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## A Preliminary Analysis of the Virginia Pleasure Boat Fleet

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OF THE VIRGINIA PLEASURE BOAT FLEET**

**A Report Submitted to the  
Virginia Boating Advisory Committee**

**Prepared by**

**Thomas J. Murray  
VIMS Sea Grant  
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## FOREWORD

Increasingly, recreational boating and its supporting industries are being affected by governmental policy, regulatory changes and allocation procedures. Clearly those charged with making these decisions cannot understand the impacts of their management decision on related business, individuals, and their livelihoods without possessing some knowledge of the general linkages between boaters and local economies.

This initial estimate of some of the economic impacts of boating in Virginia is a first step in that direction. Hopefully a better knowledge of the nature, recent growth and present magnitude of boating in the Commonwealth will insure that decisions made which influence its existence will be based on the best information possible.

## INTRODUCTION

Virginia is for boaters. Whether whitewater canoeing in the mountains, waterskiing on picturesque Smith Mountain Lake, or sailing the thousands of miles of historic Tidewater coast lines, Virginia has it all.

The Commonwealth's boats and boaters are as diverse as its waterways together adding up to a very important part of life in Virginia. The total benefits provided by the widespread leisure activity are too numerous to count and the total value of recreational boating probably too complex to quantify. So-called "psychic" values

of recreational boating (as any recreational activity) are accounted only in the minds of the participants and as such remain too ephemeral to express in dollar terms.

Although "user value" to the recreational boater is an important and valid economic concept, for the sake of measurement a second-best attempt is necessitated herein. As the proxy for the "user value" dollar expenditures associated with boating will be accounted. For this reason the level of spending aggregated will measure the economic activity relying upon boating but will probably only provide a minimum estimate of the true "user value" of recreational boating. The difference in theory is between the boaters' "willingness to pay" and "the amount paid." In short this difference or "consumer surplus" is also a component of the true value of Virginia's recreational boating activity. How great this psychic value is to Virginia boaters is important but its "measurement" is better left to philosophers and politicians.

#### OBJECTIVES

In response to a request by the Virginia Boating Advisory Committee this study will undertake to:

1. Provide a description of the pleasure fleet of Virginia in terms of the number of vessels, their size classes, hull construction and types of propulsion. Recent trends in these characteristics will be reviewed.

2. Based upon the physical characteristics, use patterns and boating season comparisons will be made between the State's fleet and that of the Nation.

3. Utilizing these comparisons, projections of spending levels associated with this boating activity will be made for Virginia based upon secondary national data available and primary information for Virginia.

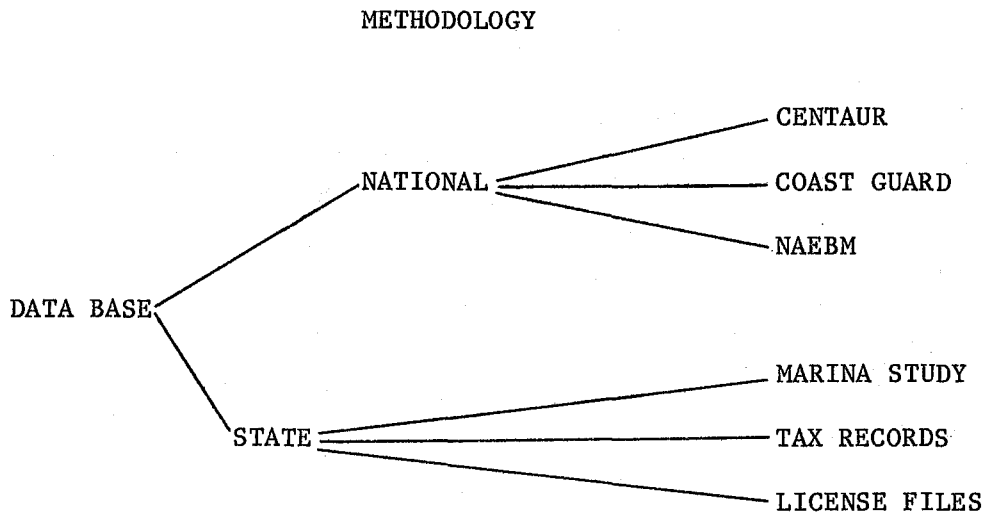
In analyzing an activity like boating the first problem is one of definition. There really is no singular boating product, good or service. Boating experiences are usually a complex package comprised of numerous activities (fishing, skiing, cruising, picnicing, etc.). Thus the definition here will be broad, accounting as completely as possible expenditures on the main products and activities related to a recreational boat.

Review of existing secondary and primary data regarding recreational boating both nationwide and in Virginia has been completed. Fitting this data to yield comprehensive information on our fleet, its activities, and related spending will provide the best available estimate of the level of economic activity resulting from the Virginia boating public's expenditures.

To date, the only reasonably complete information on recreational boating expenditures is on the national level. Yearly retail sales estimates by the National Association of Engine and Boat Manufacturer (NAEBM) for new and used equipment, services, insurance, fuel,

mooring, and launching fees, repairs, etc. offers an aggregate of recreational boating economic activity in terms of dollars spent.

