

2019 Life Jacket Wear Rate Observation Study

featuring
National Wear Rate Data from 1999 to 2019



*Produced under a grant from the
Sport Fish Restoration and Boating
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Coast Guard.*

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Promoting and Improving Health

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I. Introduction

This report provides data and analysis on the 2019 National Life Jacket Wear Rate Observation Study with comparison information from the previous twenty years' of studies (1999-2018). Tracking changes in life jacket wear rates over time provides important statistics for those individuals and groups responsible for educating the public about boating safety, improving boating safety programs, and for legislative efforts targeting safety improvements for recreational boating. The 2018 Recreational Boating Statistics report, published by the United States Coast Guard (USCG), shows that among the 425 drowning deaths in 2018 where life jacket use or nonuse was known, 84% (356) of the individuals were reported as not wearing a life jacket. These statistics make it essential to not only track the national life jacket wear rate among recreational boaters, but also to understand the circumstances and patterns in which life jackets are worn.

Calendar year 2019 marked the twenty-first year of life jacket wear rate data collection efforts conducted by JSI Research & Training Institute. The cumulative years of data allow for a higher level of analysis (i.e., controlling for the impact of influencing factors like age, weather, and boat type) in order to unmask potential trends and indicators of increased or decreased life jacket wear among different groups of recreational boaters.

This year we have added a chapter which provides state by state data with a comparison to national data. Since n's are smaller for individual state information, the data presented are grouped in three-year intervals. Wear rates are presented for general boat types (powerboats, sailboats and paddlecraft) and for three age groups (adults, teenagers, and youth under 13).

Most information in this report is presented separately for adults (18+ years old) and youth (0 to 17 years old) since wear rates are substantially different for these two groups. Over the twenty-one years of the presented data, the general distributions of age, gender, boat types, boat characteristics, and site characteristics have remained relatively stable. The appendix contains a detailed description of methods used and proportions of various boaters; boat and site characteristics are shown for the 1999-2019 period of data collection.

II. National Core Data Results

Adult Life Jacket Wear Rates on Open Motorboats 2006 to 2019

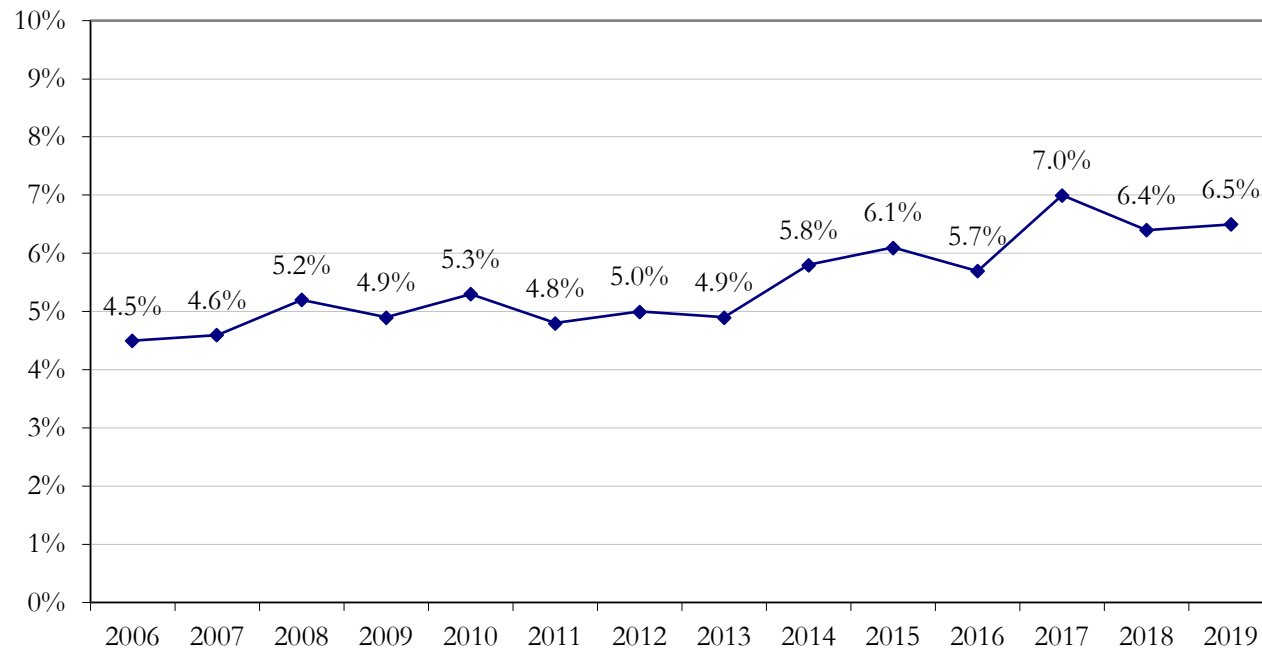
The National Boating Safety Advisory Council (NBSAC) recommended the creation of a strategic plan for the National Recreational Boating Safety Program in 2005. The goals, objectives, and strategies in this Plan can help all partners in boating safety work together to reduce the incidents of preventable deaths, injuries, and property damage. One of the objectives of all of the Strategic Plans since the 2005 plan is to increase the observed life jacket wear rate of adults in open motorboats. For the purposes of this measurement, “open motorboats” are a combination of the Skiff/Utility (hereafter as “skiffs”) and Runabout/Speedboat (hereafter as “speedboats”) categories that are individually presented later in this report. This objective was put in place beginning in 2006.

To ensure that comparisons to 2006 and each subsequent year are valid, the proportion of skiffs to speedboats in each state for each subsequent year was set to mirror the proportions found in 2006 since the wear rates for skiffs are generally greater than those for speedboats. For example, in 2006 the national proportion across all states of the number of skiffs to the number of speedboats was 22% versus 78%, but in 2011 the proportions were 31% to 69%. If proportions of these boat categories were not adjusted, the 2011 combined wear rate would appear more positive simply because JSI observed more skiffs relative to speedboats that year than in 2006. Similarly, the proportions are likely to fluctuate each year in each state.

Weighting each state’s data to correspond to the 2006 state ratios, the adult wear rate for open motorboats in 2019 is 6.5% and it represents a generally improving trend since 2006. (See Figure A for a chart showing these trends and also Table 2.2 on page 14.) Since 2006 the wear rates for open motorboats have shown a relative increase by 44% since 2006 going from 4.5% to 6.5%.



Figure A – Adult Wear Rates on Open Motorboats* 2006-2019
 (Weighted to 2006 Skiff-Speedboat Proportions for Each State)



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* The Open Motorboat category is created by grouping "Skiffs" and "Speedboat/Runabouts" together. Two factors are controlled for in this chart: Age (proportions of 18 to 64 and 65+ adults), and the proportion of Skiffs to Speedboat/Runabouts, which has been set each year within each state to reflect the proportions observed in 2006, the year in which the Strategic Plan goals were first measured. In addition, each state's contribution to the national average is weighted to reflect the 2006 proportions.

National Life Jacket Wear Rates for ALL Boaters 1999 to 2019

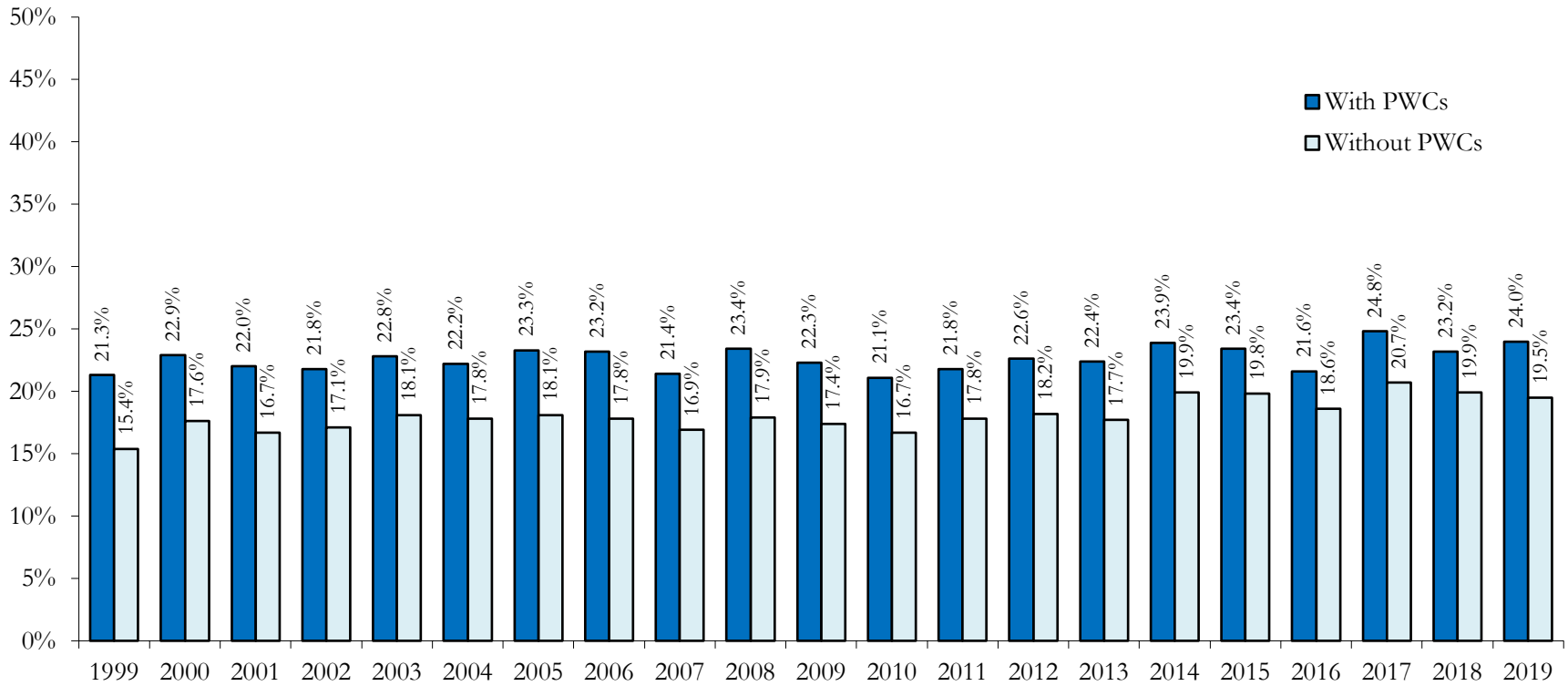
Figure B shows trends for national life jacket wear rates, including all groups of recreational boaters together (youth and adults) for two groups of boats - “all boats” and “all boats except PWCs”. The two sets of data present a clear indication of the impact of PWCs (Personal Watercraft) on the overall average wear rates. In subsequent tables in this report we remove PWCs from the findings since this will provide a more valid representation of the trends in voluntary wear rates, because life jacket wear is mandated for operators and passengers of PWCs in almost all the states where observations occur (the exception is Alaska for adults).

The average life jacket wear rate for all boats and boaters combined for 2019 was 24.0%. This is a relative increase of 13% since the beginning of the study.

The 2019 average wear rate excluding PWCs was 19.5%, which represents a relative increase of 27% since 1999.



Figure B – Life Jacket Wear Rates for ALL Boaters

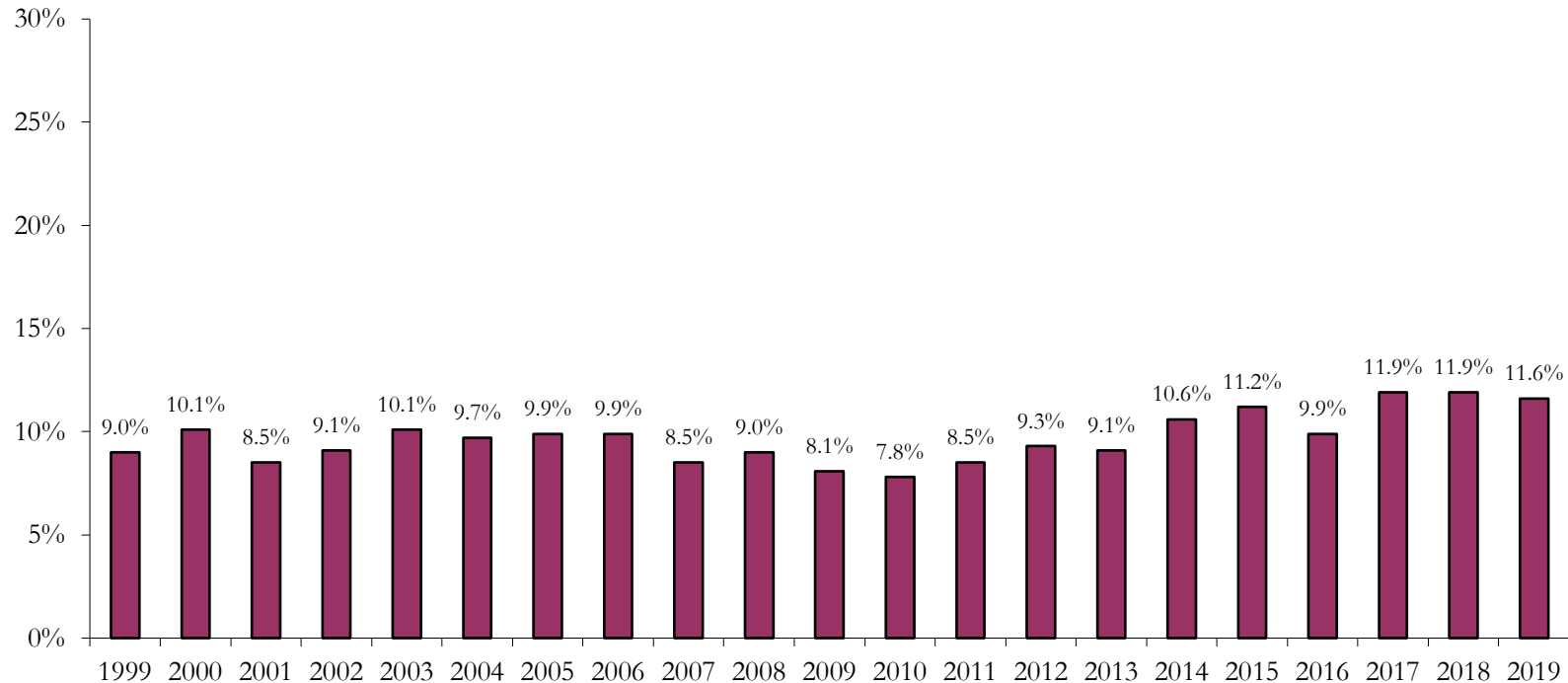


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*Factors controlled for: Age & Boat Type.

National Life Jacket Wear Rates for ADULTS (18 years or older) 1999 to 2019

Figure C and Table 2.1 show the national wear rate trend for all adults on all boats excluding PWCs. The national average wear rate for all adults in 2019 was 11.6%. The 2019 rate is the third highest wear rate recorded, representing a 29% relative increase since 1999 and a 49% relative increase since 2010.

Figure C – Life Jacket Wear Among Adult Boaters*
(All boats except PWCs)

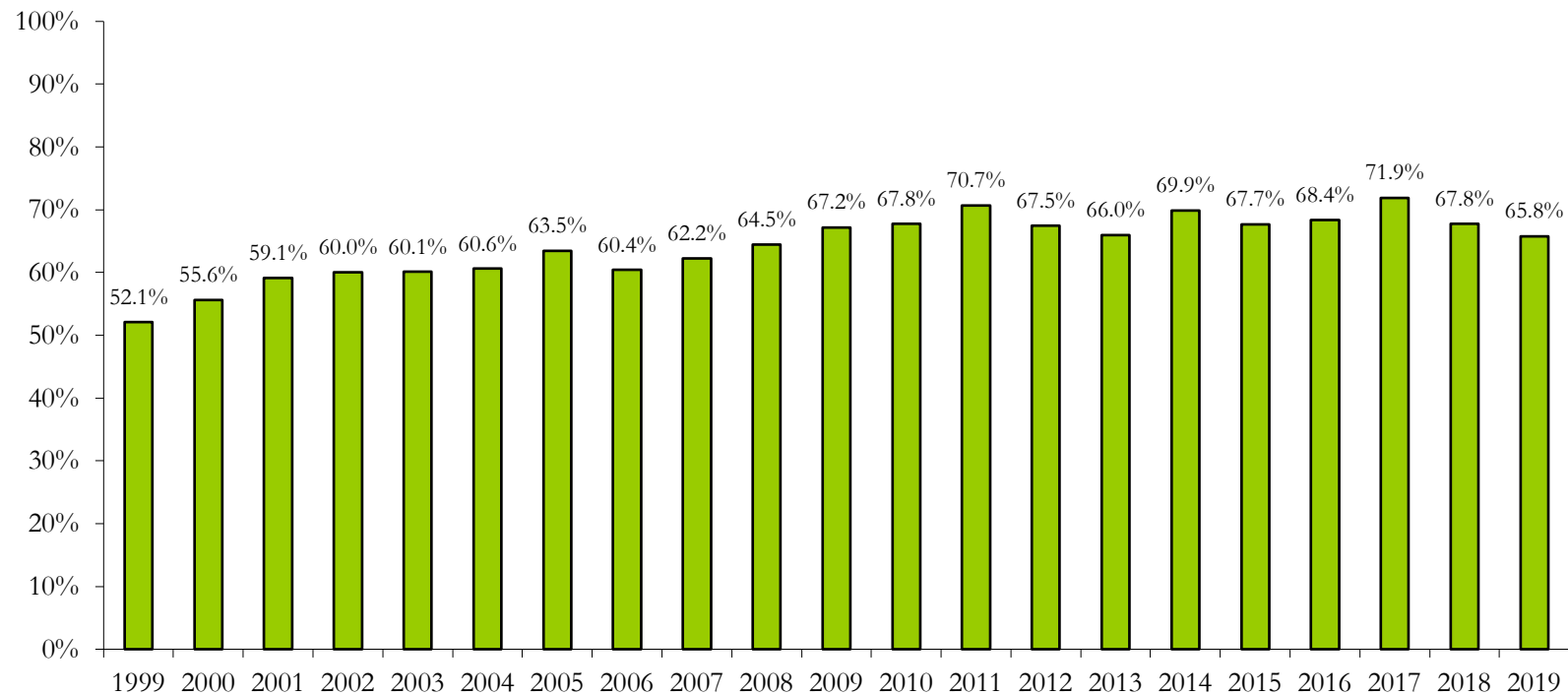


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*Factors controlled for: Age & Boat Type.

National Life Jacket Wear Rates for YOUTH (17 years or younger) 1999 to 2019

Figure D and Table 2.1 show the national wear rate trend for all youth (17 years or younger) on all boats except PWCs. These rates are relatively high across the twenty-one years of data shown, with a general upward trend. The wear rate for 2019 is 65.8%. This is a relative increase of 26% since the beginning of the study in 1999. However, this rate has decreased slightly from the highest rate of 71.9% observed in 2017.

Figure D – Life Jacket Wear Among Youth Boaters*
(All boats except PWCs)



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*Factors controlled for: Age & Boat Type.

Life Jacket Wear Rates by Age Categories 1999 to 2019

Table 2.1 presents wear rates by the different age categories captured in the study.

The youth (0-17) wear rate for 2019 was 65.8% a 26% relative increase since 1999. Wear rates for the under 6 age group have always been high; the 2019 rate of 93.2% represents a 16% relative increase since 1999. Wear rates for the 6-12 year olds were 82.2% and represent a 19% relative increase since 1999. Teenagers (13-17) wear rates of 38.9% represents a 61% relative increase since 1999.

For adults ages 18 to 64, the 2019 wear rate is 11.6%. This is the second highest rate recorded to date and represents a 32% relative increase since 1999.

For adults 65 years of age and older, the 2019 data show a wear rate of 12.0%.

As indicated in Figure C and in Table 2.1, for the combined adult group (18+ years), there has been a relative increase in wear rates of 29% since 1999.



