some, even turned upward during the past year.

The survey also provided opportunities for comment, which about half the respondents took advantage of. Comments were diverse but consistent with the survey results in that, there appeared to be some reasons for optimism in this market, but not very compelling reasons. The graying of both boaters and marine trade suppliers was noted, along with the general absence of new entrants on either the production or consumption side of the boating market. No respondents spoke of water quality constraints to boating demand.

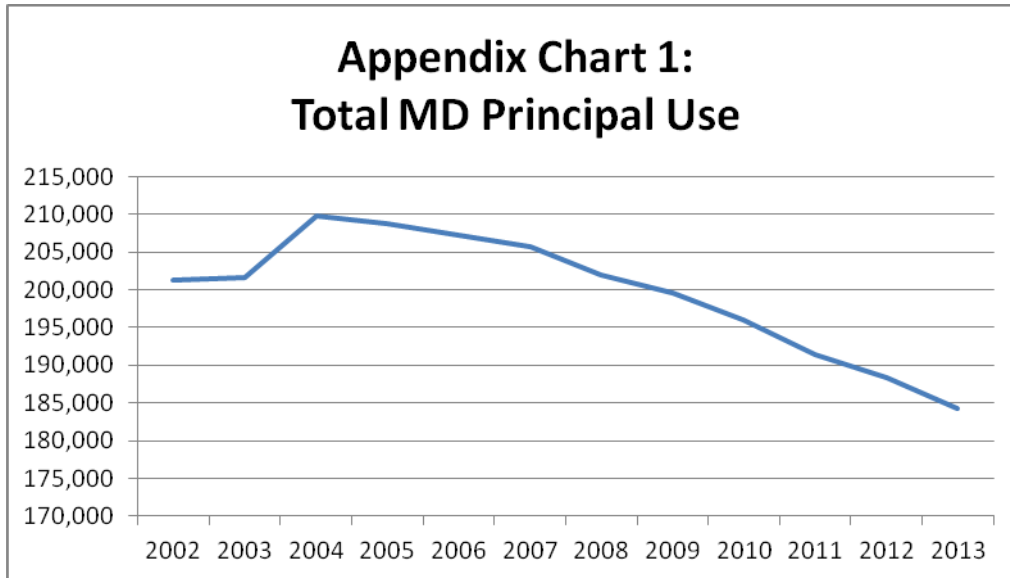
Appendix: Maryland Boat Registrations by Type and Year

In the following table and charts we report data on boats for which Maryland is the state of principal use (e.g., whether a boat resides in Maryland for a longer share of a given calendar year than it resides in any other state). These data are organized by calendar year and they represent total boats registered, whereas the data in the text reports annual additions to Maryland registered boats, generally, by fiscal year.

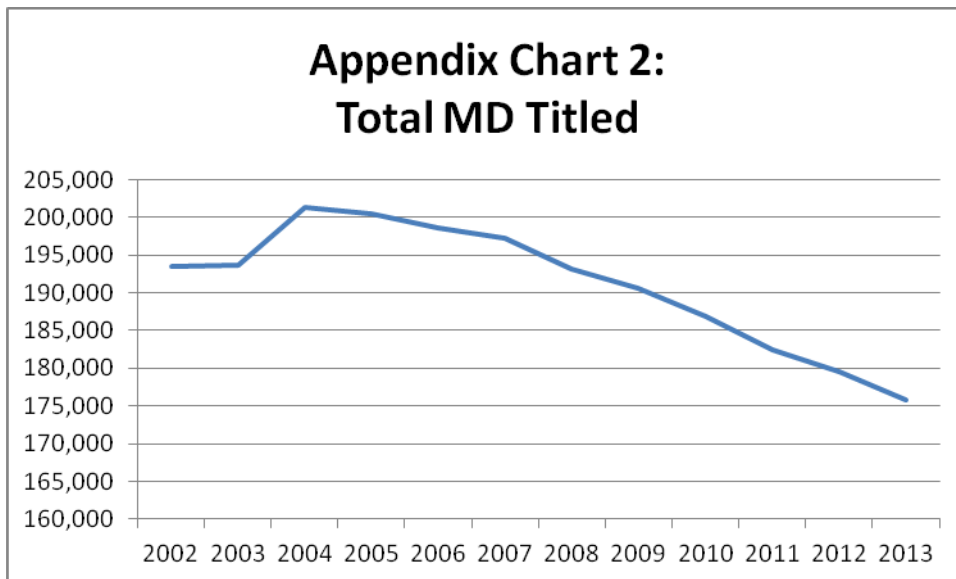
The Charts are based on Table 1. In Table 1, the difference between “Principal Use” vessels and Maryland Titled vessels is Coast Guard documented vessels. Coast Guard documented vessels do not have to show a Maryland registration number. Some recreational boats are gathered into a broad “Other” category, but all of the recreational sub-categories include Coast Guard documented boats in their counts.