Complementing these estimates is the work completed by Centaur Management Consultants, Inc. (C.M.C.) on the "Economic Activity Associated with Marine Recreational Fishing" in 1976. C.M.C. looked at total annual sales for particular fishing related goods or services at each level of economic activity (manufacturing, wholesale, retail). By totaling the various levels of economic activity associated with boating related expenditures (boats, motors, trailers, marinas, fuel, etc.) they were able to prorate a share of that activity based upon the average percentage of boat time used for angling. Thus we may,



by reversing their analysis, total sectoral expenditures on the national level for boating related industries relatively easily. Further, a brief look at so-called "responding" or multiplier effects will yield a more complete conception of the boating industries' economic importance to the State.

Using these two national partial data bases, the next step is to estimate Virginia's portion of this national activity. The primary basis for comparison of Virginia's boating activity with the U.S. will rest upon a very simple reasoning. Logic rests upon the assumption that if Virginia's fleet is similar to the Nation's in terms of vessel size, hull construction, types of propulsion, length of boating season, and the activities of boaters, then Virginia may be assumed a normal subset of the national fleet. If Virginia's fleet is comparable to the Nation's in physical and use characteristics then we may assume Virginia's a "normal" component of their overall population, contributing a share to each subsector, proportional to the national level. Simply put, if Virginia's boats, boating season and boater activities are comparable to those of the Nation then the economic activity resulting from their use is as that of the Nation: i.e. Virginia boaters spend as the Nation's boaters spend - on the average. Therefore the first step in this progression is a descriptive analysis of Virginia's boat population, comparison with the U.S. and finally summarizing the spending associated with the operation of both fleets.

#### THE FLEET

As displayed in Figure 1 and Appendix 1 Virginia's registered boats have exhibited a continued growth during the decade of the seventies. As of December 31, 1979, the Commonwealth recorded 140,444 boats of all lengths, hull materials and engine sizes. This figure represents



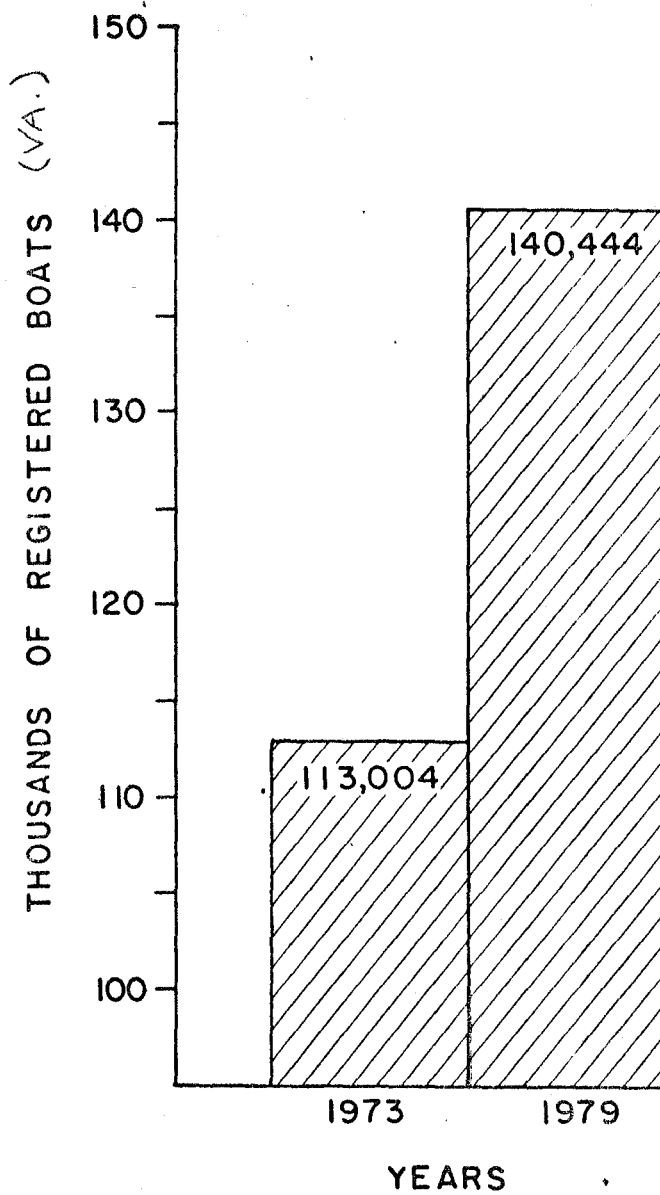


FIGURE 1

almost a 25% increase from 1973 when just over 113,000 motor boats were licensed.<sup>1</sup>

Further, over this same time period the state's population has increased a total of just under seven percent. Not only has Virginia's population expanded at a rapid rate, but its people are increasingly boat oriented. Put another way, the density of boats per capita has increased from one for every 43 people in 1973 to one for every 37 today.

Although the number of boats registered in Virginia has grown substantially over the decade of the 70's this rapid rate of increase has begun to slow down since 1977. For example, as can be seen in Appendix 2 the growth in boat registrations has slowed in both absolute and percentage terms in the last five years.

Between 1976 and 1977 registration grew by about 1750 boats (4%). The most recent period for which data is available (1978-1979) shows a net increase of 1021 boats or less than 1% (.007).

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<sup>1</sup>Because of a change in registration requirements in 1972 a more historical comparison is not possible. Before 1972 only motorized boats of greater than 10 hp were registered. Since that time all motor powered boats have been required to register.