Table 2.1 – Life Jacket Wear Rates by Age Excluding Boaters on PWCs*

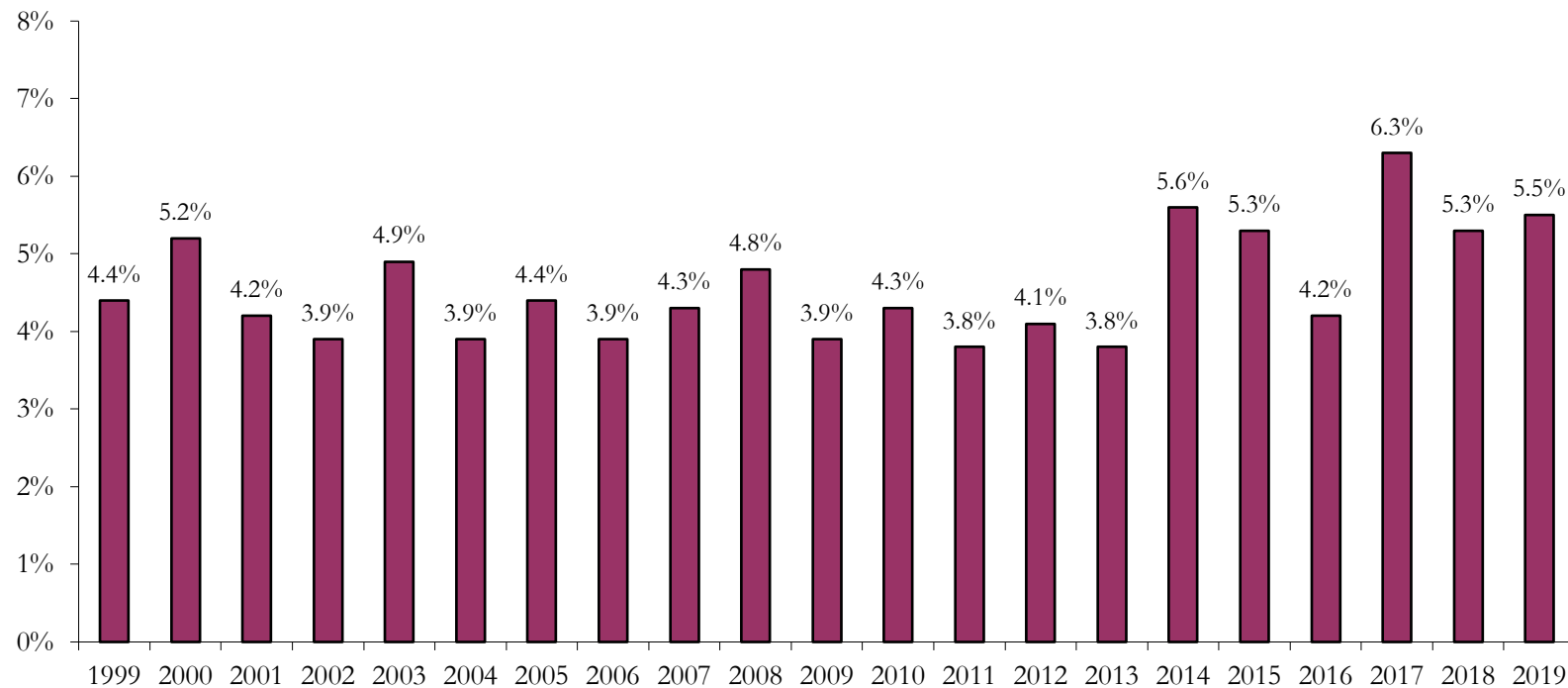
Age	Observation Year																		
	1999	2001	2002	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)
0 5 yrs	87.8%	91.9%	93.1%	94.4%	92.2%	93.5%	93.6%	94.8%	96.6%	94.7%	93.5%	94.5%	92.1%	92.9%	94.1%	90.4%	93.2%		
"blank"	(1919)	(2077)	(714)	(921)	(930)	(938)	(854)	(811)	(874)	(662)	(789)	(804)	(694)	(573)	(555)	(615)	(790)		
6 12 yrs	73.1%	81.3%	80.6%	79.1%	84.1%	87.3%	86.5%	89.1%	90.7%	84.9%	85.4%	87.3%	87.2%	84.1%	87.3%	86.2%	82.2%		
"blank"	(7922)	(32790)	(2487)	(2403)	(2819)	(2579)	(2812)	(2809)	(2381)	(2844)	(2494)	(2757)	(2227)	(2184)	(2131)	(2575)	(2473)		
13 17 yrs	28.9%	31.4%	32.8%	33.5%	31.5%	33.2%	38.9%	35.1%	41.4%	37.6%	34.9%	41.6%	37.2%	41.5%	46.5%	38.3%	38.9%		
"blank"	(7862)	(7914)	(2230)	(2403)	(2652)	(2507)	(2420)	(2127)	(1817)	(2163)	(1933)	(1837)	(1694)	(1675)	(2077)	(2138)	(2176)		
0 17 yrs (all youth)	56.0%	60.2%	63.5%	60.4%	62.2%	64.5%	67.2%	67.8%	70.7%	67.5%	66.0%	69.9%	67.7%	68.4%	71.9%	67.8%	65.8%		
"blank"	(17413)	(17849)	(5414)	(5713)	(6401)	(6024)	(6086)	(5747)	(5072)	(5669)	(5216)	(5398)	(4615)	(4432)	(4763)	(5328)	(5439)		
18 64 yrs	9.1%	9.7%	9.9%	10.0%	8.4%	9.1%	8.1%	7.7%	8.5%	9.2%	9.1%	10.4%	11.1%	9.9%	11.9%	11.9%	11.6%		
"blank"	(83949)	(93612)	(30176)	(29591)	(32108)	(30743)	(34632)	(36420)	(33267)	(32298)	(30843)	(33058)	(31012)	(30906)	(29760)	(34246)	(32918)		
65+ yrs	9.8%	8.3%	11.0%	8.3%	11.7%	6.1%	7.0%	10.7%	7.2%	11.8%	6.9%	13.3%	12.3%	11.0%	12.2%	11.7%	12.0%		
"blank"	(3463)	(3359)	(823)	(803)	(881)	(1190)	(1129)	(763)	(951)	(1122)	(1091)	(1634)	(1232)	(1339)	(1134)	(975)	(1078)		
18+ yrs (all adults)	9.2%	9.6%	9.9%	9.9%	8.5%	9.0%	8.1%	7.8%	8.5%	9.3%	9.1%	10.6%	11.2%	9.9%	11.9%	11.9%	11.6%		
"blank"	(87412)	(96971)	(30999)	(30394)	(32989)	(31933)	(35761)	(37003)	(34218)	(33420)	(31934)	(34692)	(32244)	(32245)	(30894)	(35221)	(33996)		

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*Factors controlled for: Age & Boat Type.

Powerboats for Adults (18 years or older)

Figure E and Table 2.2 present information for all powerboats for adults. The 2019 rate for all powerboats is 5.5%, a relative increase of 25% compared to 1999 rates. For individual powerboat types, there were no upward trends that encompassed the last three year period.

Figure E – Adult Wear Rates for ALL Powerboats Except PWCs*



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*Factors controlled for: Age & Boat Type.

Table 2.2 - Life Jacket Wear Rates by Powerboats for Adults*

Boat Type	Observation Year																		
	1999	2001	2002	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	
All Powerboats	4.6%		4.2%		4.4%		3.9%		4.3%		4.8%		3.9%		4.3%		3.8%		4.1%
(no PWC's)	(70206)		(78779)		(25741)		(25412)		(27623)		(27315)		(29924)		(30894)		(28954)		(27890)
Skiff/Utility	10.0%		8.3%		7.2%		7.3%		8.5%		9.2%		6.9%		9.7%		8.2%		7.8%
	(6239)		(11820)		(5038)		(4091)		(5340)		(6633)		(7257)		(6634)		(6530)		(6936)
Runabout/Speedboat	4.7%		4.2%		4.7%		3.7%		3.6%		4.1%		3.5%		3.2%		3.0%		3.3%
	(44643)		(43756)		(13643)		(14512)		(14414)		(13901)		(14635)		(15093)		(14381)		(13441)
Runabout/Speedboat (excluding towed participants)	4.0%		3.5%		3.7%		2.8%		2.9%		3.1%		2.5%		2.2%		2.3%		2.3%
	(44332)		(43409)		(13480)		14376)		(14313)		(13744)		(14481)		(14947)		(14279)		(13294)
Open Motorboats**	5.8%		5.1%		5.3%		4.5%		4.6%		5.2%		4.9%		5.3%		4.8%		5.0%
	(50882)		(55566)		(18681)		(18603)		(19754)		(20534)		(21892)		(21727)		(20911)		(20377)
Cabin Cruiser	1.5%		1.6%		1.1%		1.7%		2.0%		1.4%		1.6%		1.5%		1.6%		1.6%
	(14009)		(17472)		(5054)		(4280)		(5353)		(4430)		(5342)		(5900)		(5085)		(4611)
Houseboat	0.2%		2.0%		0.4%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%		0.0%
	(529)		(668)		(219)		(112)		(43)		(51)		(31)		(140)		(309)		(18)
Pontoon	3.8%		2.8%		4.1%		2.4%		2.7%		1.1%		2.1%		1.5%		1.4%		2.3%
	(4618)		(5176)		(1849)		(2276)		(2150)		(2051)		(2436)		(2922)		(2734)		(2624)
PWC	95.8%		95.4%		95.3%		97.1%		96.1%		97.6%		97.4%		97.5%		97.7%		96.9%
	(5751)		(5108)		(1858)		(1962)		(1736)		(2009)		(2093)		(1921)		(1524)		(1811)
Powered Inflatable/ Raft	17.1%		16.0%		1.9%		11.0%		19.1%		17.6%		11.9%		16.7%		14.3%		14.1%
	(697)		(555)		(157)		(253)		(366)		(228)		(254)		(345)		(224)		(278)

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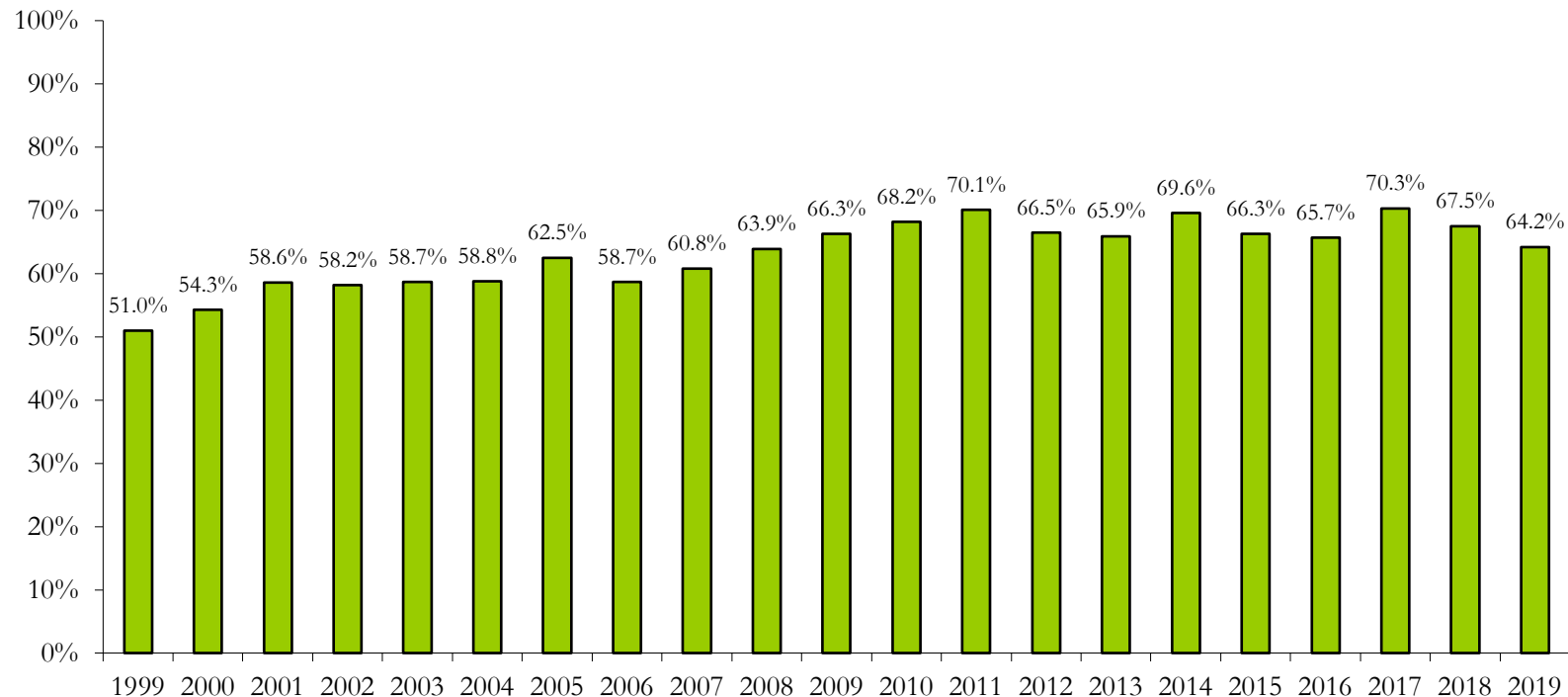
*Factors controlled for: Age & Boat Type.

** The Open Motorboat category is created by grouping "Skiffs" and "Speedboat/Runabouts" together. Factors controlled for in this line of the chart are Age (proportions of 18 to 64 and 65+ adults) and the proportion of Skiffs to Speedboat/Runabouts has been set in each year within each state to reflect the proportions observed in 2006, the year in which the Strategic Plan goals were first measured. In addition, each state's contribution to the national average is weighted to reflect the 2006 proportion.

Powerboats for Youth (17 years or younger)

Figure F and Table 2.3 present data for all powerboats for the three age groups of youth combined (17 years or younger). Wear rates for youth have been generally increasing over the years although they have leveled off since 2012. The 2019 wear rate is 64.2%, a relative increase of 26% since 1999. Even though individual years may not always show increases from previous years, on all types of boats, wear rates have improved since 1999 for youth.

Figure F – Youth Wear Rates for ALL Powerboats Except PWCs*



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*Factors controlled for: Age & Boat Type.

Table 2.3 – Life Jacket Wear Rates by Powerboats for Youth*

Boat Type	Observation Year																
	1999 2001 % (N's)	2002 2004 % (N's)	2005 % (N's)	2006 % (N's)	2007 % (N's)	2008 % (N's)	2009 % (N's)	2010 % (N's)	2011 % (N's)	2012 % (N's)	2013 % (N's)	2014 % (N's)	2015 % (N's)	2016 % (N's)	2017 % (N's)	2018 % (N's)	2019 % (N's)
All Powerboats	55.1%	58.6%	62.5%	58.7%	60.8%	63.9%	66.3%	68.2%	70.1%	66.5%	65.9%	69.6%	66.3%	65.7%	70.3%	67.5%	64.2%
(no PWCs)	(14730)	(15523)	(4737)	(5043)	(5583)	(5257)	(5451)	(5090)	(4589)	(4846)	(4546)	(4798)	(4028)	(3750)	(4118)	(4762)	(4820)
Skiff/Utility	57.6%	60.0%	63.3%	58.4%	63.1%	68.4%	70.4%	68.1%	75.4%	65.1%	66.3%	70.8%	68.2%	65.6%	73.7%	68.4%	66.0%
"blank"	(1148)	(1966)	(781)	(661)	(947)	(988)	(1097)	(862)	(929)	(1022)	(936)	(901)	(948)	(871)	(980)	(1116)	(1088)
Runabout/ Speedboat	55.6%	59.8%	63.5%	60.9%	61.7%	64.6%	68.2%	69.7%	71.0%	69.9%	69.2%	70.5%	68.1%	66.3%	70.6%	67.9%	65.1%
"blank"	(10507)	(10422)	(2966)	(3348)	(3517)	(3256)	(3133)	(2943)	(2624)	(2744)	(2482)	(2696)	(2121)	(1934)	(2019)	(2229)	(2536)
Open Motorboats**	55.8%	59.8%	63.5%	60.5%	61.9%	65.2%	68.6%	69.5%	71.6%	69.1%	68.7%	70.6%	68.2%	66.6%	71.2%	68.0%	65.2%
(Skiff/Utility+ Runabout/ Speedboat)	(11655)	(12388)	(3747)	(4009)	(4464)	(4244)	(4230)	(3805)	(3553)	(3766)	(3418)	(3597)	(3069)	(2805)	(2019)	(3345)	(3624)
Cabin Cruiser	46.9%	48.5%	54.6%	50.7%	52.0%	51.0%	51.2%	58.8%	61.6%	50.6%	48.9%	56.6%	58.9%	58.7%	59.7%	49.1%	50.6%
"blank"	(1106)	(1878)	(528)	(501)	(639)	(581)	(644)	(524)	(507)	(465)	(505)	(364)	(430)	(409)	(473)	(459)	(400)
Houseboat	15.2%	22.6%	12.9%	28.2%	.	.	.	19.1%	39.9%	.	.	.	.	.	.	.	.
"blank"	(154)	(128)	(38)	(40)	(5)	(1)	(4)	(18)	(19)	(3)	(1)	(2)	(10)	(8)	(1)	(4)	(2)
Pontoon	47.8%	52.0%	64.6%	50.3%	64.1%	65.9%	66.2%	68.4%	65.7%	67.3%	66.7%	71.9%	63.2%	65.5%	72.2%	75.0%	65.8%
"blank"	(1106)	(1131)	(440)	(505)	(414)	(392)	(530)	(716)	(494)	(580)	(598)	(787)	(511)	(508)	(606)	(908)	(758)
PWC	98.2%	98.4%	98.3%	99.2%	98.7%	99.4%	98.6%	99.4%	99.1%	98.7%	98.0%	99.7%	99.0%	98.7%	98.2%	99.3%	99.3%
"blank"	(1891)	(1607)	(652)	(580)	(522)	(664)	(572)	(427)	(376)	(401)	(371)	(365)	(292)	(154)	(275)	(269)	(402)
Powered Inflatable/ Raft	69.4%	68.1%	71.2%	70.6%	71.1%	79.7%	70.3%	78.2%	73.1%	58.5%	65.4%	68.9%	69.5%	84.0%	68.9%	71.4%	80.6%
"blank"	(190)	(126)	(22)	(28)	(66)	(39)	(47)	(45)	(35)	(35)	(25)	(50)	(18)	(28)	(40)	(50)	(38)

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*Factors controlled for: Age & Boat Type.

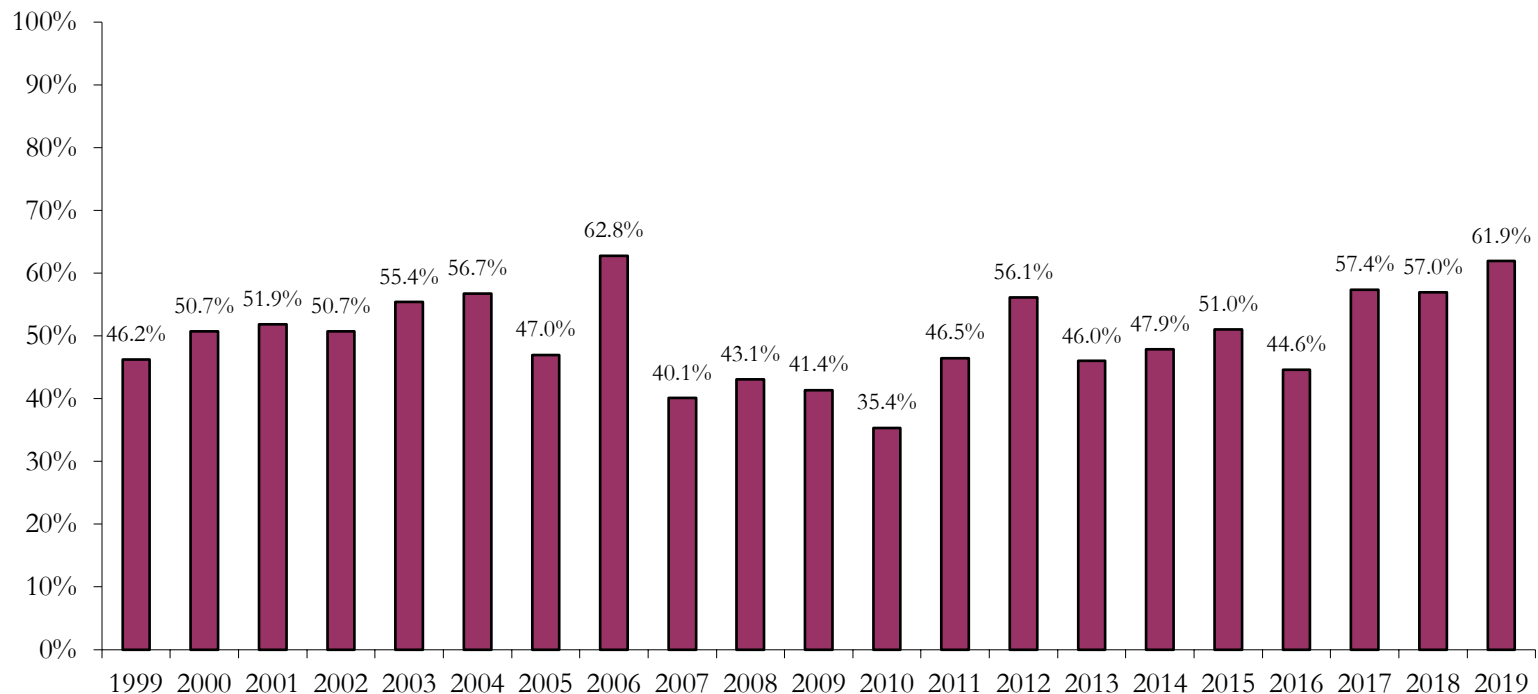
** The Open Motorboat category is created by grouping "Skiffs" and "Speedboat/Runabouts" together. The proportion of Skiffs to Speedboat/Runabouts has been set to reflect the national proportions observed in 2006, the year in which the Strategic Plan goals were first measured. In addition, we control for age of youth as we do for the other boat types in this table.