Appendix Table 1: Titled and Documented Vessels in Maryland, 2002 (end of year) to 2013 (end of year)

31-Dec	TOTAL MD Principal Use	TOTAL MD Titled	Commercial				Recreational		Power			AUX Sail		Total Other
			Total	Passenger	Fishing	Other	Total Registered	Total	Inboard	Outboard	Sterndrive	Inboard	Outboard	
2002	201,312	193,531	3300	29	506	2,765	198,012	172,787	15,321	111,408	35,775	5,127	5,156	25,225
2003	201,564	193,628	3169	36	593	2,540	198,395	172,583	15,493	110,726	36,046	5,260	5,058	25,812
2004	209,763	201,337	3082	48	661	2,373	206,681	180,002	19,698	110,725	36,687	7,996	4,896	26,679
2005	208,837	200,532	3025	51	758	2,216	205,812	178,613	19,756	110,140	36,266	7,781	4,670	27,199
2006	207,226	198,585	2949	50	841	2,058	204,277	176,722	19,689	109,249	35,607	7,726	4,451	27,555
2007	205,795	197,247	2903	48	911	1,944	202,892	175,244	19,517	108,831	34,960	7,677	4,259	27,648
2008	201,920	193,075	2833	51	941	1,841	199,087	171,573	19,308	107,213	33,379	7,607	4,066	27,514
2009	199,611	190,650	2805	53	987	1,765	196,806	169,735	19,197	106,755	32,406	7,470	3,907	27,071
2010	196,024	186,907	2765	52	1,035	1,678	193,259	166,426	18,172	106,095	31,401	7,003	3,755	26,833
2011	191,362	182,510	2739	47	1,089	1,603	188,623	162,490	17,804	104,257	29,981	6,848	3,600	26,133
2012	188,317	179,548	2691	47	1,116	1,528	185,626	160,038	17,542	103,552	28,755	6,708	3,481	25,588
2013	184,189	175,777	2645	41	1,137	1,467	181,544	156,711	17,197	102,080	27,516	6,565	3,353	24,833
Average	199,660	191,111	2,909	46	881	1,982	196,751	170,244	18,225	107,586	33,232	6,981	4,221	26,508

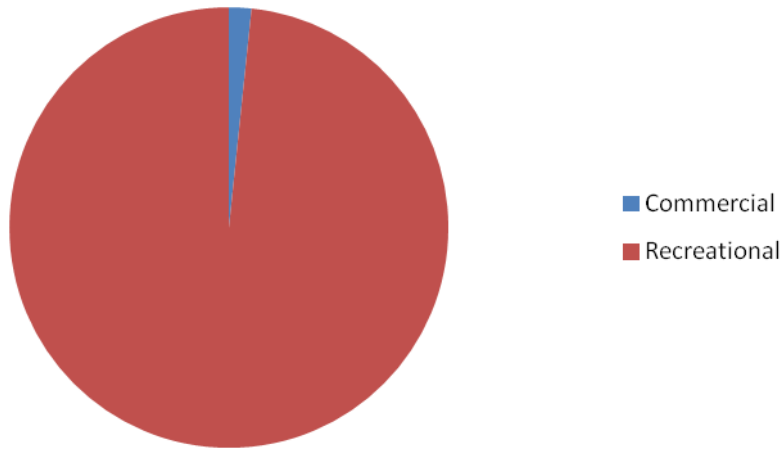


Appendix Chart 1: A 5 % increase from 2003 to 2004 (Calendar Year) and then a gradual decline to 2013.



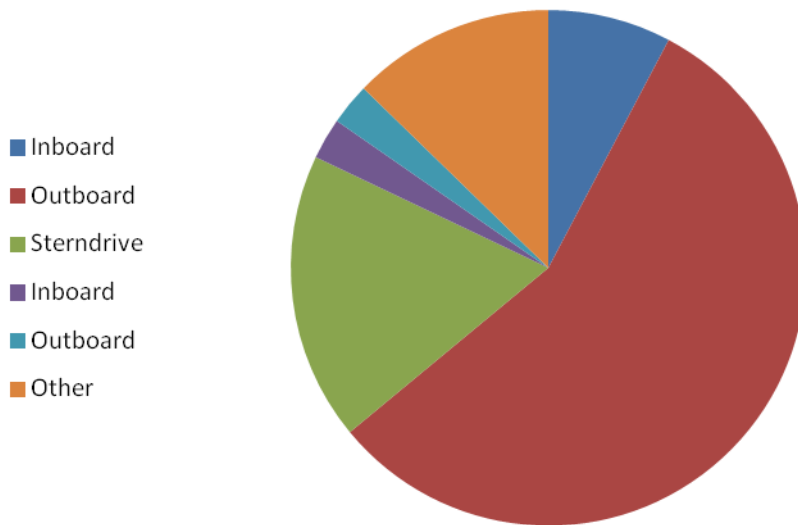
Appendix Chart 2: Total MD principal use is composed of Maryland titled boats and Coast Guard documented boats. Coast Guard documented boats have ranged from 7,781 (in 2002) to 9,117 (in 2010) of the total over the period.

Appendix Chart 3: Total Maryland Principal Use



Appendix Chart 3: Total Maryland Principal Use boats can also be split into commercial and recreational vessels. Clearly, the majority are recreational vessels.

Appendix Chart 4: Recreational Boats



Appendix Chart4: Recreational boats can be further broken into inboard, outboard and sterndrive boats. They also include sailboats with auxiliary power in outboard (lighter blue) or inboard (purple) motors.