For the most recent period the leading counties in Virginia for boat registrations were:

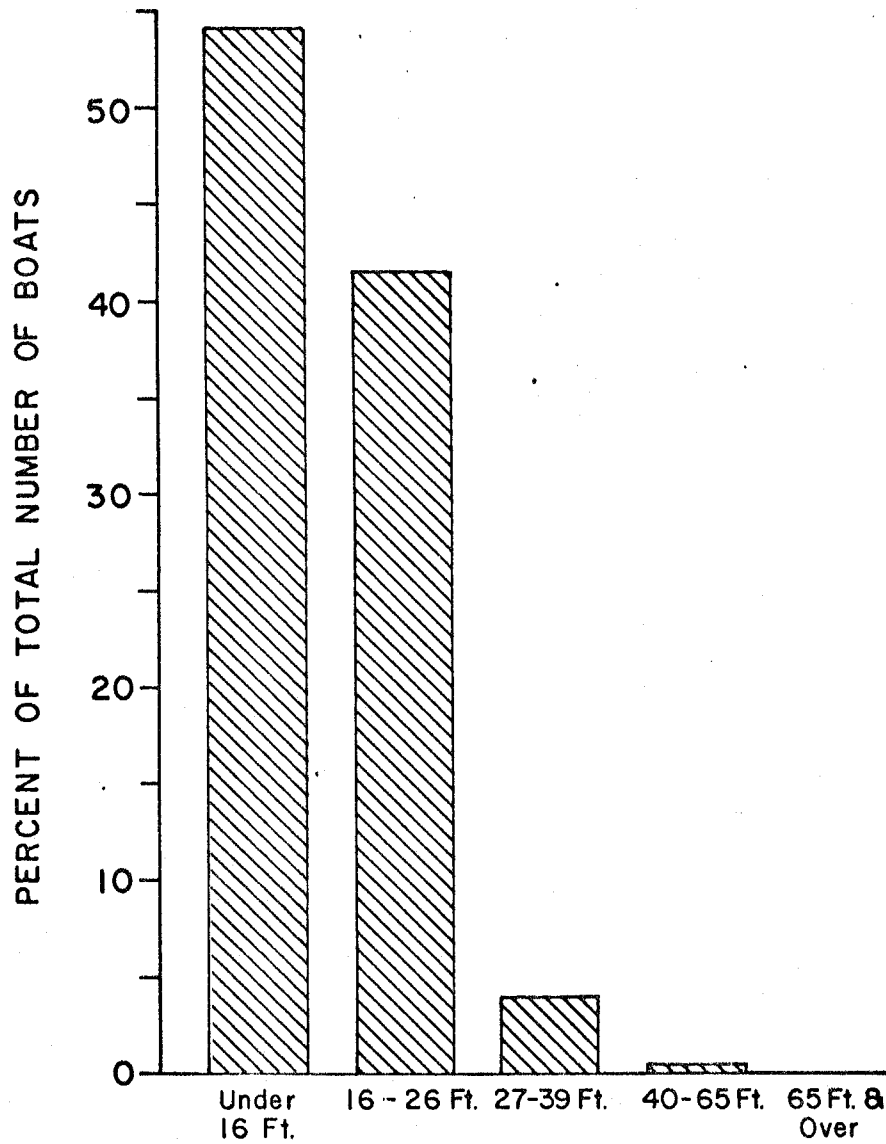
Fairfax	7,023 boats
Chesterfield	4,993
Accomac	3,964
Middlesex	3,313
Westmoreland	2,957

The largest concentration of boats is in the Virginia Beach area which has 6.4% of all boats registered in the state - 8,946.

Figures 2-4 display the Virginia fleet by vessel size and recent trends in vessel propulsion type and hull construction. As shown most boats are under 26 feet (96%) powered by outboard motor (83%), constructed of either fiberglass or aluminum (82%). The trends seem to be away from wooden hulls and primarily toward fiberglass. Growth in aluminum hull construction has been consistent, but has not increased on the margin as rapidly as fiberglass. Propulsion has shown no major changes of recent, the growth in inboard motors experienced during the early 70's has apparently reached a plateau.

As seen in the enclosed comparison (Appendix 4) Virginia's fleet is very similar to the nation's in physical terms (size, hull material and propulsion systems).

Two other factors must be identified before comparisons of associated economic activity can be made between Virginia and the rest of the Nation. Specifically we need to know how these boats are used



BOATS - SIZE CLASSES (1979)