Paddlecraft for Adults (18 years or older)

Table 2.4 presents results for adults in all types of paddlecraft and Figure G shows the trends for all paddlecraft excluding standup paddleboards (since this boat type began to be counted in 2010). The 2019 rates for all paddlecraft excluding standup paddleboards (61.9%) the second highest rates ever observed and represents a relative increase of 34% from 1999 rates. These changes in rates should be viewed with caution, since paddlecraft activity is mostly observed at only a few sites; therefore, the overall averages can be highly influenced by local factors such as weather or special events at these sites.

In 2015, we added two rows of data to Table 2.4. One for standup paddleboards (first observed in 2010) and one for an all paddlecraft rate including standup paddleboards. The number of boaters observed has increased since 2010 and wear rates for standup paddleboards have exceeded 50% since 2012, and the 2019 rate of 50.3% represents an 81% relative increase since 2010.

Figure G – Adult Wear Rates for ALL Paddlecraft (excluding Paddleboards)*



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*Factors controlled for: Age & Boat Type.

Table 2.4 – Life Jacket Wear Rates by Paddlecraft for Adult*

Boat Type	Observation Year																		
	1999	2001	2002	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	
All Paddlecraft	49.7%	54.1%	47.0%	62.8%	40.1%	43.1%	41.4%	35.4%	46.5%	56.1%	46.0%	47.9%	51.0%	44.6%	57.4%	57.0%	61.9%		
(excluding SUPs)	(5168)	(5173)	(1616)	(1456)	(2065)	(1523)	(1939)	(2551)	(1608)	(2015)	(1919)	(2555)	(2531)	(2391)	(2251)	(2353)	(2086)		
Paddled Inflatable/ Raft	50.4%	61.4%	76.0%	77.8%	23.9%	38.4%	8.2%	6.9%	10.9%	39.4%	15.8%	18.2%	39.1%	28.2%	45.9%	41.7%	74.0%		
"blank"	(622)	(880)	(225)	(308)	(526)	(311)	(340)	(813)	(324)	(485)	(271)	(337)	(455)	(371)	(354)	(247)	(209)		
Rowboat/ Dinghy	27.0%	23.9%	59.2%	26.7%	15.0%	23.0%	35.3%	34.8%	34.3%	60.2%	17.8%	29.0%	22.1%	40.2%	43.0%	32.3%	11.0%		
"blank"	(319)	(348)	(71)	(78)	(92)	(65)	(51)	(46)	(87)	(35)	(75)	(79)	(37)	(56)	(73)	(64)	(74)		
Canoe	24.7%	23.8%	14.8%	29.2%	19.4%	19.7%	25.0%	19.1%	37.4%	32.7%	35.7%	24.9%	30.0%	14.6%	30.0%	28.1%	23.6%		
"blank"	(2273)	(1930)	(679)	(364)	(764)	(481)	(758)	(994)	(386)	(438)	(569)	(744)	(716)	(605)	(532)	(677)	(498)		
Kayak	84.3%	84.7%	74.1%	77.9%	72.0%	65.5%	72.6%	75.9%	68.6%	74.9%	67.9%	74.9%	70.7%	71.5%	71.3%	75.6%	78.1%		
"blank"	(1954)	(2015)	(675)	(706)	(683)	(648)	(790)	(698)	(811)	(1056)	(1004)	(1395)	(1323)	(1359)	(1292)	(1365)	(1305)		
Canoe/Kayak Combined	52.5%	55.0%	44.4%	61.2%	44.3%	46.0%	49.1%	47.3%	49.4%	52.8%	50.9%	51.9%	51.6%	47.3%	52.3%	55.4%	56.1%		
"blank"	(4227)	(3945)	(1354)	(1070)	(1447)	(1129)	(1548)	(1692)	(1197)	(1494)	(1573)	(2139)	(2039)	(1964)	(1824)	(2042)	(1803)		
Paddleboards (SUPs)									27.8%	41.7%	52.9%	58.7%	53.9%	52.0%	54.6%	50.9%	55.3%	50.3%	
"blank"									(54)	(84)	(157)	(264)	(397)	(348)	(407)	(509)	(492)	(457)	
All Paddlecraft**									35.5%	46.0%	55.0%	45.4%	48.7%	51.1%	46.0%	56.2%	56.7%	59.8%	
(including SUPs)									(2605)	(1692)	(2171)	(2183)	(2952)	(2879)	(2798)	(2760)	(2845)	(2543)	

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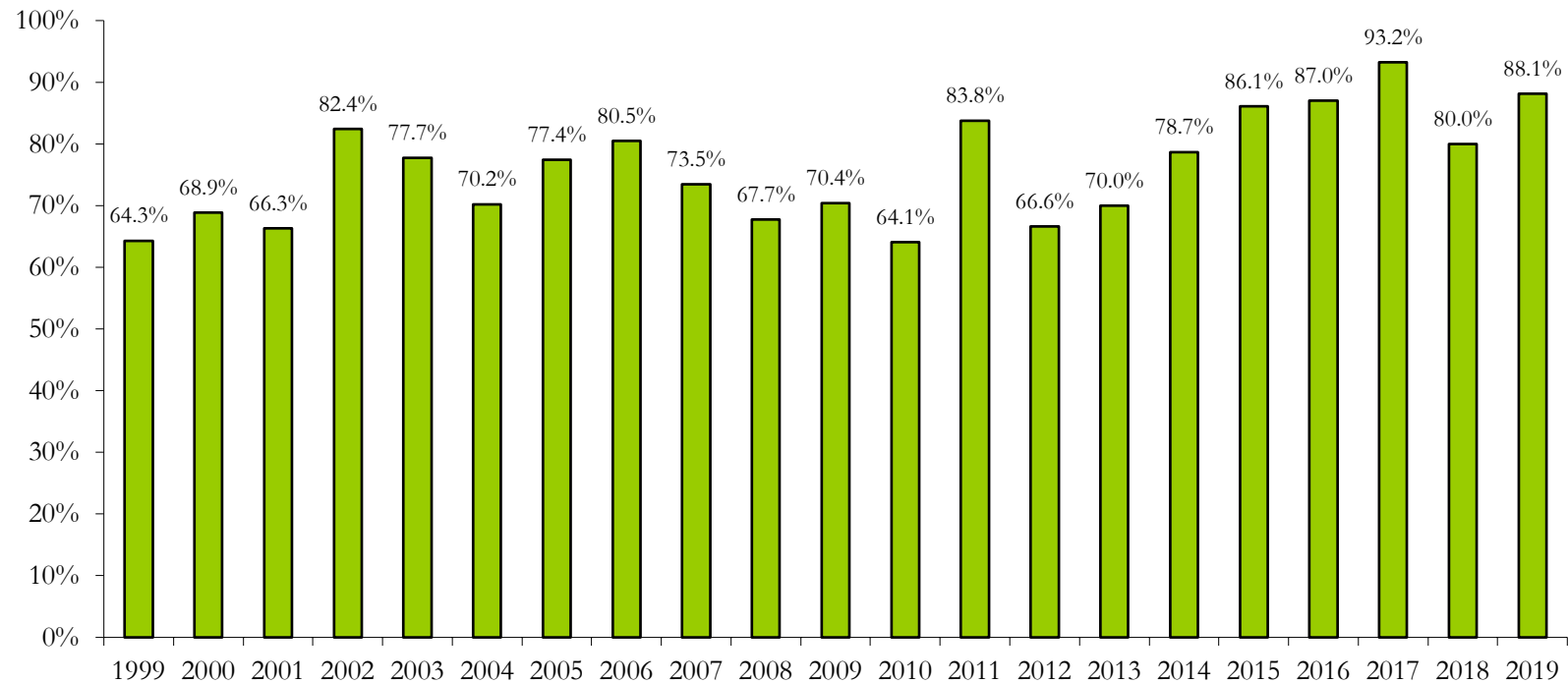
*Factors controlled for: Age & Boat Type.

**Data for this line in the table have been corrected on 5-21-2015 from the earlier published version

Paddlecraft for Youth (17 years or younger)

Figure H and Table 2.5 present results for youth in paddlecraft. Data in this table should be viewed with caution because of the relatively small number of youth who use these types of craft. For all paddlecraft combined excluding standup paddleboards, the wear rate in 2019 was 88.1% the second highest wear rate ever observed and represents a 37% relative increase since 1999.

Figure H – Youth Wear Rates for ALL Paddlecraft*



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*Factors controlled for: Age & Boat Type.

Table 2.5 – Life Jacket Wear Rates by Paddlecraft for Youth*

Boat Type	Observation Year																
	1999 2001 % (N's)	2002 2004 % (N's)	2005 % (N's)	2006 % (N's)	2007 % (N's)	2008 % (N's)	2009 % (N's)	2010 % (N's)	2011 % (N's)	2012 % (N's)	2013 % (N's)	2014 % (N's)	2015 % (N's)	2016 % (N's)	2017 % (N's)	2018 % (N's)	2019 % (N's)
All Paddlecraft	66.8%	76.5%	77.4%	80.5%	73.5%	67.7%	70.4%	64.1%	83.8%	66.6%	70.0%	78.7%	86.1%	87.0%	93.2%	80.0%	88.1%
(excluding SUPs)	(1231)	(1044)	(281)	(225)	(520)	(487)	(319)	(419)	(231)	(476)	(371)	(337)	(340)	(389)	(414)	(327)	(303)
Paddled Inflatable/ Raft	52.4%	76.7%	77.5%	77.9%	58.4%	55.6%	59.0%	41.9%	68.5%	50.2%	55.1%	68.7%	83.5%	84.4%	85.0%	69.7%	89.7%
	(359)	(367)	(79)	(87)	(244)	(218)	(76)	(139)	(49)	(192)	(98)	(100)	(112)	(119)	(127)	(88)	(73)
Rowboat/ Dinghy	48.9%	66.6%	77.1%	67.3%	61.0%	77.8%	.	.	94.0%	.	.	74.2%	.	99.3%	.	.	.
	(56)	(63)	(17)	(26)	(21)	(25)	(9)	(14)	(15)	(10)	(10)	(23)	(4)	(15)	(3)	(6)	(5)
Canoe	66.1%	68.2%	69.4%	68.9%	81.0%	78.0%	70.6%	68.0%	95.2%	66.5%	78.0%	78.4%	82.1%	70.0%	92.6%	71.5%	77.2%
	(545)	(374)	(101)	(49)	(123)	(158)	(132)	(169)	(82)	(89)	(139)	(87)	(61)	(57)	(102)	(105)	(43)
Kayak	89.1%	89.9%	88.7%	89.0%	90.1%	83.5%	85.3%	85.4%	89.3%	84.8%	77.0%	90.7%	91.9%	85.4%	94.5%	90.6%	89.9%
	(271)	(240)	(94)	(63)	(132)	(86)	(102)	(97)	(85)	(185)	(124)	(127)	(163)	(198)	(182)	(128)	(182)
Canoe/Kayak Combined	73.8%	76.6%	79.6%	82.2%	85.7%	80.0%	76.0%	75.1%	88.8%	74.6%	77.2%	83.3%	85.6%	78.3%	92.0%	81.0%	82.7%
	(816)	(614)	(195)	(112)	(255)	(244)	(234)	(266)	(167)	(274)	(263)	(214)	(224)	(255)	(284)	(233)	(225)
Paddleboards (SUPs)						.	.	.	.	.	51.9%	75.0%	77.5%	73.4%	75.0%	77.1%	64.3%
						(3)	(1)	(9)	(5)	(13)	(52)	(44)	(40)	(84)	(80)	(61)	(98)
All Paddlecraft**						67.3%	70.5%	63.5%	84.1%	67.3%	63.8%	78.3%	85.2%	84.6%	90.3%	79.6%	82.3%
(including SUPs)						(490)	(320)	(428)	(236)	(489)	(423)	(381)	(380)	(473)	(494)	(388)	(401)

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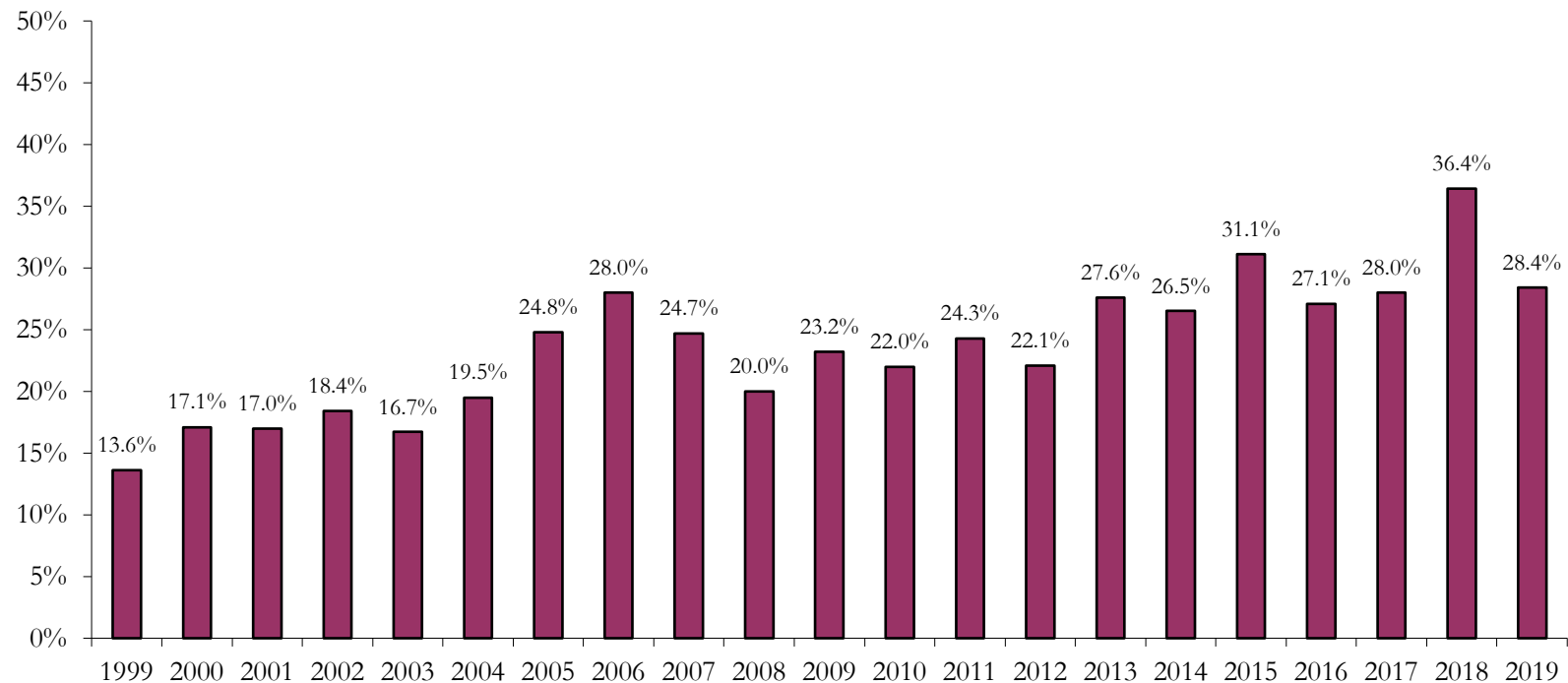
*Factors controlled for: Age & Boat Type.

**Data for this line in the table have been corrected on 5-21-2015 from the earlier published version.

Sailboats for Adults (18 years or older)

Figure I and Table 2.6 document observations of adults in sailboats. For all sailboats combined, the wear rate of 28.4% represents a 109% relative increase since 1999. Sailboat wear rates for both day sailors and cabin sailboats have increased over the twenty-one years of observations. Day sailors have shown a relative increase of 136% from 1999 to 2019 (72.6%) which is the highest rate ever observed. Cabin sailboats have shown a relative increase of 73% from 1999 to 2019 (15.7%).

Figure I – Adult Wear Rates for ALL Sailboats*



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*Factors controlled for: Age & Boat Type.

Table 2.6 – Life Jacket Wear Rates by Sailboats for Adults*

Boat Type	Observation Year																		
	1999	2001	2002	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	% (N's)	
All Sailboats	16.0%		18.3%		24.8%	28.0%	24.7%	20.0%	23.2%	22.0%	24.3%	22.1%	27.6%	26.5%	31.1%	27.1%	28.0%	36.4%	28.4%
	(10828)		(11385)		(3084)	(3279)	(3217)	(3079)	(3733)	(3336)	(3231)	(3297)	(2840)	(2786)	(2800)	(2557)	(2269)	(2766)	(2568)
Sailboard	52.6%		89.4%		53.0%	.	83.7%	94.6%	.	83.2%	.	.	.	.	94.5%	.	.	92.0%	82.0%
	(91)		(122)		(20)	(12)	(18)	(17)	(7)	(29)	(9)	(14)	(10)	(3)	(17)	(10)	(10)	(36)	(28)
Day Sailor	34.6%		45.4%		56.4%	59.1%	50.4%	48.3%	61.7%	57.5%	61.3%	54.0%	67.1%	55.1%	69.6%	62.4%	61.9%	70.4%	72.6%
	(2134)		(2923)		(736)	(607)	(397)	(649)	(652)	(731)	(736)	(682)	(469)	(630)	(565)	(532)	(365)	(560)	(602)
Cabin Sailboat	10.2%		9.9%		15.4%	19.1%	17.1%	12.0%	13.0%	11.7%	13.4%	12.9%	17.3%	18.3%	20.5%	17.2%	18.8%	27.1%	15.7%
	(8603)		(8340)		(2328)	(2660)	(2802)	(2413)	(3074)	(2576)	(2486)	(2601)	(2361)	(2153)	(2218)	(2015)	(1894)	(2170)	(1938)

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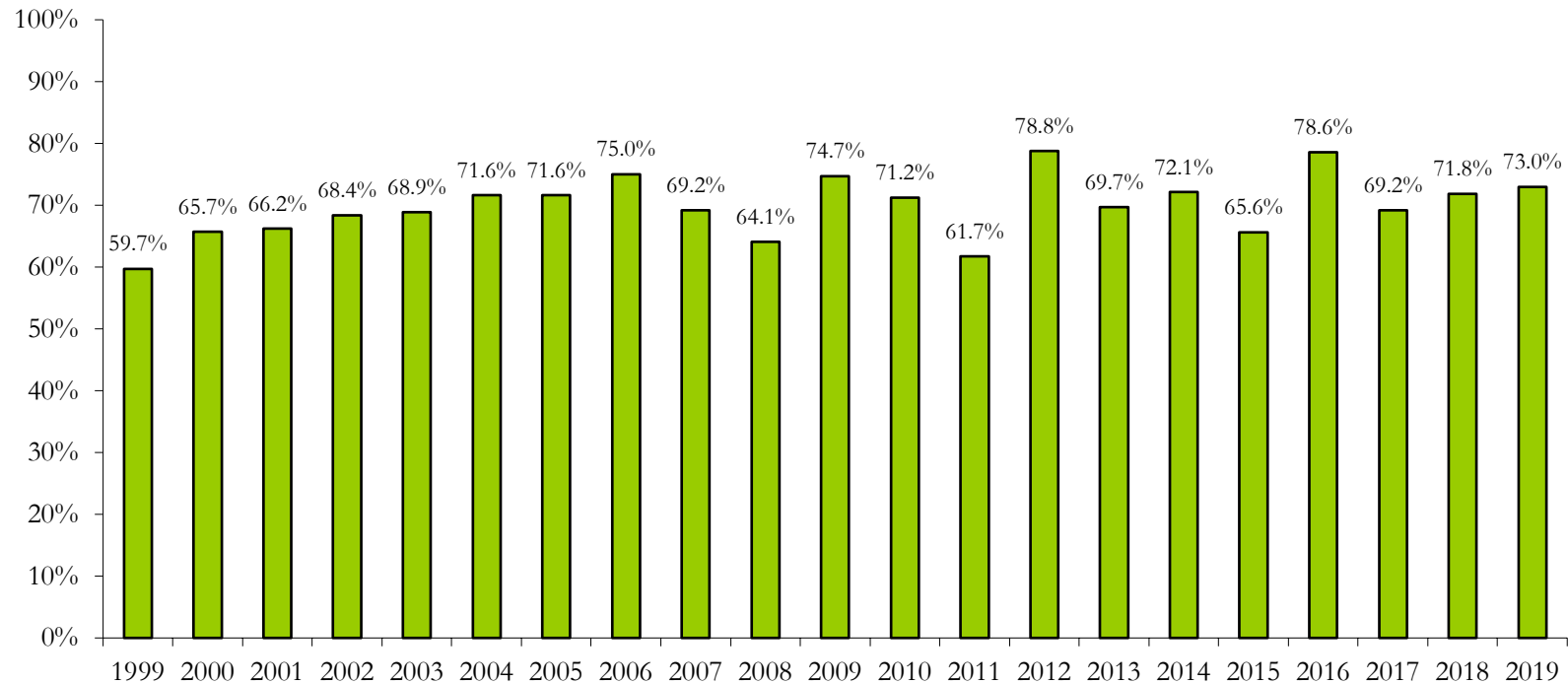
*Factors controlled for: Age & Boat Type.