FIGURE 2

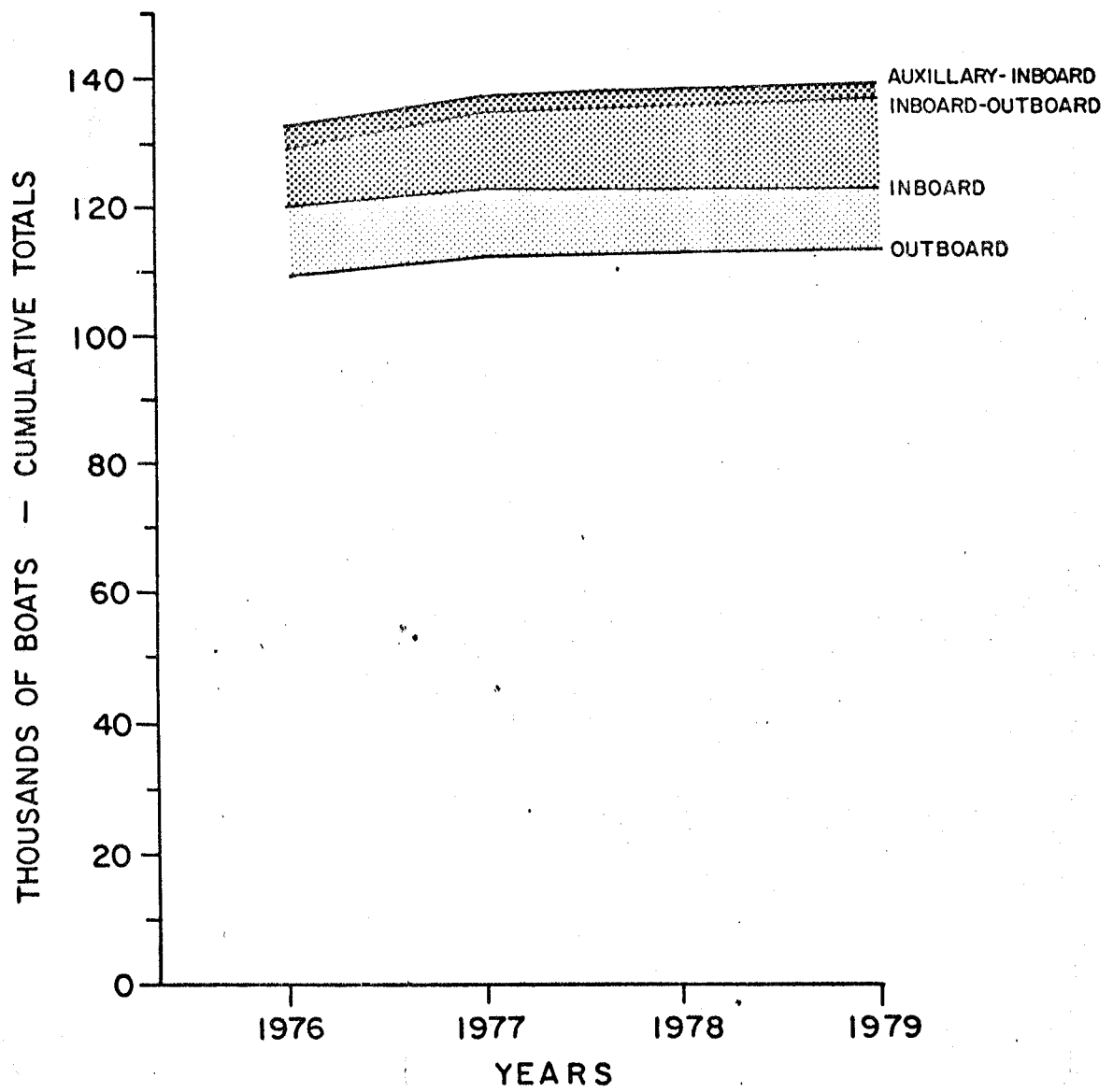


FIGURE 3

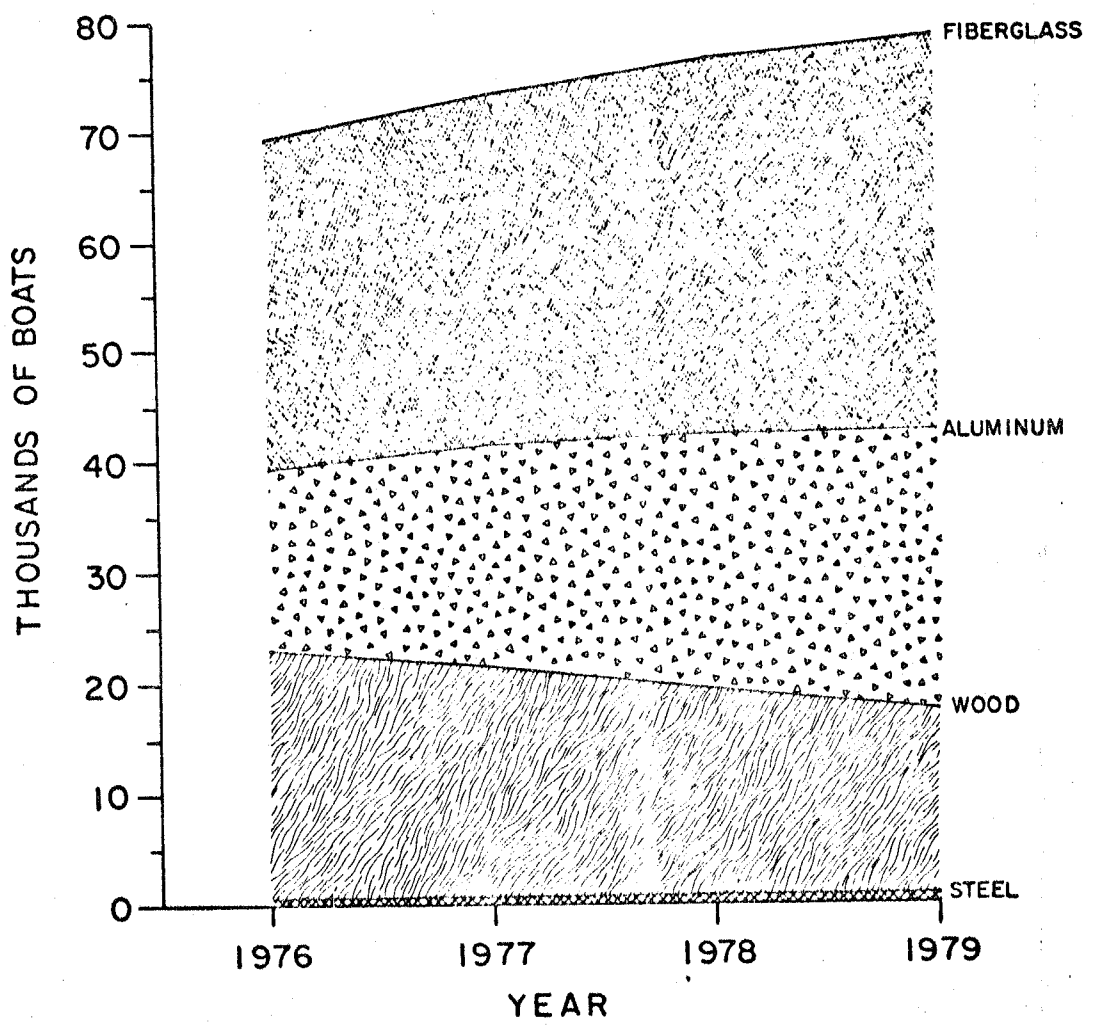


FIGURE 4

and over what period of time. In others words, to complete the picture of Virginia's pleasure fleet we need a knowledge of the boating activity patterns and the length of the boating season.

According to a survey of marinas conducted by VIMS in 1978, Virginia's pleasure fleet is used principally from mid-April to late October - about 6 months. This compares reasonably with the reported seasons for the U.S. boating public in general. According to Coast Guard interviews with boating households nationwide, the typical boater is actively pursuing his sport for 5-6 months per year - from May to October. Virginia's geographic location seems to put it in an "average" position nationally in terms of weather - a key variable in determining boating activity. Virginians need not suffer the prolonged inclement weather limiting most northern boaters, nor can they enjoy the full 12 month boating season of many southern states.

Finally, by comparing boating activity we can conclude analysis of data comparability. According to the marina study conducted at VIMS and results of the Coast Guard's national survey, Virginians are a "normal" subset of the nation in the relative amounts of boat time they spend pursuing different activities. The table below displays the time spent in various boat related activities.

TABLE 1

<u>ACTIVITY</u>	<u>% TIME SPENT</u>	
	U.S. (1976)	VA (1978)
Recreational Fishing	44.7	44
Cruising Sailing	31.5	27
Skiing	<u>13.7</u>	<u>8</u>
	90.0	79.0
Hunting	1.6	-
Racing	1.3	-
White Water Canoeing	1.2	-
Other Canoeing	4.6	-

Again for the sake of comparison, Virginia's boaters seem to spend about the same amount of their time in respective activities as the average U.S. boatman.

ECONOMIC IMPACT ESTIMATE FOR VIRGINIA'S  
RECREATIONAL BOATING SECTOR AND SUPPORTING INDUSTRIES