Sailboats for Youth (17 years or younger)

Figure J and Table 2.7 show that the national average wear rate on all sailboats for all youth in 2019 was 73.0% and represents a relative increase of 22% since 1999. Wear rates should be viewed with caution since relatively few youth, particularly younger youth, participate on these types of boats.

Figure J – Youth Wear Rates for ALL Sailboats*



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*Factors controlled for: Age & Boat Type.

Table 2.7 – Life Jacket Wear Rates by Sailboats for Youth*

Boat Type	Observation Year																
	1999 2001 % (N's)	2002 2004 % (N's)	2005 % (N's)	2006 % (N's)	2007 % (N's)	2008 % (N's)	2009 % (N's)	2010 % (N's)	2011 % (N's)	2012 % (N's)	2013 % (N's)	2014 % (N's)	2015 % (N's)	2016 % (N's)	2017 % (N's)	2018 % (N's)	2019 % (N's)
All Sailboats	64.0%	69.6%	71.6%	75.0%	69.2%	64.1%	74.7%	71.2%	61.7%	78.8%	69.7%	72.1%	65.6%	78.6%	69.2%	71.8%	73.0%
"blank"	(1100)	(1027)	(327)	(371)	(270)	(274)	(305)	(202)	(219)	(313)	(220)	(206)	(170)	(200)	(147)	(174)	(211)
Sailboard	68.8%	90.8%	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
"blank"	(16)	(52)	(1)	(4)	(8)	(0)	(0)	(1)	(0)	(1)	(0)	(1)	(0)	(1)	(0)	(1)	(3)
Day Sailor	80.5%	84.4%	73.4%	93.2%	86.5%	88.0%	92.5%	85.2%	80.2%	98.2%	91.5%	97.2%	87.7%	96.4%	90.7%	95.2%	96.7%
"blank"	(280)	(303)	(67)	(122)	(54)	(75)	(80)	(86)	(57)	(166)	(36)	(54)	(27)	(103)	(25)	(39)	(70)
Cabin Sailboat	59.2%	63.9%	69.4%	65.7%	62.4%	56.4%	66.4%	65.9%	54.9%	60.3%	61.7%	61.0%	58.6%	66.7%	66.2%	61.5%	60.3%
"blank"	(804)	(672)	(259)	(245)	(208)	(196)	(225)	(115)	(162)	(146)	(184)	(152)	(143)	(97)	(122)	(134)	(138)

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*Factors controlled for: Age & Boat Type.



Boat Type and Size for Adults (18 years or older)

Table 2.8 shows the breakdown of adult wear rates by boat size for three general categories of boat types: powerboats, sailboats, and paddlecraft. Data are presented only for 2004 to 2019, since 2004 was the first year that observations were divided into two size categories of 16 to 21 feet and 21 to 26 feet, from one category (16 to 26 feet that was used in prior years.)

Wear rates and boat size show an inverse relationship: wear rates decrease as the size of the boat increases. This is true for all three general types of boats. In 2019 for powerboats under 16 feet in length wear rates are at 13.7% but drop steadily to 1.8% for boats over 26 feet in length. In 2019 for sailboats under 16 feet in length wear rates are 77.0% but drop to 8.4% for those over 26 feet in length. In 2019 for paddlecraft under 16 feet in length wear rates are 67.0% whereas for paddlecraft greater than 16 feet wear rates are 33%. When comparing wear rates for each size category to rates seen in 2004 almost every length within the general boat types show marked increases over those 16 years of the study. However, because there is also a trend during that period to a greater proportion of boaters using bigger boats (with their lower wear rates), the relative increases of wear rates for all sizes combined are less than observed for the individual size categories within the general boat types.



Table 2.8 – Life Jacket Wear Rates by Boat Type and Size for Adults*
2004 to 2019

Boat Type and Size	Observation Year																
	2004 % (N's)	2005 % (N's)	2006 % (N's)	2007 % (N's)	2008 % (N's)	2009 % (N's)	2010 % (N's)	2011 % (N's)	2012 % (N's)	2013 % (N's)	2014 % (N's)	2015 % (N's)	2016 % (N's)	2017 % (N's)	2018 % (N's)	2019 % (N's)	Total % (N's)
Powerboats (no PWCs)																	
<16 ft.	8.2%	7.6%	7.1%	8.7%	7.6%	8.5%	11.5%	8.4%	9.3%	9.3%	12.4%	6.6%	6.5%	9.4%	13.0%	13.7%	9.2%
	(2320)	(2734)	(3395)	(2173)	(1862)	(1824)	(2764)	(2183)	(1599)	(2119)	(2951)	(2174)	(2008)	(1483)	(1691)	(2086)	(34754)
16 20.9 ft.	4.7%	5.1%	4.4%	4.9%	6.1%	5.0%	5.0%	5.2%	5.1%	4.3%	7.2%	6.9%	6.3%	8.3%	7.8%	5.9%	5.6%
	(16298)	(14629)	(11778)	(13034)	(12586)	(13125)	(13944)	(13255)	(12898)	(11424)	(12217)	(11763)	(11340)	(11416)	(11696)	(12441)	(203791)
21 25.9 ft.	2.4%	3.2%	2.4%	3.7%	3.4%	2.3%	2.4%	2.0%	2.7%	2.5%	3.4%	4.2%	2.2%	4.2%	3.0%	4.7%	3.1%
	(6218)	(5503)	(6957)	(8634)	(9127)	(10420)	(9713)	(8718)	(9389)	(9364)	(9533)	(8270)	(9048)	(8467)	(11050)	(10115)	(140526)
26+ ft.	0.8%	1.4%	1.6%	1.5%	1.5%	1.8%	1.3%	1.3%	2.0%	2.1%	1.4%	2.5%	1.8%	3.5%	1.7%	1.8%	1.9%
	(3407)	(2865)	(3268)	(3782)	(3650)	(4546)	(4473)	(4798)	(4004)	(3874)	(4065)	(4234)	(4393)	(4442)	(5153)	(4144)	(65370)
Sailboats																	
<16 ft.	75.0%	74.0%	79.7%	67.6%	73.2%	70.2%	65.5%	74.6%	74.2%	78.7%	70.3%	89.6%	89.0%	81.5%	70.5%	77.0%	62.9%
	(481)	(376)	(265)	(77)	(163)	(247)	(299)	(160)	(194)	(136)	(265)	(200)	(197)	(136)	(198)	(328)	(3722)
16 20.9 ft.	34.2%	41.9%	57.7%	51.8%	46.8%	58.0%	57.4%	63.8%	48.6%	66.3%	43.6%	63.1%	47.8%	51.3%	70.4%	65.2%	44.4%
	(357)	(312)	(609)	(193)	(370)	(157)	(346)	(390)	(379)	(314)	(248)	(225)	(339)	(239)	(398)	(317)	(5229)
21 25.9 ft.	12.2%	24.1%	21.0%	25.5%	14.0%	21.5%	16.7%	27.5%	24.3%	27.6%	23.8%	41.1%	29.4%	39.1%	37.9%	30.1%	26.1%
	(1428)	(1527)	(793)	(797)	(911)	(949)	(766)	(846)	(989)	(736)	(593)	(654)	(559)	(541)	(685)	(728)	(13502)
26+ ft.	9.9%	3.2%	11.5%	15.2%	11.6%	13.1%	11.0%	9.6%	8.3%	13.4%	17.7%	15.1%	13.3%	11.6%	23.1%	8.4%	15.4%
	(1864)	(875)	(1614)	(2148)	(1629)	(2380)	(1925)	(1835)	(1735)	(1654)	(1644)	(1721)	(1453)	(1353)	(1485)	(1192)	(26507)
Paddlecraft (excluding SUPs)																	
<16 ft.	60.4%	68.4%	70.6%	44.8%	38.2%	42.7%	38.0%	42.6%	57.2%	43.0%	55.3%	52.5%	49.8%	61.9%	64.1%	67.0%	56.5%
	(1056)	(1012)	(1147)	(1306)	(1319)	(1296)	(1953)	(1021)	(1647)	(1532)	(1760)	(2126)	(2079)	(1694)	(1671)	(1722)	(23130)
16 20.9 ft.	49.4%	11.1%	53.0%	35.7%	67.9%	64.4%	42.0%	53.2%	47.3%	56.2%	32.2%	44.0%	38.2%	41.3%	36.6%	33.0%	37.3%
	(531)	(488)	(171)	(672)	(180)	(347)	(331)	(587)	(367)	(383)	(795)	(395)	(312)	(541)	(674)	(343)	(7042)

JSI Research & Training Institute, Inc.

2019 National Observational Life Jacket Wear Rate Study

*Factors controlled for: Age & Boat Type.

III. Conclusions for Life Jacket Wear Rates - National Trend Data 1999 to 2019

For the twenty-one years of the life jacket national observation study there have been increases in wear rates on all types of boats and for all age groups. The average wear rate in 2019 for all boaters on all types of boats except PWCs was 19.5%, which is a relative increase of 27% over the 1999 wear rate of 15.4%.

Some boat types show greater increases than other boat types. The same is true for age groups. Below we summarize the relative increases in wear rates for age groups and for boat types.

1. For many different age groups of boaters on all types of boats taken together, wear rates in 2019 mark substantial relative increases in wear rates since the 1999 baseline year.
 - a. All adults (18+) on all types of boats excluding PWCs: 29% relative increase (9.0% to 11.6%)
 - b. All youth (0-17) on all types of boats excluding PWCs: 26% relative increase (52.1% to 65.8%)
 - c. Children (0-5) on all types of boats excluding PWCs: 16% relative increase (80.6% to 93.2%)
 - d. Children (6-12) on all types of boats excluding PWCs: 19% relative increase (69.1% to 82.2%)
 - e. Teenagers (13-17) on all types of boats excluding PWCs: 61% relative increase (24.1% to 38.9%)
2. For adults there have been notable relative increases in wear rates by specific types of boats comparing 2019 levels to the baseline year of 1999.
 - a. All powerboats except PWCs: 25% relative increase (4.4% to 5.5%)
 - b. Open motorboats: 44% relative increase from 2006 (4.5% to 6.5%)
 - c. All paddlecraft except paddleboards: 34% relative increase (46.2% to 61.9%)
 - d. All sailboats: 109% relative increase (13.6% to 28.4%)
 - e. Day sailors: 136% increase (30.7% to 72.6%) (2019 are the highest levels observed in our study for this type of boat)
 - f. Cabin sailboats: 73% increase (9.1% to 15.7%)
3. Over the twenty-one-year span of this study, there has been a trend for a larger proportion of the boating public to use longer boats. This is particularly true for the powerboat category. In 2004, about a third of the occupants were on boats larger than 21 feet in length but in 2019, half of the boating public were on boats of greater than 21 feet. However, since wear rates tend to be lower on larger boats, this trend of increasing boat sizes, masks the actual relative proportion of increases of wear rates observed if one only looked at improvements within a boat size category. Data are shown starting in 2004 since that was the first year observations were made dividing the 16 to 25 feet category into 16 to 21 feet and 21 to 26 feet in lengths.
 - a. Relative increase for all powerboats from 2004 to 2019 is 41% (3.9% to 5.5%)
 - b. For powerboats under 16 feet in length, the relative increase is 67% (8.5% to 13.7%)
 - c. For powerboats from 16 to 21 feet in length, the relative increase is 26% (4.7% to 5.9%)
 - d. For powerboats from 21 to 26 feet in length, the relative increase is 96% (2.4% to 4.7%)
 - e. For powerboats greater than 26 feet in length, the relative increase is 125% (0.8% to 1.8%)

IV. APPENDIX: METHODS & DESCRIPTIVE INFORMATION

To provide reliable and valid indicators of changes in life jacket wear rates, it was essential for observation procedures to remain as close as possible to those used in previous years. The same states were observed for each of the years of data collection efforts, during the same period of time (July and August). The vast majority of the sites in each of 30 states observed have remained the same for all years. The following is a detailing of the methods used in all years of data collection.

Time period - Observations were conducted during the summer months of each year, beginning the weekend of July 4th and ending on Labor Day weekend.

Site selection - A total of 30 states were chosen in which to conduct observations. The states were originally selected by a stratified random sampling procedure. Approximately three-fourths of the coastal states (20 out of 26 states) were chosen, and approximately 40% of the inland states (10 out of 24) were selected. Four sites from each state were visited, except in California, where eight sites were observed due to the size of the state. The 124 sites represented a wide range of water venues including lakes, rivers, harbors and bays, and intra-coastal waterways. The sites were selected based on consultations with local offices of the USCG, members of the local Coast Guard Auxiliary or U.S. Power Squadrons, and state boating or fishing law enforcement agencies. Sites were selected to roughly represent a variety of available boating venues in the state, as well as their proximity to one another to allow for relatively short travel time between sites. In addition, sites needed to have suitable shore-based viewing locations from which observations of life jacket wear could be made using high-powered binoculars.

Observational procedures - Observations were conducted for four-hour periods either in the morning or the afternoon of a Saturday or Sunday. The goal was to observe as many boats as possible during a four-hour time frame. Viewing locations were on shore at a narrowing, bridge, or near a marina to facilitate observations. Two-person teams observed boating activity. One team member made the observations using high-powered binoculars and called out the information, which was then recorded on observation forms by the second team member. Team members alternated responsibilities frequently to ward off fatigue. In addition to recording information on boating activity and life jacket wear, observers recorded data about the site. This included information on weather and water conditions. JSI project staff trained the observers during two half-day sessions. The first half-day training consisted of reviewing the observation manual, observation forms, and required equipment. The observation manual contained procedures, definitions, and pictures of various types of boats to facilitate consistent classification by the observers. The second half-day of training allowed observation team members an opportunity to practice using the required equipment and observation forms with the assistance and guidance of an experienced JSI project staff member.

Observation Forms - There were two observation forms designed. The first was the boat observation form, which was intended to record information about the boat and people on the boat. The second form was the site form, which was designed to record information about the site, weather and water conditions. The forms have remained the same from year to year, with the exception of two changes made in 1999, one change made in 2004, one change made in 2007, and three changes made in 2016. These changes are discussed in detail below.

A) Boat Forms - Observers recorded the observation **time period** in two hour blocks of time (7:59 or earlier, 8am – 9:59am, 10am – 11:59pm, 12pm – 1:59pm, 2pm – 3:59pm, 4pm – 5:59pm, 6pm or later); the **type of boat** observed (skiff, speedboat/runabout, cabin cruiser, personal watercraft (PWC), pontoon boat, houseboat, sailboard, day sailor, cabin sailboat, rowboat, inflatable, canoe, kayak, and other); **length of boat** (less than 16 feet, 16-20.9 feet, 21-25.9 feet, 26-45.9, and 46+ feet); **type of operation** (motoring, sailing, paddling, drifting, or at anchor); and **activity** engaged in (fishing, intent to fish, water-skiing, white-water, high speed racing, swimming, pleasure boating, and other). Observers also recorded **operator/passenger status; gender** (male, female, or unknown); **age** (less than six, 6 - 12, 13 - 17, 18 - 64, 65 or older); **life jacket wear** and **life jacket type** (buoyant/traditional, inflatable suspender or belt pack, or not wearing). In addition, if the boat was involved in water-skiing or a towing sport, observers indicated which **boaters were skiing** (or being towed) at the time.

B) Site Forms - At each site, the observers recorded the beginning time and ending **time of the observation period**, **water type** (lake, river, harbor/bay, Great Lake, intra-coastal waterway), and **water temperature**. The following environmental factors were measured by observers at each two hour time block during the observation period: **air temperature; wind speed; wave height** (less than six inches, six inches up to two feet, or over two feet); **weather** (sunny, partly cloudy, cloudy, raining, or stormy); and **visibility** (good, fair, or poor).

Over the past 19 years of observations five categories of information have changed. In 1999, the original 6 to 17 year old age category was divided into a 6 to 12 year old group and a 13 to 17 year old group. Also in 1999, the boat category of canoes/kayaks was separated to record canoes and kayaks individually. In 2004 the USCG requested that JSI breakout the boat size categories from three (less than 16 feet, 16-25 feet and over 26 feet) to four categories (less than 16 feet, 16-20 feet, 21-

25 feet and over 26 feet). Observations made in 2004 to 2011 are the only years to record observations using the expanded boat size categories. In 2007, we added an “intent to fish” category distinct from “pleasure”. Intent to fish was indicated when a boat could be observed with obvious fishing gear (fishing rods, trolling motors, etc.) even though at the moment of observation, the boaters were not fishing. In 2016 we removed the type of propulsion category from the form because it was not adding value to our analysis. Instead we added separate boat type categories for “powered” inflatables and “paddled” inflatable the only ambiguous category. Finally, we updated the life jacket wear and type categories for the first time. Until 2016, options read “Old,” meaning inherently buoyant, “New,” meaning inflatable and “No,” for not wearing. In order to prevent confusion about these categories, they were renamed more explicitly to “Buoyant (Trad),” “Inflatable” “Susp” (suspender) and “Belt,” and “Not Wear.”

JSI Data Collection Form: 2019 Boat Form

TIME: ☐ 7:59 or earlier ☐ 8:00 - 9:59 am ☐ 10:00 - 11:59 am ☐ 12:00 - 1:59 pm ☐ 2:00 - 3:59 pm ☐ 4:00 - 5:59 pm ☐ 6:00 or later

POWER BOAT:		SAIL:	PADDLE:	GENDER			AGE(years)						PFD			WS SW
<input type="radio"/> Skiff/Utility <input type="radio"/> Pontoon <input type="radio"/> Runabout <input type="radio"/> Inflatable/Raft <input type="radio"/> Cabin cruiser <input type="radio"/> Houseboat <input type="radio"/> PWC		<input type="radio"/> Day sailor <input type="radio"/> Cabin sailboat <input type="radio"/> Sailboard	<input type="radio"/> Kayak <input type="radio"/> Paddle board <input type="radio"/> Canoe <input type="radio"/> Inflatable <input type="radio"/> Rowboat	M	F	?	0-5	6-12	13-17	18-64	65+	Buoyant (Trad)	Inflatable Susp	Belt	Not Wear	Yes
SIZE:		OPERATION:		ACTIVITY:												
<input type="radio"/> Under 16 <input type="radio"/> 16 - 20.9 <input type="radio"/> 21 - 25.9 <input type="radio"/> 26 - 45.9 <input type="radio"/> 46 +		<input type="radio"/> Cruising/Motoring <input type="radio"/> Sailing <input type="radio"/> Rowing/Paddling <input type="radio"/> Drifting <input type="radio"/> Anchored		<input type="radio"/> Pleasure <input type="radio"/> Fishing <input type="radio"/> Water skiing <input type="radio"/> Intent to Fish <input type="radio"/> White water <input type="radio"/> Swimming <input type="radio"/> High Speed <input type="radio"/> Other		OP										
						P1										
						P2										
						P3										
						P4										
						P5										
						P6										
						P7										
						P8										

POWER BOAT:		SAIL:	PADDLE:	GENDER			AGE(years)						PFD			WS SW
<input type="radio"/> Skiff/Utility <input type="radio"/> Pontoon <input type="radio"/> Runabout <input type="radio"/> Inflatable/Raft <input type="radio"/> Cabin cruiser <input type="radio"/> Houseboat <input type="radio"/> PWC		<input type="radio"/> Day sailor <input type="radio"/> Cabin sailboat <input type="radio"/> Sailboard	<input type="radio"/> Kayak <input type="radio"/> Paddle board <input type="radio"/> Canoe <input type="radio"/> Inflatable <input type="radio"/> Rowboat	M	F	?	0-5	6-12	13-17	18-64	65+	Buoyant (Trad)	Inflatable Susp	Belt	Not Wear	Yes
SIZE:		OPERATION:		ACTIVITY:												
<input type="radio"/> Under 16 <input type="radio"/> 16 - 20.9 <input type="radio"/> 21 - 25.9 <input type="radio"/> 26 - 45.9 <input type="radio"/> 46 +		<input type="radio"/> Cruising/Motoring <input type="radio"/> Sailing <input type="radio"/> Rowing/Paddling <input type="radio"/> Drifting <input type="radio"/> Anchored		<input type="radio"/> Pleasure <input type="radio"/> Fishing <input type="radio"/> Water skiing <input type="radio"/> Intent to Fish <input type="radio"/> White water <input type="radio"/> Swimming <input type="radio"/> High Speed <input type="radio"/> Other		OP										
						P1										
						P2										
						P3										
						P4										
						P5										
						P6										
						P7										
						P8										

POWER BOAT:		SAIL:	PADDLE:	GENDER			AGE(years)						PFD			WS SW
<input type="radio"/> Skiff/Utility <input type="radio"/> Pontoon <input type="radio"/> Runabout <input type="radio"/> Inflatable/Raft <input type="radio"/> Cabin cruiser <input type="radio"/> Houseboat <input type="radio"/> PWC		<input type="radio"/> Day sailor <input type="radio"/> Cabin sailboat <input type="radio"/> Sailboard	<input type="radio"/> Kayak <input type="radio"/> Paddle board <input type="radio"/> Canoe <input type="radio"/> Inflatable <input type="radio"/> Rowboat	M	F	?	0-5	6-12	13-17	18-64	65+	Buoyant (Trad)	Inflatable Susp	Belt	Not Wear	Yes
SIZE:		OPERATION:		ACTIVITY:												
<input type="radio"/> Under 16 <input type="radio"/> 16 - 20.9 <input type="radio"/> 21 - 25.9 <input type="radio"/> 26 - 45.9 <input type="radio"/> 46 +		<input type="radio"/> Cruising/Motoring <input type="radio"/> Sailing <input type="radio"/> Rowing/Paddling <input type="radio"/> Drifting <input type="radio"/> Anchored		<input type="radio"/> Pleasure <input type="radio"/> Fishing <input type="radio"/> Water skiing <input type="radio"/> Intent to Fish <input type="radio"/> White water <input type="radio"/> Swimming <input type="radio"/> High Speed <input type="radio"/> Other		OP										
						P1										
						P2										
						P3										
						P4										
						P5										
						P6										
						P7										
						P8										

PFD Study 2019

CODE

State	Site	Block	Group	Phase	Page Number

17171



JSI Data Collection Form: 2019 Site Form

PFD Study 2019

of Boats Observed

ID

State

Site

Block

Group

Phase

1. Site Information

Observer Names: _____ City: _____

Site Name: _____ Water: _____

Date of Observation: / / Day of the week: ☐ Sat. ☐ Sun.