As discussed at the outset - the purpose of this cursory study was both descriptive and quantitative. The preceding has provided a brief depiction of Virginia's fleet and some indication of the activities related to boat use. We will go one step further and attempt to partially estimate the levels of spending associated with the fleet's activities in a given year.

Again there is no one "recreational boating industry" as such. Expenditures made while participating in the boating activity



contribute to economic activity in a variety of sectors in Virginia and the nation.

For the sake of exposition we will attempt to estimate the impact of this activity on sales generated in the following sectors (C.M.C.):

Boats	All recreational boats sold for use in both fresh and salt water
Motors	All outboard motors sold for use in fresh and salt water
Trailers	All boat trailers sold for use in conjunction with the above boats.
Marinas	All marinas both in fresh and salt water areas.
Boat Fuel	Fuel used in all recreational boating activity both fresh and salt water.
Commercial Sport Fishing Vessels	Saltwater Charter and Head Boat Businesses
Insurance	All recreational boat insurance for boats used in fresh and salt water.
Taxes	Public revenues generated by the assessment of property taxes on recreational boats.

Excluded from this summary of expenditures will be sales associated expressly with recreational fishing activity (sale of licenses, fishing tackle and bait). Also no attempt will be made to estimate expenditures for food, travel and lodging consumed while participating in recreational boating in Virginia.

As mentioned in the fleet comparisons the data available generally is for the national level. Using a proportional estimate we

may begin to get some idea of the probable scale of economic activity of the appropriate sectors in Virginia. According to the Coast Guard, Virginia's registered pleasure fleet is 1.7% of the total U.S. pleasure fleet. From the above observations we can assume that our boats and boaters are a representative sample and we'll further assume that Virginia's activity in the various support industries is a simple proportionate share of the U.S. total. This proportion is figured for Virginia (based upon C.M.C., 1975) in Table 2.

TABLE 2

COMPARISON OF SALES FOR SELECTED SECTORS ASSOCIATED WITH  
RECREATIONAL BOATING FOR THE U.S. AND VIRGINIA (1975 ESTIMATE)

	U.S. SALES (\$1,000,000)	VIRGINIA SALES (\$1,000,000)
Boats	989	16.8
Motors	411	7.0
Trailers	88	1.5
Marinas	540	9.2
Commercial Sport Fishing	122	2.07
Boat Fuel	410	7.0
Insurance	266	4.5
	<u>\$2,826</u>	<u>\$48.07</u>

In addition to the direct retail sales presented above, additional impacts for value added, personal income and employment occur in other sectors of the economy serving the direct sectors.<sup>2</sup> These multiplier effects are obtained by C.M.C. from input/output tables of the U.S. economy. Again the assumption herein is that Virginia shares in these interindustry linkages seen at the national level.<sup>3</sup>

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<sup>2</sup> Briefly indirect spending arises from purchases of goods and services (production inputs) in the direct sectors. Induced spending (responding) arises from the added impact of employee incomes, profits and interest arising in both the direct and indirect sector. For more detailed explanation see Tiebout (1962).

<sup>3</sup> Though perhaps an heroic assumption, it is one often made in economic base analysis as a simplifying or indirect measure of economic interrelationships in local areas. For a more detailed discussion of this "location quotient" approach to economic base measurement see Tiebout (1962).

Summarizing these multipliers for Virginia, Table 3 estimates total direct economic impacts associated with the included sectors (1975 estimate).

TABLE 3  
TOTAL DIRECT ECONOMIC IMPACTS IN SELECTED SECTORS  
ASSOCIATED WITH RECREATIONAL BOATING IN VIRGINIA (1975)

<u>SECTOR</u>	<u>RETAIL SALES</u> (\$1,000,000)	<u>MULTIPLIER EFFECT</u>	<u>TOTAL SPENDING</u>
Boats	16.8	1.24	20.83
Motors	7.0	1.24	8.68
Trailers	1.5	1.24	1.86
Marinas	9.2	1.67	15.4
Commercial	2.07	1.88	3.9
Sportfishing			
Boat Fuel	7.0	1.22	8.5
Boat Insurance	<u>4.5</u>	<u>1.32</u>	<u>5.9</u>
	48.07		65.07

In Table 4 these estimates are further improved by adding data from two studies conducted in Virginia. Marshall's survey of charter and headboat expenditures in 1978 reported direct impacts of about 3.5 million (Table 4). Lucy surveyed commercial marinas in Virginia's coastal zone for, among other things, information on gross revenues. In 1977 Virginia's 180 coastal marinas only reportedly were responsible for gross revenues of about \$32 million--of this an estimated 82% or \$26.24 million arose from recreational boating

related sales, a substantial increase over the above estimation by C.M.C.

Further adjusting the above figures for inflation, the total level of expenditures would increase to approximately \$102,000,000 in 1980 dollars.<sup>4</sup>

Aside from the significant changes the price level since 1975, additional increases (12%) in the number of boats registered since then has probably further increased the direct retail expenditure associated with recreational boating in Virginia.

TABLE 4

ESTIMATED TOTAL DIRECT ECONOMIC IMPACTS IN MAJOR SECTORS  
ASSOCIATED WITH RECREATIONAL BOATING IN VIRGINIA - 1980

	RETAIL SALES 1980 dollars (\$1,000,000)	DIRECT MULTIPLIER EFFECT	TOTAL DIRECT SPENDING
Boats	26.2	1.24	32.5
Motors	10.9	1.24	13.5
Trailers	2.3	1.24	2.9
Marinas <sup>5</sup>	20.4	1.67	34.1
Head/Charter	4.5	1.88	8.46
Boat Fuel	10.9	1.22	13.3
Boat Insurance	7.0	1.32	9.2
			<u>113.96</u>

<sup>4</sup> Retail sales figures are adjusted using annual average consumer price indices (CPI) provided by the U.S. Dept. of Labor. The indices used are: CPI 1975 = 161.2; 1977 = 181.5; 1978 = 195.4; 1980 = 251.7

<sup>5</sup> In addition to only covering coastal marinas the figure for marina sales reported by Lucy included sales of boats and motors. Repeatedly 44% of total sales (at marinas with boat/engine sales) were comprised of boats and motors; for this reason, the figures above actually represents 56% of total marina sales having been adjusted to avoid double-counting.

With these adjustments, the best available estimate of total direct economic impacts in the selected sectors would be between \$125 and \$130 million.

Interpretation of this estimate should be carefully qualified so as not to mislead the reader.

Beyond these direct economic impact estimates should be added: 1) indirect multiplier effects from sectors which in turn provide supplies and services to the above direct sectors; 2) induced spending impacts which arise from the added impact of "respend" employee incomes, profits, and interests arising in the direct and indirect sectors as a result of boating activities.

For example, Centaur found that the total level of spending resulting from direct sales in recreational fishing sectors, following the multiplier or respending process, was over twice the initial expenditure. For this reason the indirect economic impact of recreational boating in Virginia estimated here may be considered a minimum estimate.

#### Finally Some Qualifications

The above estimate clearly ignores many sources of spending associated with recreational boating in Virginia. For example:

1. According to Centaur, related spending for travel, food, and lodging would comprise 25% of all boating related spending.

2. Basing the estimates on only registered water craft ignores Virginia's extensive non-motorized fleet made up of sailboats, canoes, kayaks, etc.
3. Expenditures by out-of-state boat owners recreating in, or passing through, the Commonwealth are unreported except for those sales which show up under various expenditure categories.
4. Virginia has a disproportionate concentration of documented yachts (1156 or 2.3% of the total nationwide). Clearly spending by these vessel owners would add significantly to the estimates.
5. Boat owners know that much of the cost of operating a boat are comprised of "do-it-yourself" projects with expenditures for inputs into boat maintenance and fitting not affected herein.