Observation start time: : ☐ AM ☐ PM Observation end time: : ☐ AM ☐ PM

★★ **Loaner Board:** ☐ Yes (COMPLETE 'Loaner Board' section on back of page.) ☐ No

2. Type of Body of Water

- ☐ Bay, inlet or sound ☐ River, stream, creek or canal ☐ Other: _____
☐ Harbor ☐ Lake, pond, or reservoir (not Great Lakes)
☐ Intracoastal waterway ☐ Great lake (not including tributaries)

3. Site Conditions

Water temperature: degrees F

A. First Weather Observation (to be completed during 1st time block of boat observations)

Time:

☐ 7:59 or before ☐ 8-9:59 AM ☐ 10-11:59 AM ☐ 12-1:59 PM ☐ 2-3:59 PM ☐ 4-5:59 PM ☐ 6 PM or later

Air Temp. <input type="text"/> <input type="text"/> <input type="text"/> F	Water Conditions <input type="radio"/> Calm (less than 6") <input type="radio"/> Choppy (6" to 2') <input type="radio"/> Rough (over 2')	Current <input type="radio"/> Strong <input type="radio"/> Moderate <input type="radio"/> Weak/None	Visibility <input type="radio"/> Good <input type="radio"/> Fair <input type="radio"/> Poor	Weather Conditions <input type="radio"/> Sunny <input type="radio"/> Raining <input type="radio"/> Partly Cloudy <input type="radio"/> Stormy <input type="radio"/> Cloudy
Wind Speed <input type="text"/> <input type="text"/> knots				

*Actual form provides 3 blocks to record Weather Observations across the 4 hours of data collection

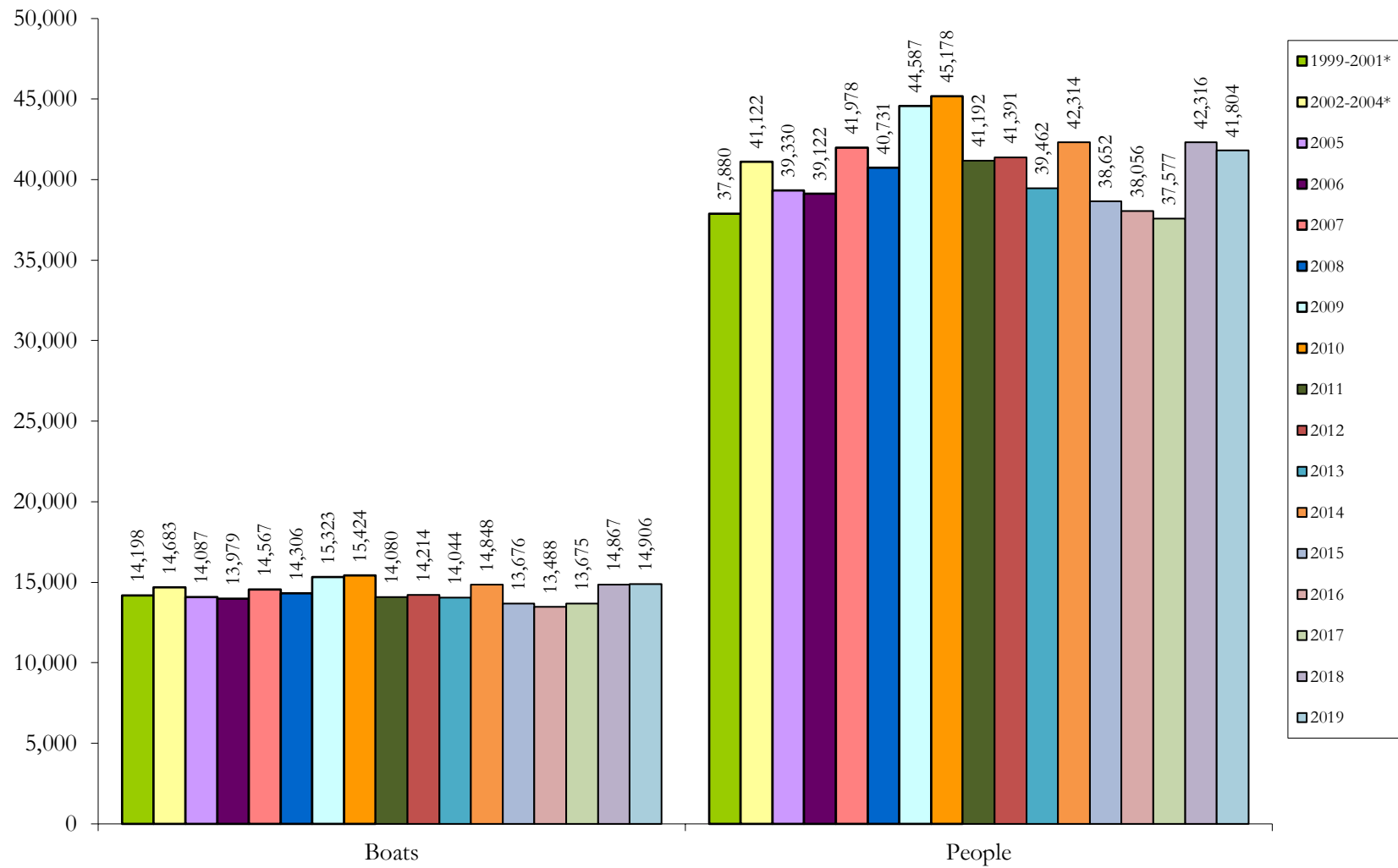
V. INFORMATION ON BOATS & PEOPLE OBSERVED

From 1999 to 2019, JSI has observed a total of 301,955 boats and 850,778 boaters (Figure N). This year, 2019, 14,906 boats carrying 41,804 boaters were observed. The proportions of the different types of boats, length of boat, operation and activity of boats, as well as the age and gender of the boaters observed has remained fairly consistent (see Figures O through V2). This indicates not only that the sites chosen yielded diversity in the boats and boaters observed each year, but also that diversity has remained relatively consistent across the years. These figures demonstrate that the degree of representativeness of the sample of recreational boaters and their boating habits remained relatively constant across this twenty-one year span.

Figures W through AC illustrate the weather and water conditions across the sites from year to year. Like the boat and boater data, across all of the sites, the mixture of the weather and water conditions remained fairly constant over the years. Therefore, any overall changes reported in life jacket wear rates were not due to changes in types of boats or boaters observed from year to year, and most likely not due to fluctuations in weather or water conditions across the sites. Of course, at individual site locations changes in these factors from year to year could account for sizable fluctuations in wear rates at individual sites.

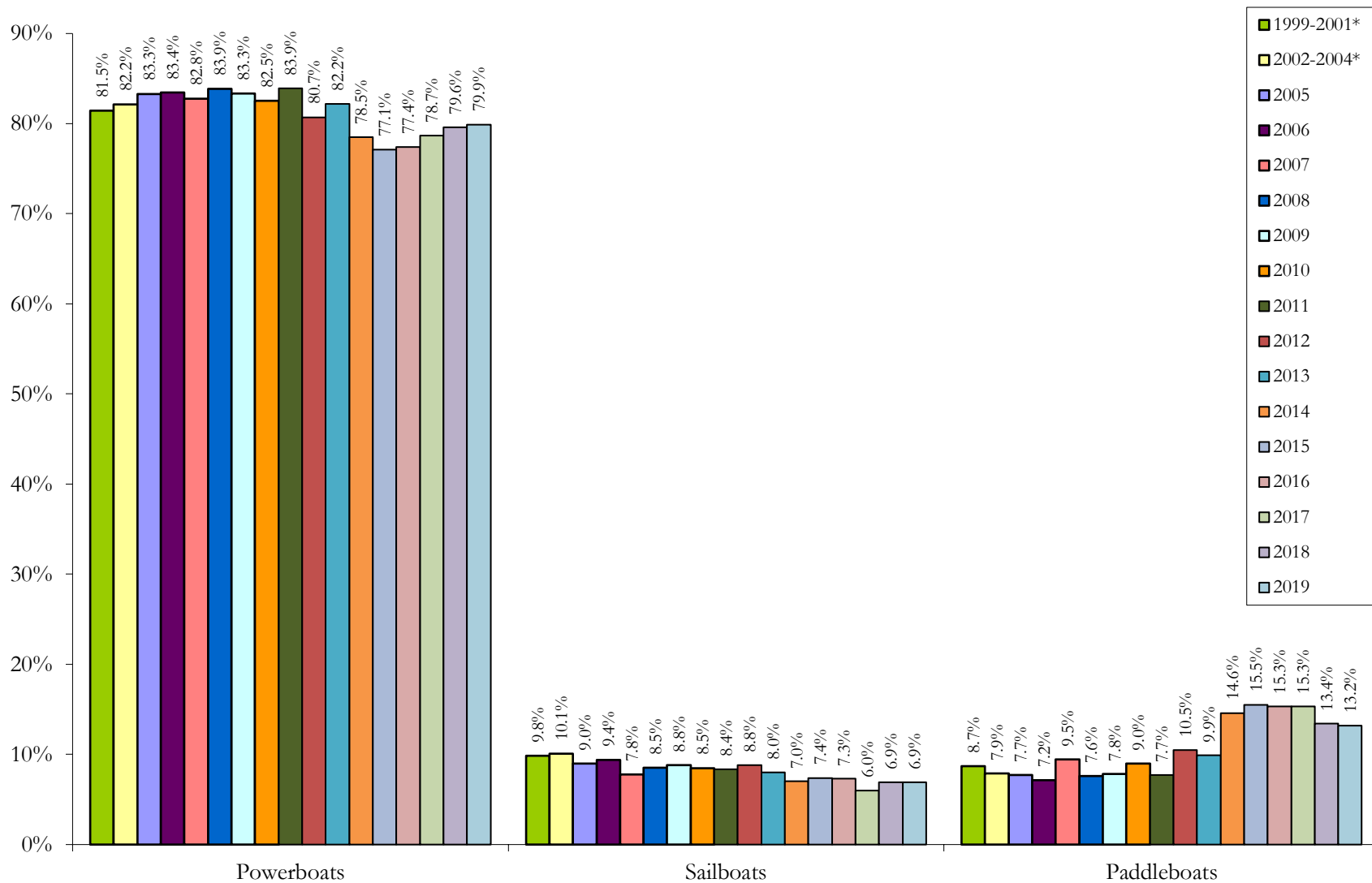
All figures in this section have been modified slightly from reports prior to 2011. The percentages now exclude (like the 2011 report) any missing observations on a particular characteristic. Since missing observations are relatively rare, this switch in presentation does not result in any major shifts in proportions shown in previous reports (before 2011).