Probably the most significant figure ignored so far has been the substantial level of capital invested in recreational boating. To an economist, the capital tied up in Virginia's extensive fleet represents an additional boating expenditure in terms of opportunity cost or simply the foregone value of those dollars invested elsewhere.

Estimates of total capital investments in boats and boating facilities are beyond the scope of this report. However, preliminary estimates of county property tax levies representing about 1/5 of the state registered recreational fleet substantiate the significant capital values of the fleet. For the counties keeping records on boat related property taxes, the total revenues collected were \$6.0 million for 1979. Although the methods of valuation varied, the average assessment ratio was about 4.5% of actual reported blue book value.

In addition to these revenues, state sales taxes of \$3.3 million and boat registration fees of about \$0.5 million were also collected from the recreational boating sector.



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## APPENDIX 1

COMMISSION OF GAME AND INLAND FISHERIES  
BOAT REGISTRATION BY COUNTY AND CITY

<u>COUNTY</u>	<u>12-31-76</u>	<u>12-31-77</u>	<u>12-31-78</u>	<u>12-31-79</u>	<u>% Total 1979</u>
Accomac	3,892	3,900	3,893	3,964	2.83
Albermarle	744	790	822	805	.57
Alleghany	194	213	239	268	.19
Amelia	173	177	197	208	.15
Amherst	328	340	326	340	.24
Appomattox	174	179	196	197	.14
Arlington	980	942	915	831	.59
Augusta	799	896	937	969	.69
Bath	100	109	111	124	.08
Bedford	1,836	1,976	2,085	2,125	1.50
Bland	38	44	48	50	.03
Botetourt	338	389	398	406	.28
Brunswick	439	464	500	518	.36
Buchanan	738	802	819	809	.57
Buckingham	206	220	242	268	.19
Campbell	984	974	973	947	.67
Caroline	473	503	540	561	.40
Carroll	290	314	330	338	.24
Charles City	430	441	436	472	.34
Charlotte	235	244	267	288	.21
Chesterfield	4,309	4,565	4,754	4,993	3.52
Clarke	172	188	211	210	.15
Craig	51	55	55	55	.03
Culpeper	272	312	329	348	.25
Cumberland	123	139	143	140	.09
Dickenson	531	570	583	585	.41
Dinwiddie	623	667	691	706	.50
Essex	1,067	1,100	1,082	1,076	.77
Fairfax	6,602	6,802	6,955	7,023	5.01
Fauquier	348	396	446	456	.32
Floyd	86	100	109	107	.07
Fluvanna	299	338	359	366	.26
Franklin	1,998	2,174	2,296	2,350	1.70
Frederick	472	475	477	476	.33
Giles	216	217	225	243	.17
Gloucester	2,312	2,365	2,418	2,494	1.80
Goochland	243	252	270	275	.20
Grayson	153	155	170	185	.13
Greene	77	92	102	119	.08
Greensville	450	481	475	454	.32
Halifax	688	746	788	784	.55
Hanover	1,717	1,845	1,925	1,938	1.40
Henrico	4,420	4,544	4,510	4,384	3.10
Henry	1,194	1,219	1,275	1,306	.93
Highland	5	6	9	7	.00
Isle of Wight	937	976	963	991	.70
James City	1,039	1,089	1,019	1,024	.73
King and Queen	368	382	402	392	.28
King George	619	655	664	707	.50

<u>COUNTY</u>	<u>12-31-76</u>	<u>12-31-77</u>	<u>12-31-78</u>	<u>12-31-79</u>	<u>% Total 1979</u>
King William	654	694	695	738	.52
Lancaster	2,295	2,354	2,399	2,424	1.72
Lee	206	233	249	294	.21
Loudoun	758	816	841	848	.60
Louisa	754	802	831	850	.60
Lunenburg	242	258	275	271	.19
Madison	100	103	116	112	.07
Mathews	1,966	2,023	2,056	2,043	1.50
Mecklenburg	1,564	1,643	1,645	1,672	1.20
Middlesex	3,155	3,298	3,271	3,313	2.44
Montgomery	803	828	839	878	.63
Nelson	143	152	171	172	.12
New Kent	1,159	1,189	1,137	1,157	.82
Northampton	1,465	1,463	1,448	1,476	1.10
Northumberland	2,713	2,810	2,861	2,907	2.10
Nottoway	350	392	399	384	.27
Orange	546	577	611	643	.46
Page	342	353	369	360	.26
Patrick	223	256	272	286	.20
Pittsylvania	1,364	1,445	1,479	1,528	1.10
Powhatan	302	349	407	470	.33
Prince Edward	197	214	214	225	.16
Prince George	803	884	901	918	.65
Prince William	3,887	4,059	4,092	4,062	2.90
Pulaski	1,813	1,928	2,001	2,070	1.50
Rappahannock	47	60	64	62	.04
Richmond	674	655	695	702	.50
Roanoke	1,202	1,173	1,191	1,186	.84
Rockbridge	176	179	191	194	.14
Rockingham	657	726	777	774	.55
Russell	387	417	419	434	.31
Scott	151	169	188	197	.14
Shenandoah	412	424	438	436	.31
Smyth	283	311	323	325	.23
Southampton	923	1,009	1,016	1,008	.72
Spotsylvania	952	1,128	1,216	1,277	.91
Stafford	1,501	1,636	1,715	1,795	1.30
Surry	430	424	391	395	.28
Sussex	245	255	263	276	.20
Tazewell	703	785	829	849	.60
Warren	475	498	482	471	.34
Washington	927	1,021	1,086	1,178	.84
Westmoreland	2,736	2,898	2,944	2,957	2.15
Wise	864	950	1,001	1,134	.81
Wythe	305	314	326	325	.23
York	2,758	2,652	2,537	2,424	1.70

<u>CITIES</u>	<u>12-31-76</u>	<u>12-31-77</u>	<u>12-31-78</u>	<u>12-31-79</u>	<u>% Total 1979</u>
Alexandria	1,047	1,033	1,063	1,004	.71
Bedford	39	52	64	135	.09
Bristol	128	159	173	194	.14
Buena Vista	48	53	54	50	.03
Charlottesville	525	527	520	490	.35
Chesapeake	3,578	3,704	3,757	3,747	2.70
Clifton Forge	52	49	47	54	.04
Colonial Heights	696	730	729	757	.54
Covington	92	101	101	107	.08
Danville	804	781	751	749	.53
Emporia	73	99	111	136	.10
Fairfax	580	570	538	468	.33
Falls Church	226	218	193	186	.13
Franklin	261	249	242	271	.19
Fredericksburg	486	482	473	492	.35
Galax	79	78	86	87	.06
Hampton	3,350	3,331	3,238	3,179	2.30
Harrisonburg	113	110	110	126	.09
Hopewell	1,018	1,072	1,057	996	.71
Lexington	11	15	16	17	.01
Lynchburg	536	590	648	670	.48
Manassas	40	81	127	154	.11
Manassas Park	8	20	34	39	.03
Martinsville	270	280	270	264	.19
Newport News	2,928	2,941	2,814	2,757	2.00
Norfolk	5,584	5,417	5,183	4,922	3.50
Norton	39	46	53	54	.04
Petersburg	877	871	807	788	.56
Poquoson	185	409	635	724	.52
Portsmouth	2,175	2,152	2,075	2,025	1.40
Radford	247	263	287	276	.20
Richmond	3,427	3,384	3,239	3,089	2.20
Roanoke	1,895	1,868	1,827	1,808	1.30
Salem	356	374	387	406	.29
South Boston	91	91	91	93	.07
Staunton	267	261	267	267	.19
Suffolk	2,186	2,222	2,182	2,121	1.50
Virginia Beach	8,456	8,713	8,904	8,946	6.40
Waynesboro	276	282	267	261	.19
Williamsburg	179	175	167	179	.13
Winchester	193	186	186	174	.12
Out of State	25	6	0	0	0
<b>TOTAL</b>	<b>132,830</b>	<b>137,674</b>	<b>139,423</b>	<b>140,444</b>	<b>99.98</b>

APPENDIX 2

# Virginia Boats by Size Classes by Years

	<u>Under 16 ft.</u>	<u>16-26 ft.</u>	<u>26-40 ft.</u>	<u>40-65 ft.</u>	<u>65 ft. and over</u>
1976	71,540	55,074	5,249	370	7
1977	73,270	58,084	5,303	376	5
1978	72,562	60,411	5,360	360	6
1979	71,785	62,103	5,367	361	6

# Virginia Boats by Hull Material by Years

	<u>Wood</u>	<u>Fiberglass</u>	<u>Alum.</u>	<u>Steel</u>	<u>Rubber</u>
1976	22,956	68,926	39,299	778	281
1977	21,497	73,250	41,216	770	308
1978	19,168	76,424	42,100	758	321
1979	17,463	78,654	42,599	720	358

# Virginia Boats by Propulsion Type by Years

	<u>Inboard</u>	<u>Outboard</u>	<u>Inb-Outb</u>	<u>Aux-In</u>
1976	10,858	109,707	9,241	2,434
1977	10,469	112,933	11,052	2,584
1978	10,139	113,122	12,733	2,705
1979	9,826	113,190	13,940	2,666

Total # Registered Boats in Virginia by Years

<u>Years</u>	<u>Total Boats</u>	<u>Increase from Previous Year</u>
1976	132,830	
1977	137,674	4%
1978	139,423	1%
1979	140,444	0.7%

APPENDIX 3

Boat Registrations

	<u>New*</u>	<u>Transfers</u>	<u>Renewals</u>
1975	16,607	13,471	22,099
1976	15,385	14,667	24,901
1977	14,220	14,410	20,015
1978	14,039	14,714	25,350

\*New Boat Sales

APPENDIX 4

1976 -- % - Virginia vs. National

Size class (%)

	<u>Under 16</u>	<u>16-27</u>	<u>28-29</u>	<u>40-65</u>	<u>65 and Over</u>
Virginia	54.1%	41.6%	4%	.28%	.02%
National	54.9%	41.2%	3.3%	.55%	0%

Hull Type

	<u>Wood</u>	<u>Fiberglass</u>	<u>Alum.</u>	<u>Steel</u>	<u>Rubber</u>
Virginia	17.3%	52.1%	29.8%	.59%	.21%
National	10	44	33%	1.4%	.60%

Propulsion

	<u>Inboard</u>	<u>Outboard</u>	<u>In-Out</u>	<u>Aux-In</u>
Virginia	8.2%	83%	7%	1.8%
National	9.3%	80%	8.7%	N/A