Figure O – Number of Boats and People



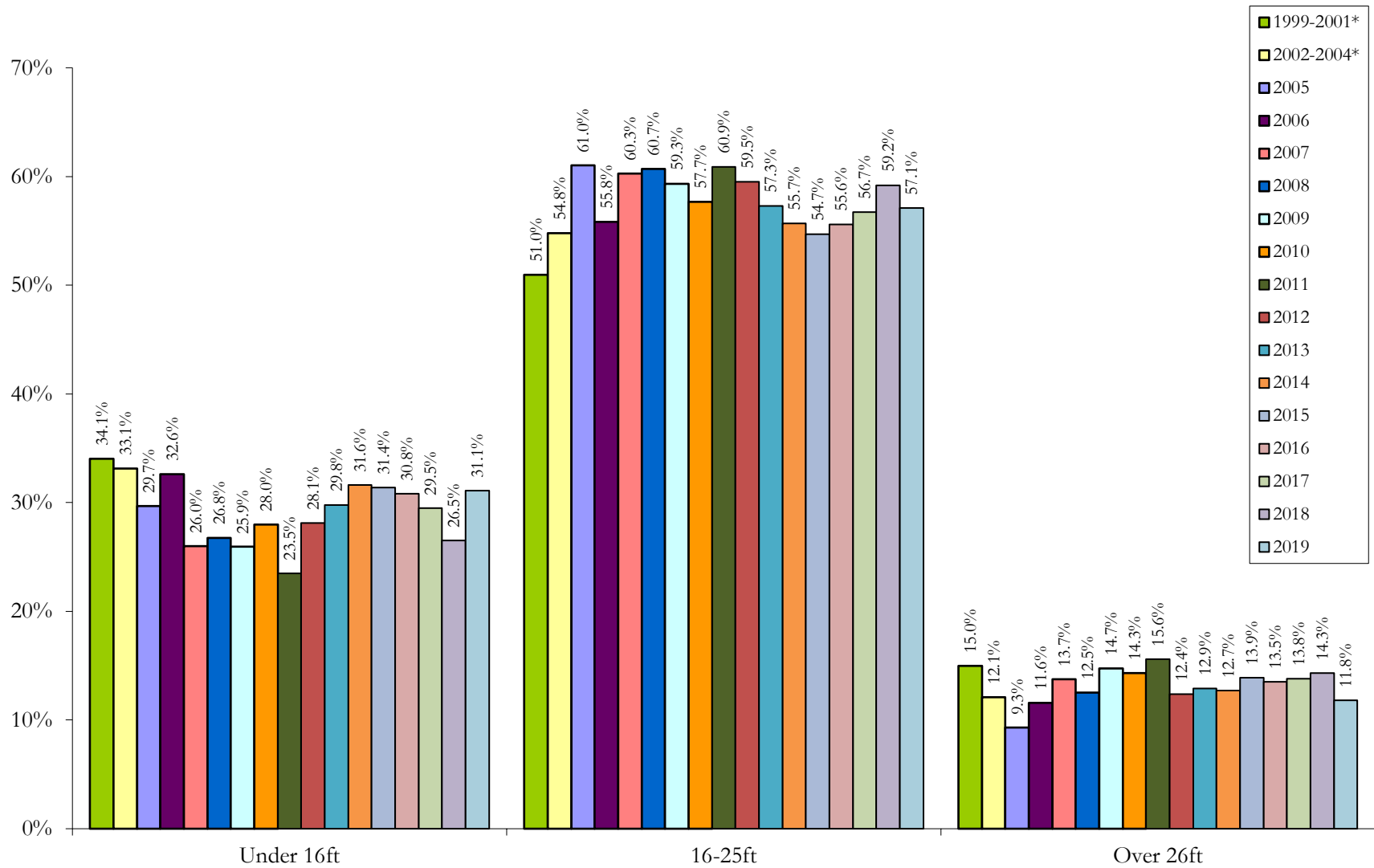
*Three-year average

Figure P – Types of Boats



*Three-year average

Figure Q – Length of Boats



*Three-year average

Figure R – Length of Boats 2004-2019 Data Only

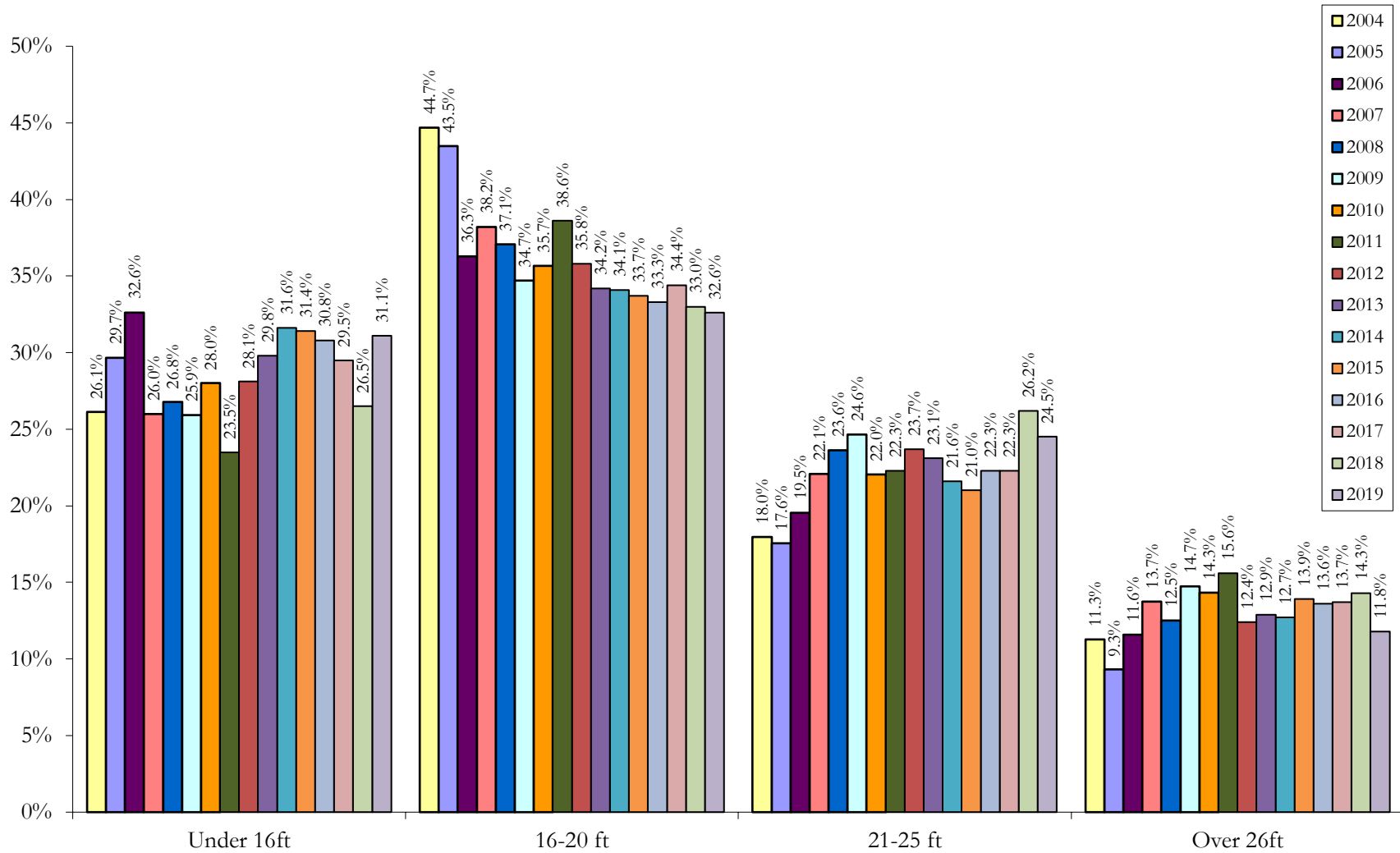
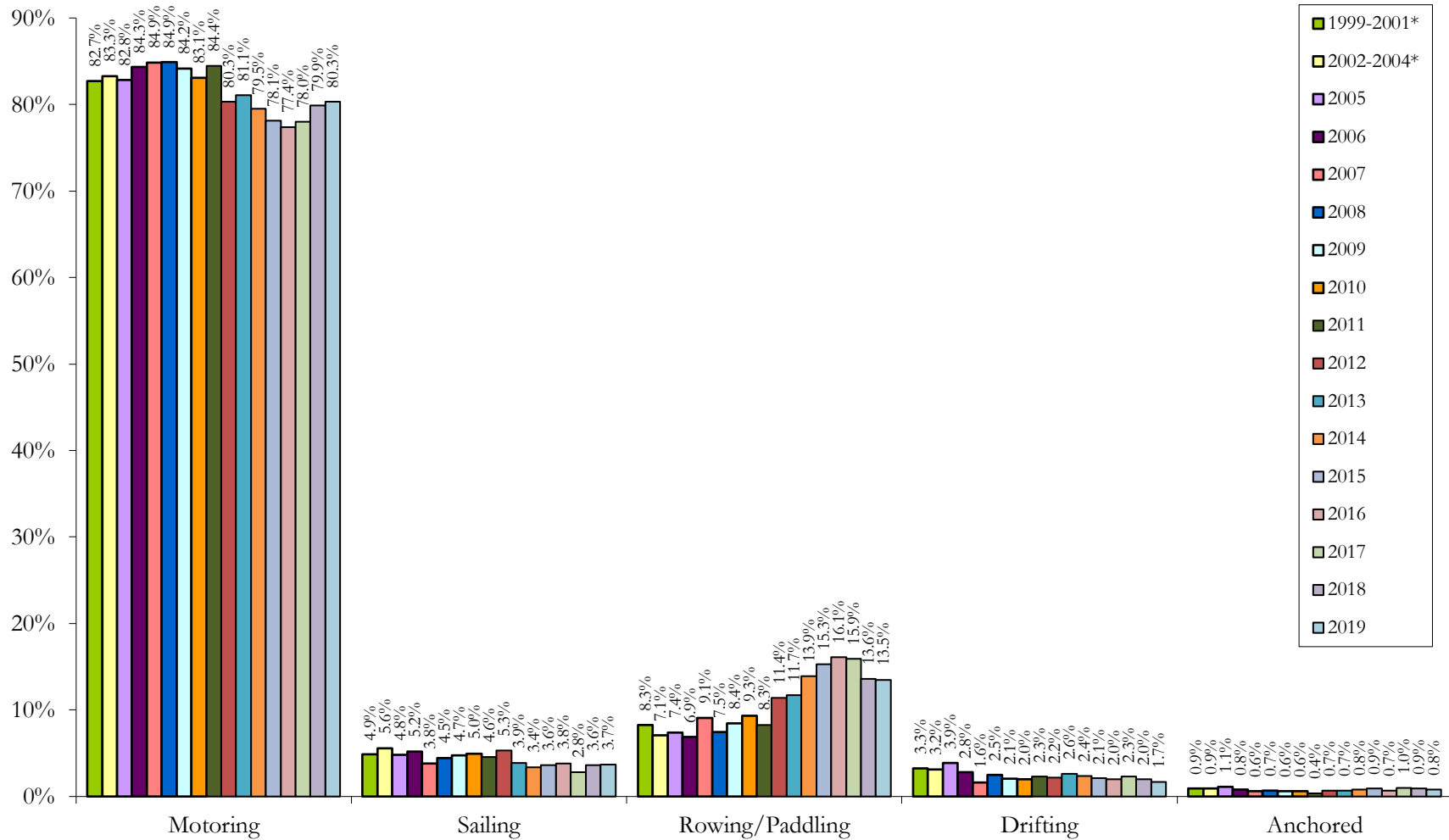
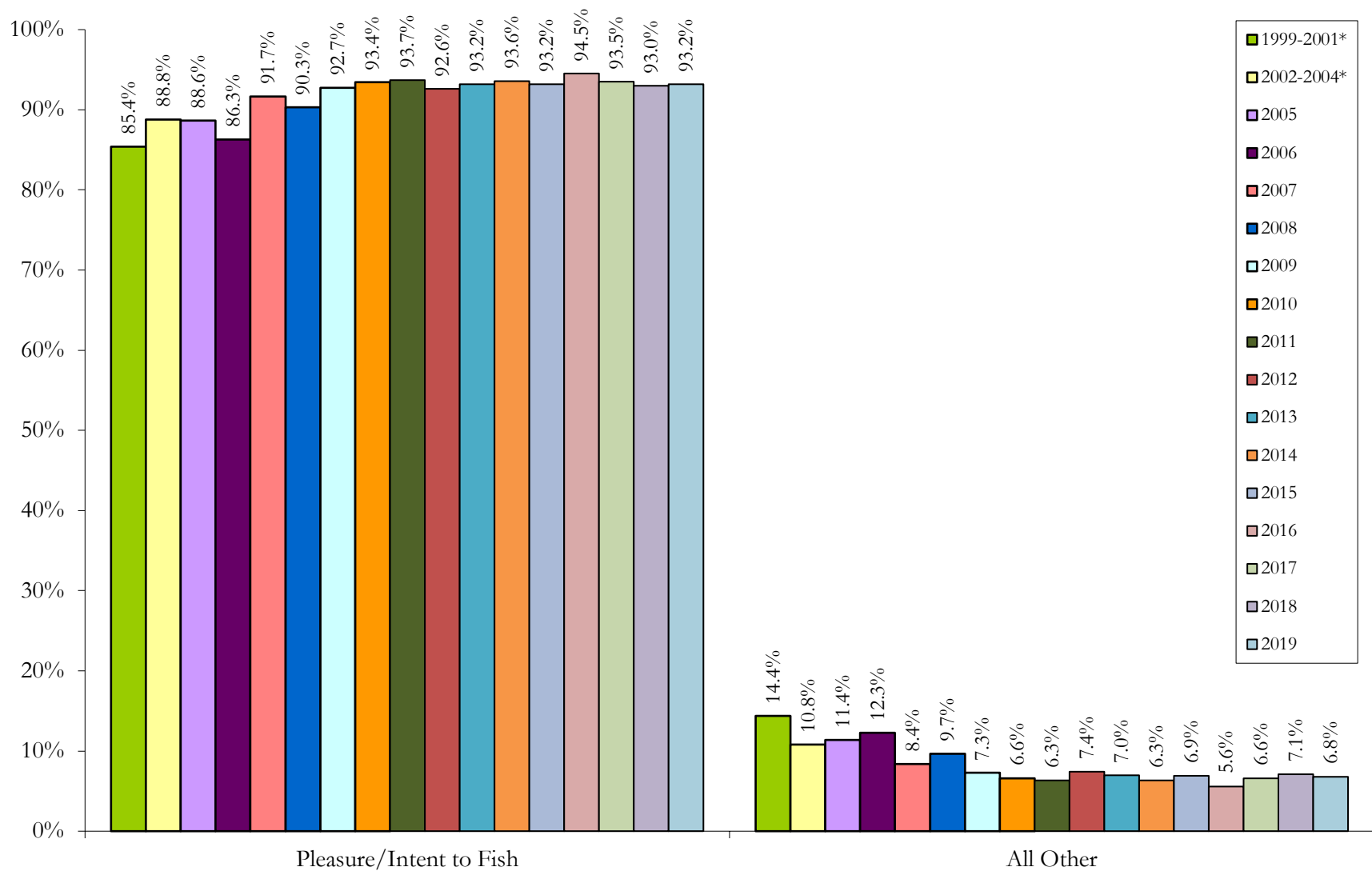


Figure S – Operation of Boats



*Three-year average

Figure T1 – Activity of Boaters—ALL YEARS*



*Three-year average

Figure T2 – Activity of Boaters 2007-2019 Data

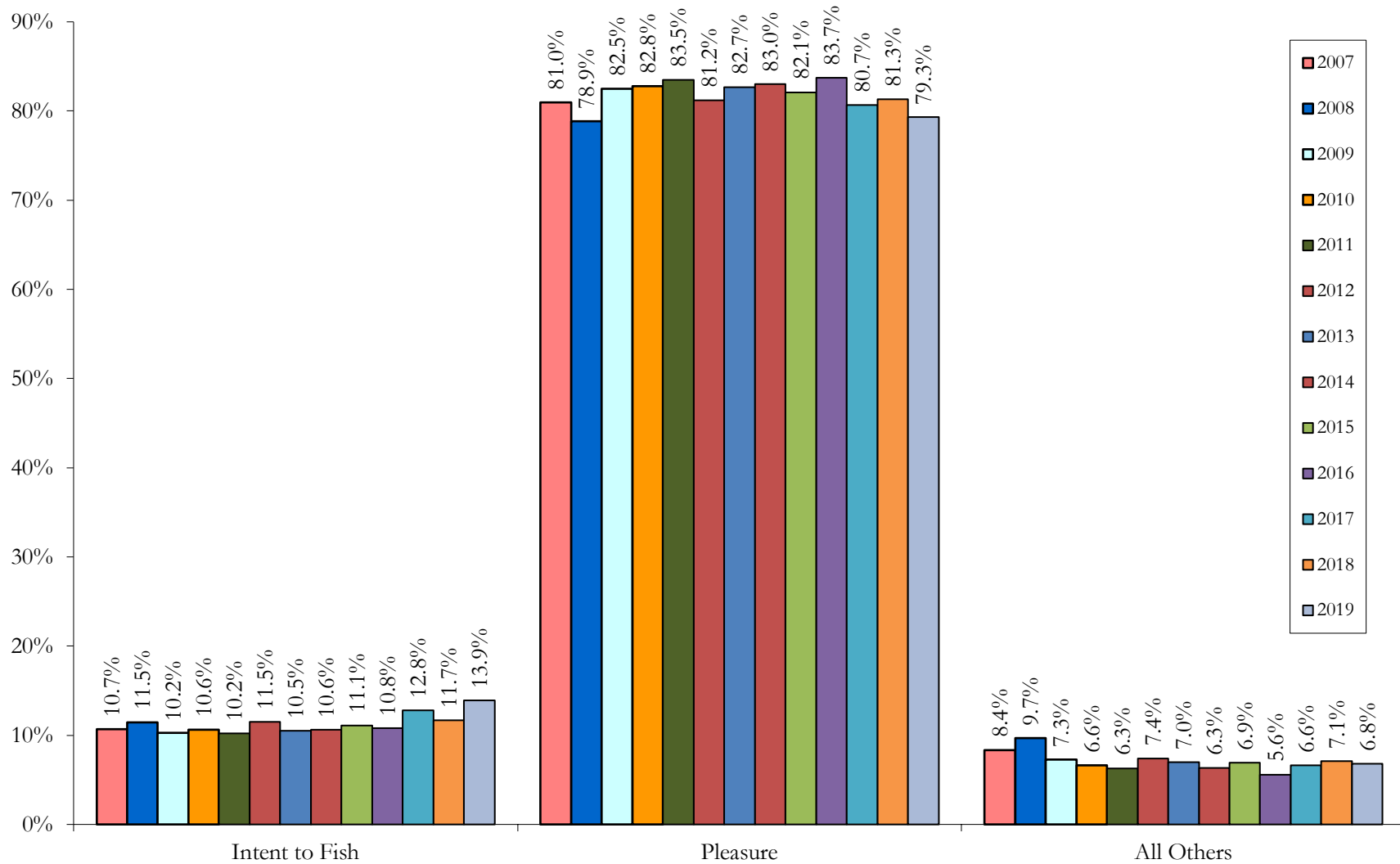
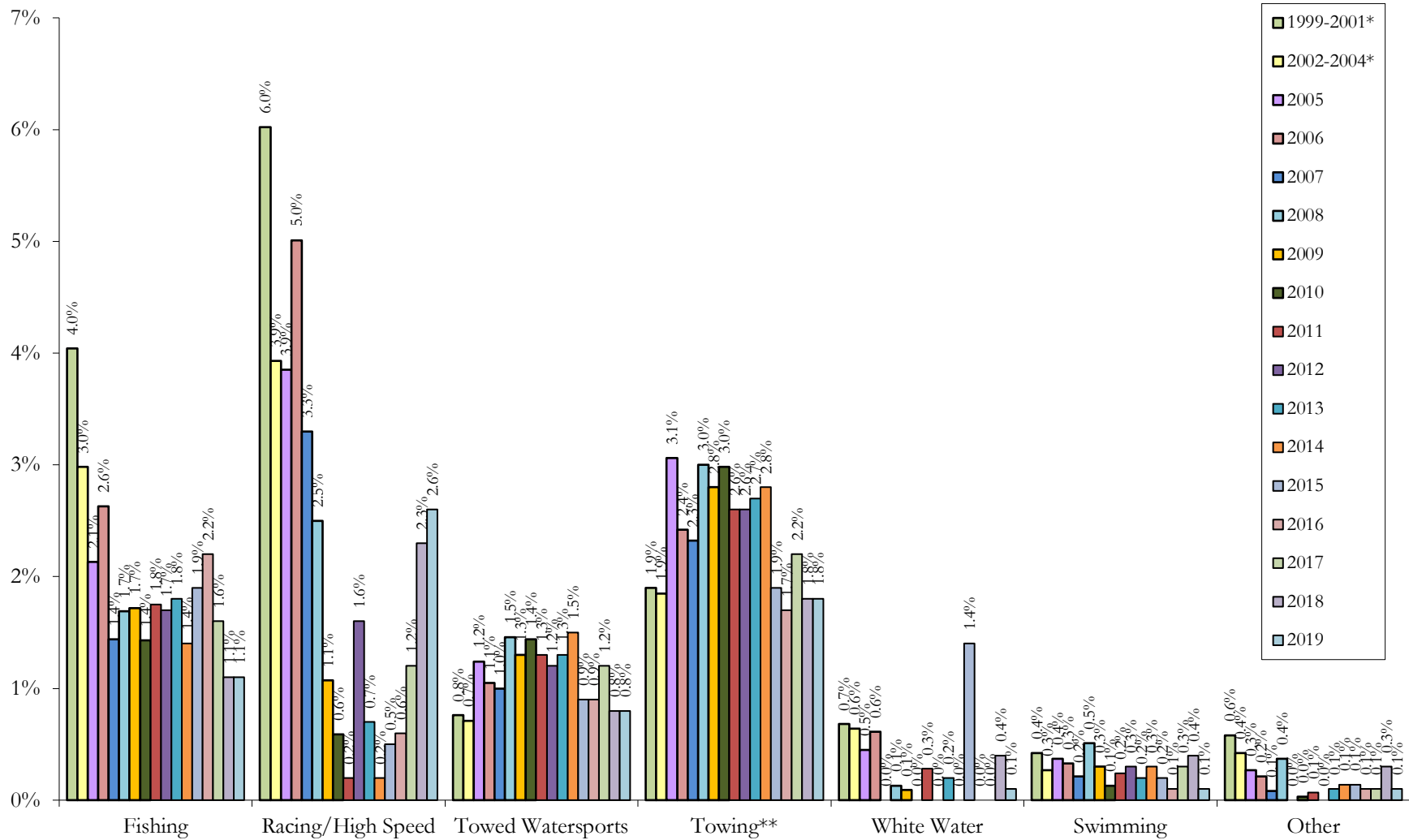


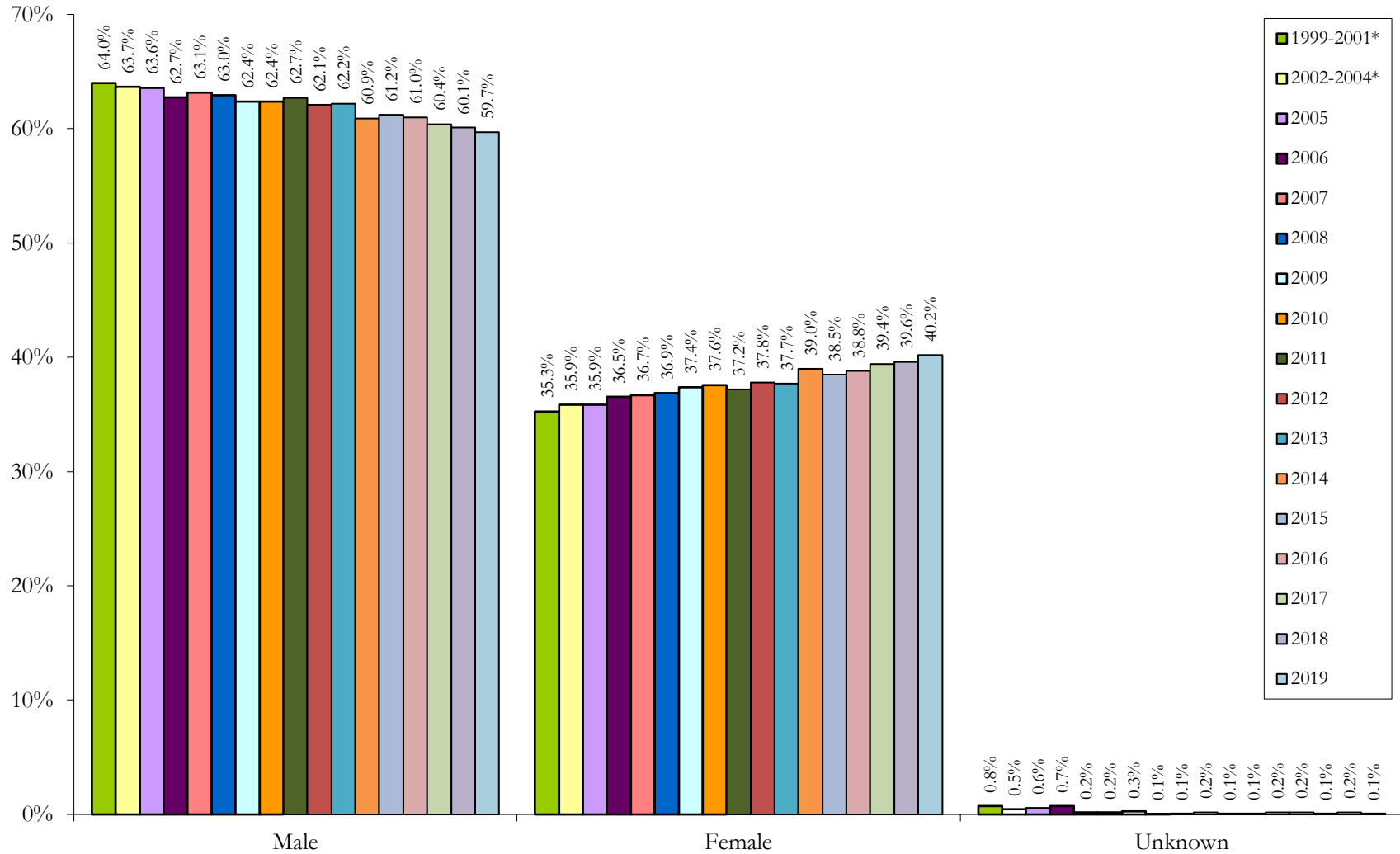
Figure T3 – Activity of Boaters 2002-2018
Detailed Breakdown of ALL OTHER Category from Figure T2



*Three-year average

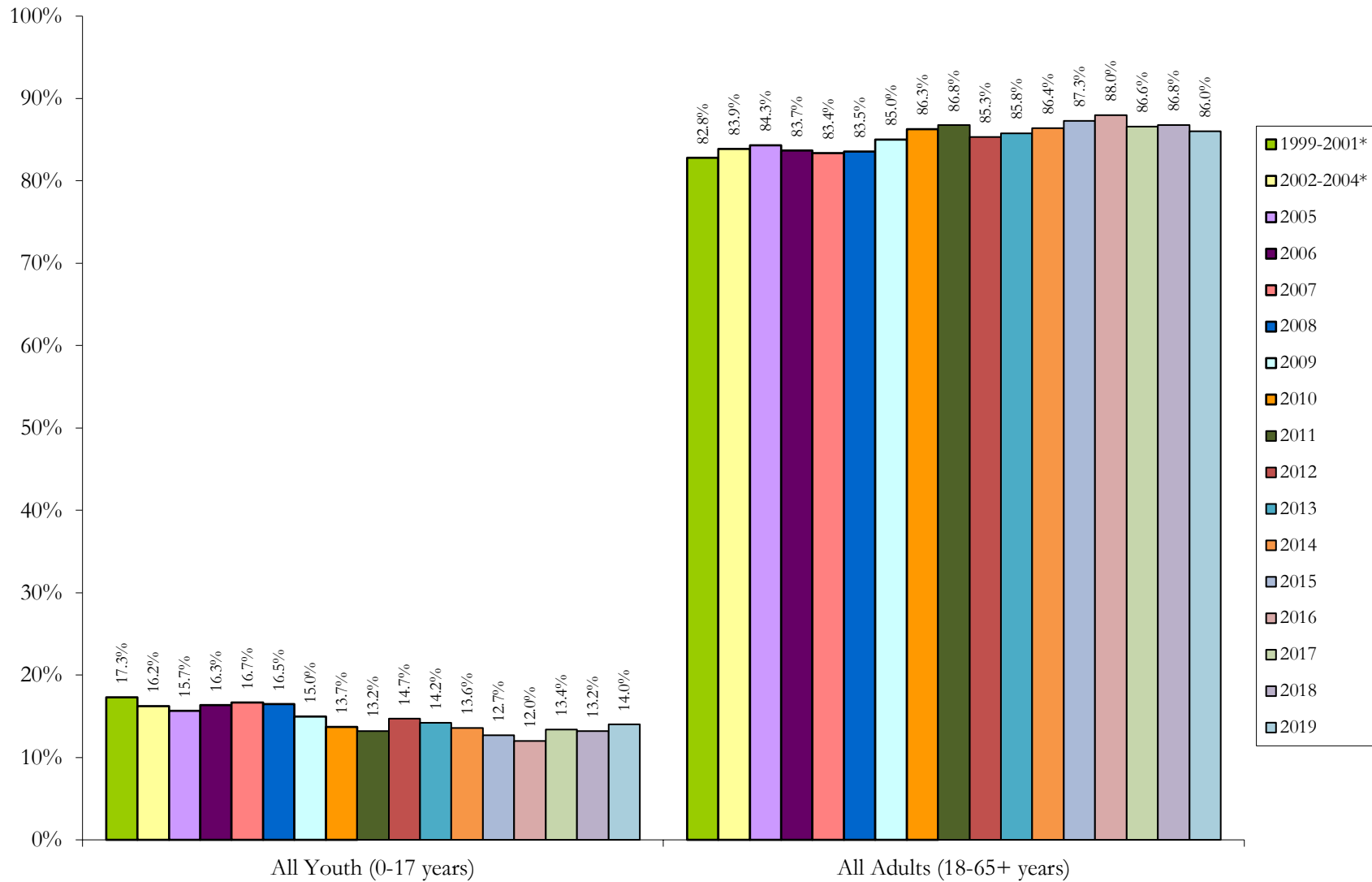
**The activity "Towing" indicates that these boaters were passengers in a boat towing water-skiers or other towing activities. Likewise, "Towed Watersports" includes all towing sports and is reserved for the boaters in the water being towed. The label was changed in April 2010.

Figure U – Gender of Boaters



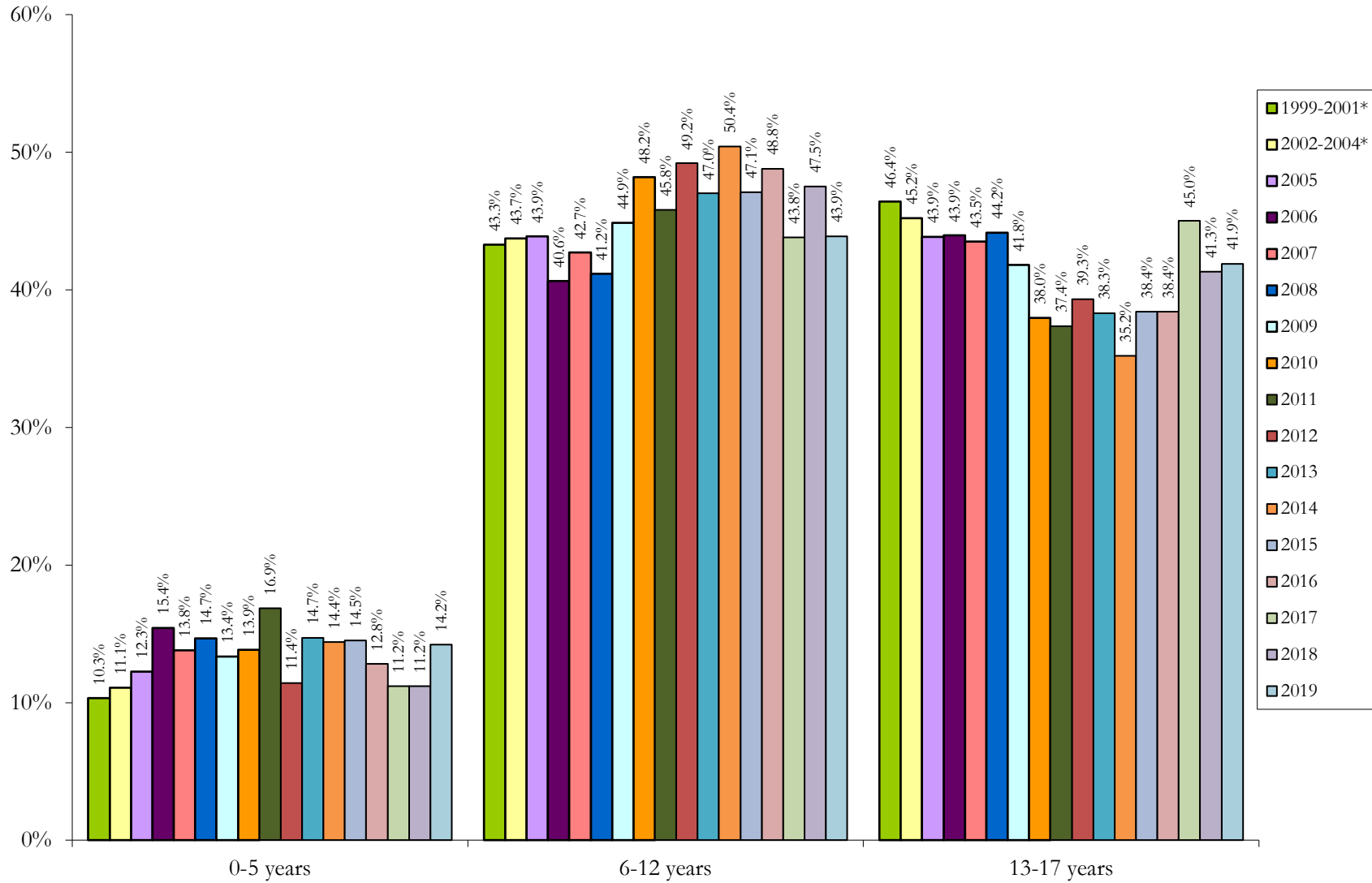
*Three-year average

Figure V1 – Age of Boaters



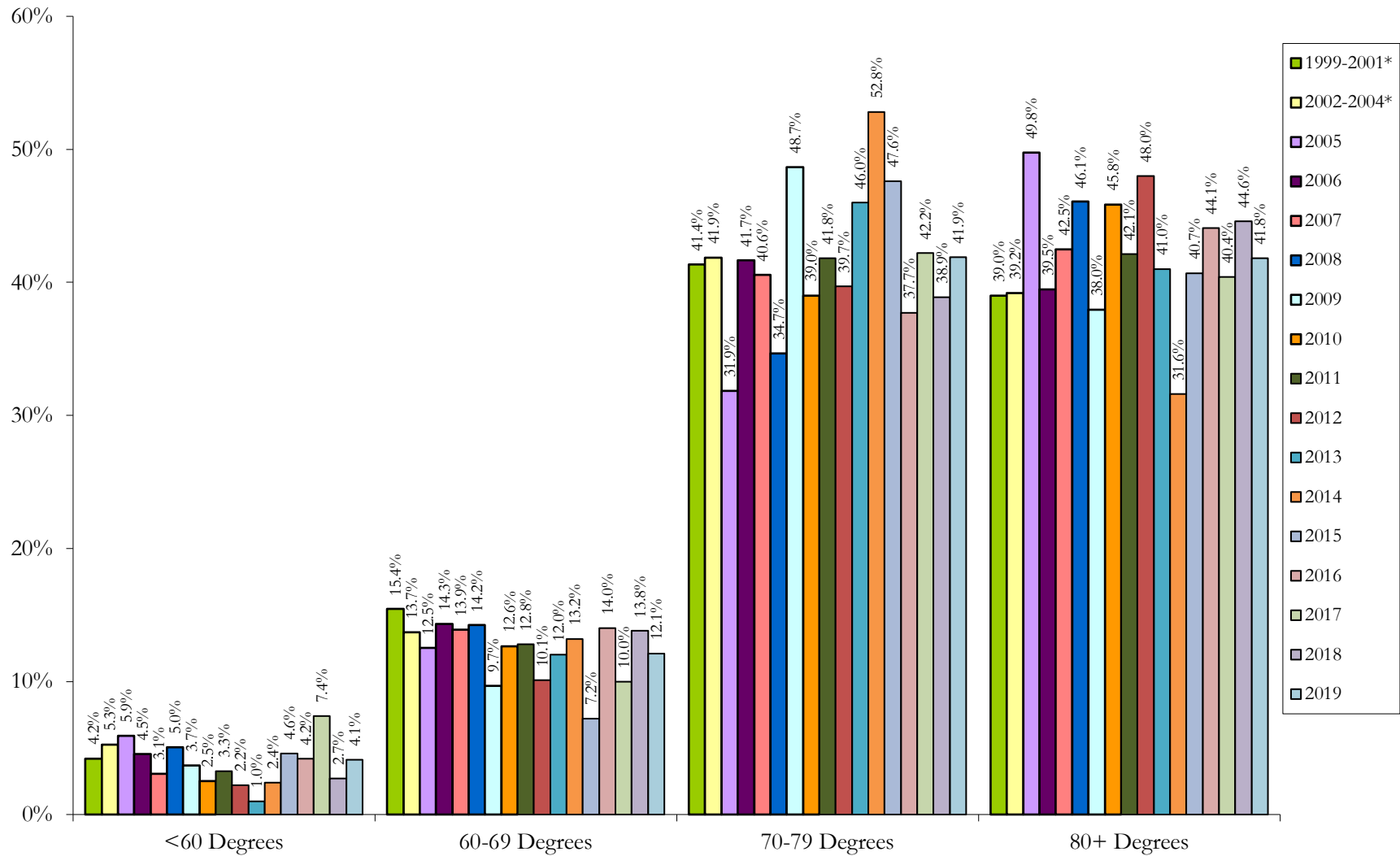
*Three-year average

Figure V2 – Age of Youth Boaters



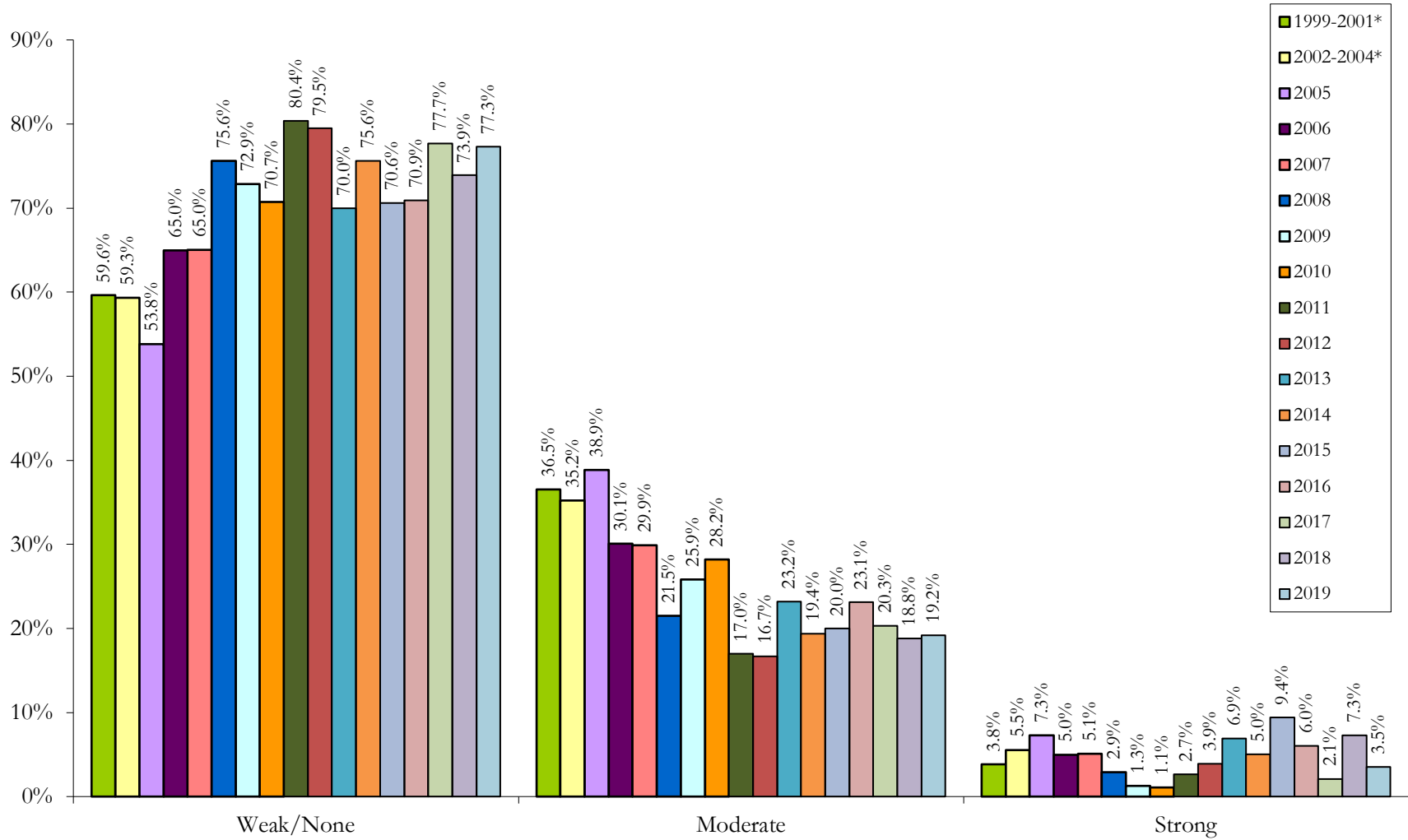
*Three-year average

Figure W – Water Temperature in which ALL Boaters were Observed



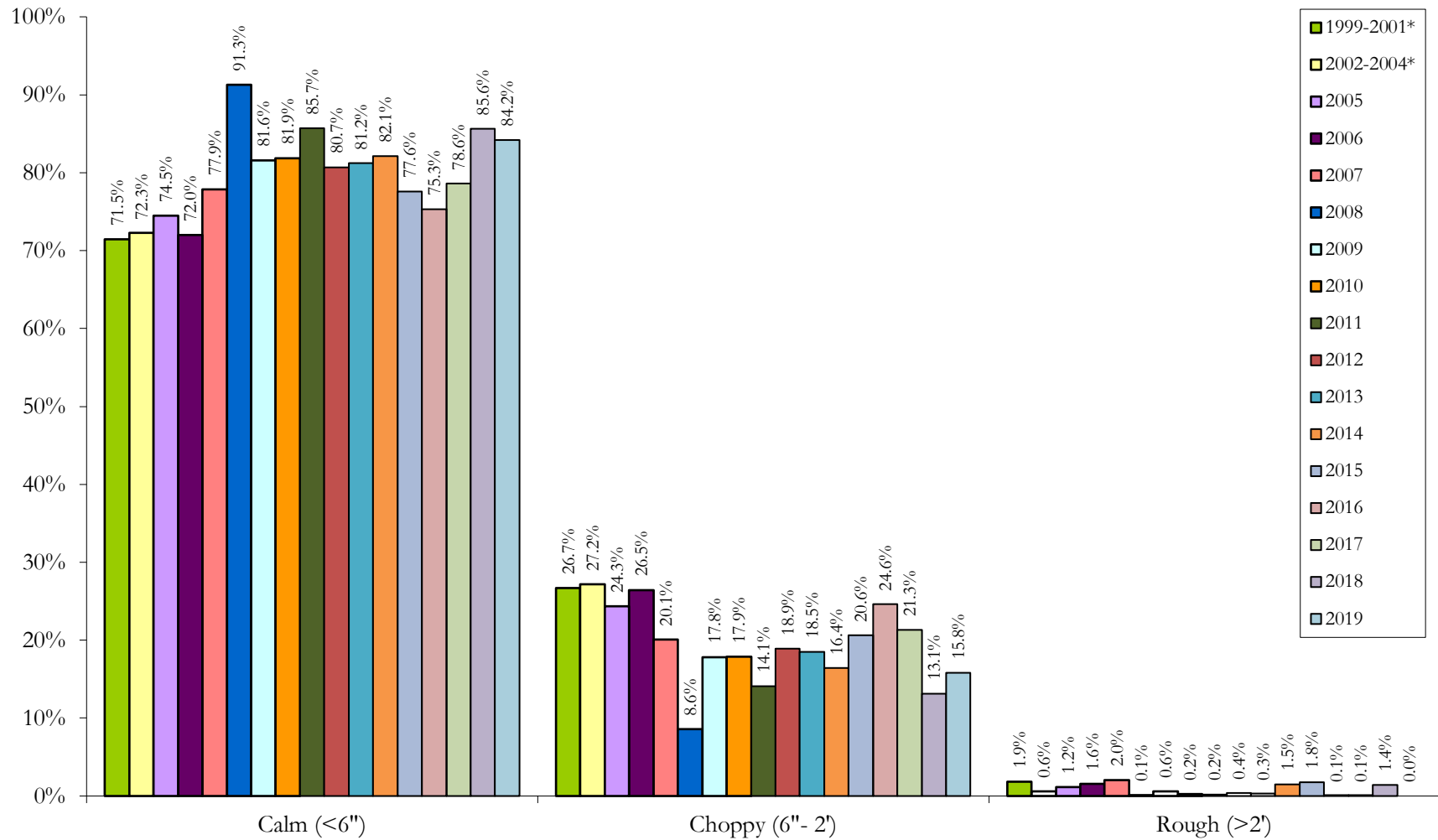
*Three-year average

Figure X – Water Current in which ALL Boaters were Observed



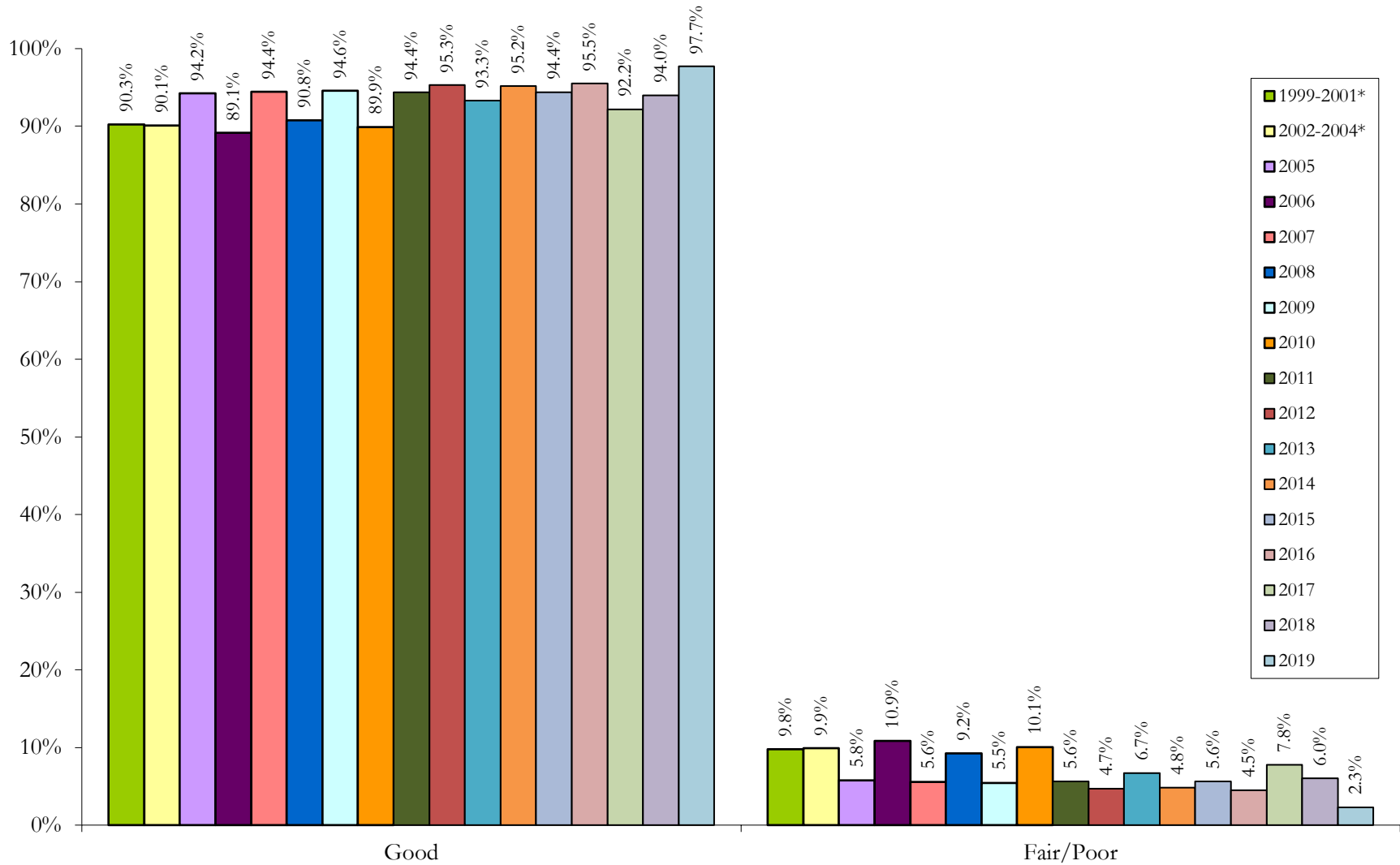
*Three-year average

Figure Y – Wave Height in which ALL Boaters were Observed



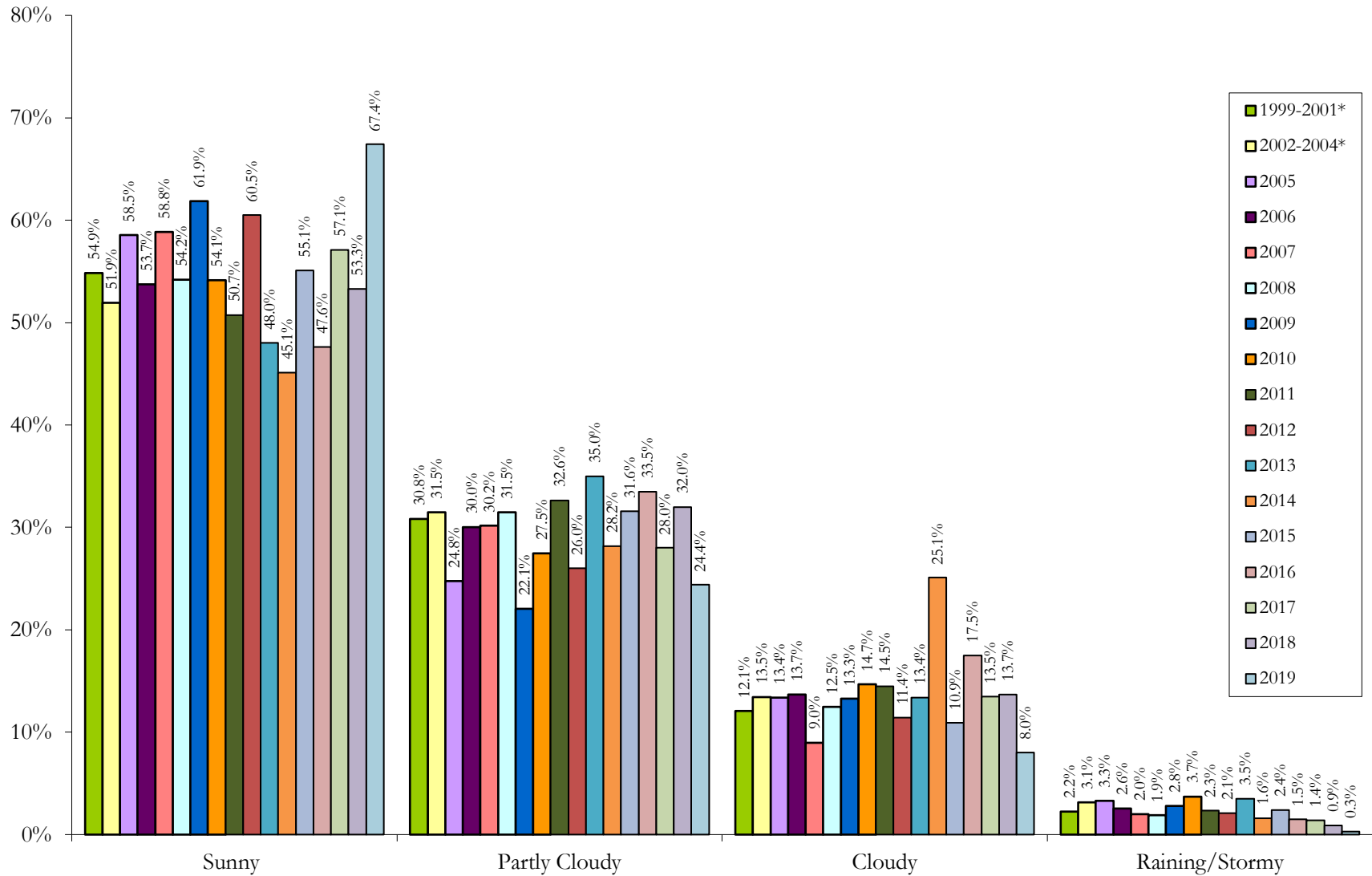
*Three-year average

Figure Z – Visibility in which ALL Boaters were Observed



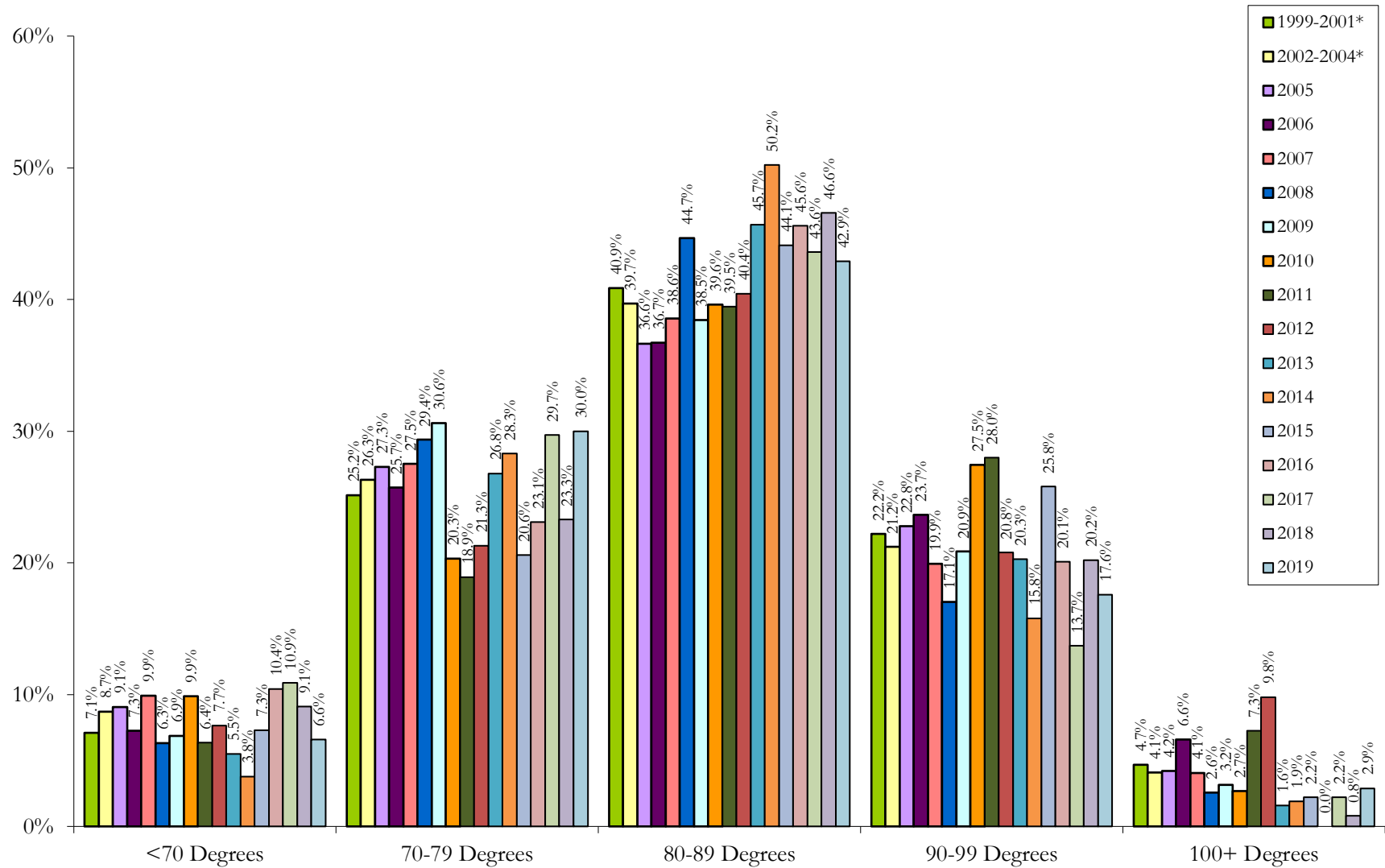
*Three-year average

Figure AA – Weather in which ALL Boaters were Observed



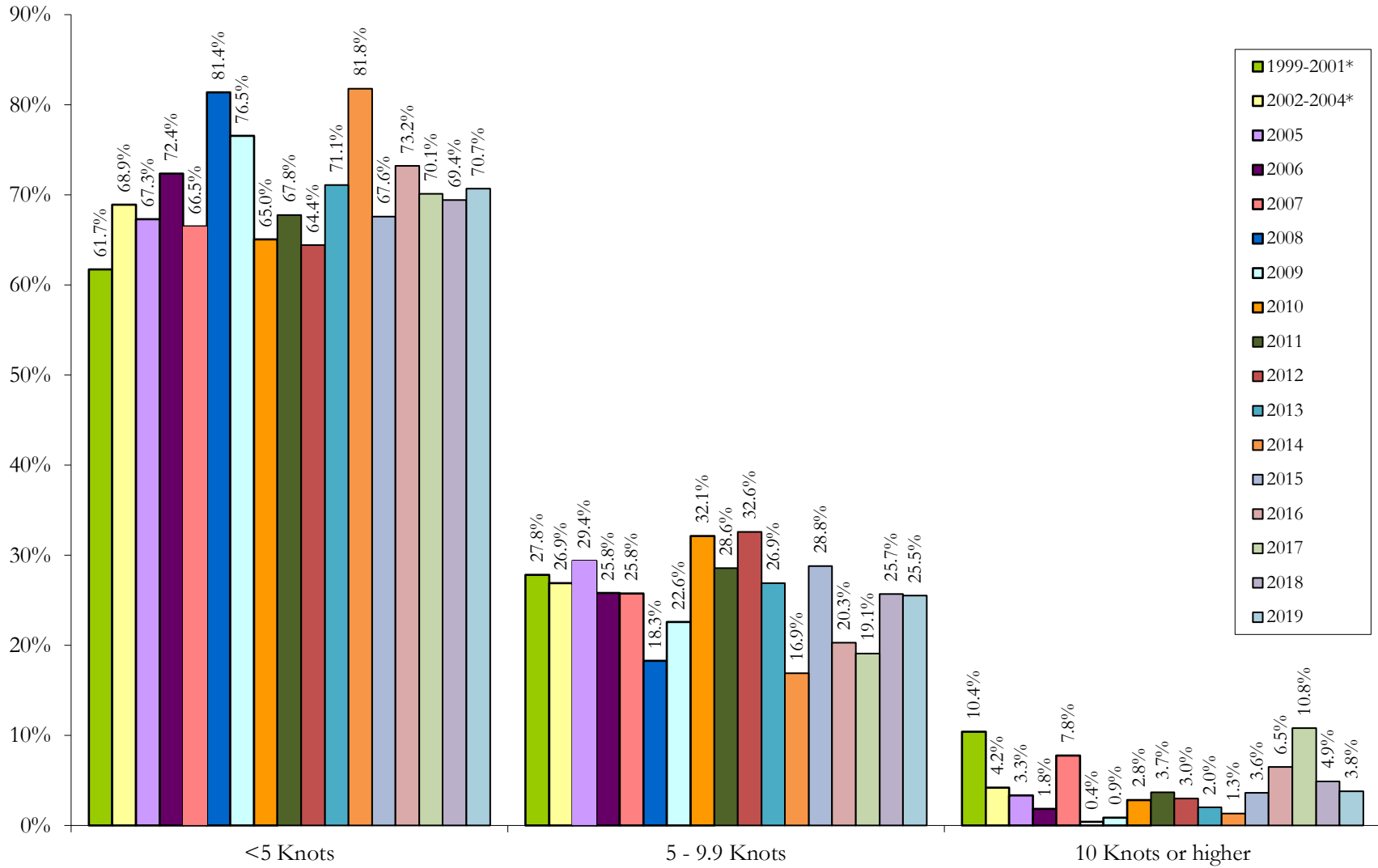
*Three-year average

Figure AB – Air Temperature in which ALL Boaters were Observed



*Three-year average

Figure AC – Wind Speed in which ALL Boaters were Observed



*Three-year average

VI. Appendix

State Data Tables 2008 to 2019

The following pages present trend data for each of the 30 states (2 areas within California) in which JSI conducts observations. Each page shows results for one state as well as showing comparison data for the national results. The tables show wear rates grouped in three-year intervals starting in 2008. Results for state wear rates are combined in three-year intervals to increase the number of observations for better reliability. However, data are not presented if the number of observations in any one cell are less than or equal to 15 boaters. The tables present wear rates for three age groups (adults, teenagers and youth 12 years of age or younger). Within each age group wear rates are reported for all powerboats (except PWCs), all sailboats and all paddlecraft.

As a reminder, wear rate requirements for youth for most states follow the Federal standard of mandatory life jacket wear for all children under the age of 13 for all boats. However, some states have requirements that differ from the Federal standard and in those instances, the individual state regulation is shown in a footnote below the state data results. Some states have different age limits or their regulations only apply for certain sized boats or both.

ALASKA

Wear rates are markedly higher across all boat types and age categories than the national data, probably due in part to colder waters. Adult paddlecraft wear rates have been over 90% since 2011. Adult powerboat wear rates are almost triple the national rate since 2008.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	12.0%	2816	9.5%	2617	16.1%	3335	13.5%	4061
Sailboats	40.5%	97	23.0%	71	57.7%	40	41.3%	100
Paddlecraft	88.0%	81	94.0%	50	96.2%	72	96.9%	17
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	50.1%	117	49.9%	106	44.3%	98	53.5%	116
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	92.9%	163	87.4%	118	91.7%	218	91.5%	230
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboat	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

ARIZONA

Adult powerboat wear rates show a steadily increasing trend with recent data above the national average. Youth powerboat wear rates declined steadily, ending up below the national average for 2017-2019.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	2.8%	3242	3.0%	4443	6.1%	2815	7.9%	2887
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	36.6%	41	38.6%	76	33.9%	118
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	37.7%	454	38.2%	440	50.7%	207	29.4%	349
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	60.6%	18
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	96.0%	569	92.8%	773	87.7%	406	83.9%	488
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

CALIFORNIA – SAN DIEGO

Adult wear rates on powerboats have shown a steady decline, starting out in 2008+ above the national average but in recent years coming in below the national average. Teens, however, record powerboat wear rates higher than the national average since 2008.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008 2010		2011 2013		2014 2016		2017 2019	
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	6.2%	3551	5.1%	2632	4.2%	1855	3.7%	1519
Sailboats	11.6%	1114	13.5%	1117	16.5%	814	13.5%	502
Paddlecraft	56.7%	177	40.3%	226	36.5%	290	34.3%	279
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	43.9%	247	38.3%	162	39.4%	168	40.2%	103
Sailboats	35.7%	54	49.3%	35	67.8%	39	42.5%	26
Paddlecraft	74.2%	28	.	.	81.2%	24	.	.
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	82.6%	411	89.5%	283	88.7%	212	80.1%	164
Sailboats	79.6%	55	89.1%	55	88.9%	35	.	.
Paddlecraft	.	.	100.0%	21	76.0%	45	.	.

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008 2010		2011 2013		2014 2016		2017 2019	
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

CALIFORNIA – SAN FRANCISCO

Adult wear rates across all boat types are higher than national rates across all 12 years of data. Adult sailboat wear rates show a generally increasing trend. Youth sailboat wear rates are higher than the national rates, above 90% across all twelve years, though sample sizes are small.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	6.0%	5260	6.8%	2967	8.4%	2338	6.7%	3088
Sailboats	38.4%	1437	40.5%	1470	55.0%	1143	48.8%	786
Paddlecraft	68.0%	110	77.4%	108	73.0%	55	74.5%	163
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	31.3%	313	27.2%	142	34.2%	74	34.6%	113
Sailboats	64.5%	39	37.3%	34	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	90.1%	525	88.8%	331	85.7%	179	85.6%	233
Sailboats	97.4%	36	94.4%	54	99.6%	25	100.0%	19
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

COLORADO

Adult wear rates across the three boat types are higher than the national average for all 12 years of data. Youth and teen powerboat wear rates are also higher than the national average across 12 years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	7.8%	3742	6.5%	3009	7.9%	2274	5.8%	2451
Sailboats	39.7%	540	45.6%	403	37.9%	165	50.3%	227
Paddlecraft	79.9%	150	62.3%	177	74.3%	286	61.7%	445
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	55.4%	347	43.6%	286	53.4%	201	49.2%	266
Sailboats	.	.	65.5%	20	.	.	66.4%	16
Paddlecraft	.	.	.	.	98.8%	19	92.8%	34
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	96.6%	639	92.3%	569	88.8%	380	90.4%	439
Sailboats	100.0%	19	93.6%	19	.	.	.	.
Paddlecraft	.	.	.	.	99.3%	23	94.6%	47

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

FLORIDA

Florida has consistent low wear rates across all three boat types and age categories in these tables. Adult sailboat wear rates are much lower than the national average, although nearly all sailboats observed in FL are cabin sailboats. Adult paddlecraft wear rates show sharp declines during the 12-year period. Teen and youth powerboat wear rates are also dramatically lower than national averages. These lower wear rates may be due in part to the state's mandatory wear regulation applying only to children under age 6.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	1.6%	1872	2.2%	1752	1.8%	1515	3.2%	1629
Sailboats	2.8%	142	0.0%	62	11.9%	28	6.6%	33
Paddlecraft	55.1%	27	38.3%	45	25.7%	41	19.3%	69
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	10.7%	92	30.8%	82	12.5%	87	18.2%	110
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	49.2%	110	65.4%	113	61.4%	80	54.7%	133
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

*Florida differs from Federal life jacket regulations for children in that children under the age of 6 are required to wear life jackets on boats less than 26 feet in length that are underway.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

GEORGIA

Powerboat wear rates are lower than national averages for adults but paddlecraft rates are higher. Teen and youth powerboat wear rates were similar to national rates except for 2017-2019 when teens were recorded at a markedly lower wear rate than the national average.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	2.0%	2099	1.2%	1543	1.1%	1483	1.4%	1467
Sailboats	15.2%	24	.	.	.	.	.	.
Paddlecraft	66.2%	50	61.3%	49	50.7%	103	83.1%	79
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	33.6%	154	34.5%	63	35.5%	52	19.2%	99
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	84.4%	297	92.0%	185	94.5%	177	85.2%	149
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

HAWAII

Hawaii wear rates are substantially below national averages for all boaters and boat types, with the exception of teens on sailboats. Wear rates for that group vary and are higher than the national rates in two of the four time blocks presented.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	1.6%	875	3.9%	1352	3.3%	1126	1.5%	1086
Sailboats	11.0%	248	5.7%	519	3.4%	287	3.7%	306
Paddlecraft	1.2%	875	11.9%	291	33.9%	298	5.3%	457
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	11.4%	51	24.1%	95	13.3%	98	7.0%	60
Sailboats	70.7%	29	46.6%	16	66.7%	73	.	.
Paddlecraft	22.4%	35	20.1%	20	34.6%	24	19.0%	36
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	64.3%	51	72.7%	140	72.5%	112	69.2%	103
Sailboats	.	.	74.6%	29	.	.	.	.
Paddlecraft	68.4%	34	58.6%	19	87.0%	16	40.4%	29

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

KANSAS

Kansas powerboat wear rates are higher than the national average for both teens and youth across the 12 years of data. Adult wear rates on sailboats are also higher across the 12 years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	8.7%	1658	3.7%	1472	4.2%	2326	7.4%	1450
Sailboats	35.2%	114	38.4%	101	31.7%	57	43.0%	65
Paddlecraft	70.2%	24	.	.	.	.	.	.
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	46.1%	232	34.0%	112	55.1%	107	52.5%	179
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	92.9%	328	89.3%	207	93.5%	297	89.0%	211
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

LOUISIANA

Louisiana is higher on adult powerboat wear rates than the national rates since 2011, and for teens and youth across all 12 years. Adult sailboat wear rates, however, are lower than the national average across all 12 years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.0%	1755	5.2%	1970	10.5%	1285	7.3%	2171
Sailboats	12.1%	35	0.0%	19	11.6%	17	15.8%	84
Paddlecraft	.	.	.	.	59.9%	29	.	.
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	66.2%	138	42.7%	127	94.7%	33	55.4%	96
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	94.8%	193	91.1%	248	99.2%	127	93.7%	251
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

*Louisiana differs from Federal life jacket regulations for children in that children under the age of 17 are required to wear life jackets on boats less than 26 feet in length that are underway.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

MAINE

Adult wear rates in Maine are markedly lower than national rates, across all boat types, particularly paddlecraft. Adult sailboat wear rates are about half of the national rate across the 12 years. Teen paddle wear rates as well are lower than national rates across all 12 years. Youth powerboat wear rates are somewhat higher than the national averages across the 12 years. Youth paddle wear rates closely mirror the national rates across the 12 years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.9%	2361	2.6%	2326	2.8%	2674	3.3%	2472
Sailboats	9.6%	214	13.6%	307	12.3%	257	11.4%	177
Paddlecraft	11.2%	654	19.7%	471	8.1%	1161	29.9%	471
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	29.9%	194	32.7%	112	25.4%	135	24.1%	112
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	42.7%	47	33.2%	36	34.6%	23	62.7%	24
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	92.7%	319	90.3%	309	89.0%	260	93.9%	181
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	90.2%	39	92.8%	28	92.9%	51	92.4%	34

(Cells with observations <=15 are removed from report)

*Maine differs from Federal life jacket regulations for children in that children under the age of 11 are required to wear life jackets on all boats at all times.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

MARYLAND

Powerboat wear rates are lower than the national average for all three age groups across the 12 years, with the exception of 2008-10 when adult paddlecraft rates were higher than national rates.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	1.2%	4022	1.8%	3376	2.9%	4133	2.9%	3381
Sailboats	9.7%	774	19.0%	650	13.3%	648	15.3%	405
Paddlecraft	75.3%	68	50.8%	133	53.0%	131	60.0%	128
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	8.3%	242	22.9%	170	12.4%	169	28.8%	170
Sailboats	54.7%	31	63.8%	112	44.7%	18	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	84.6%	381	80.1%	218	79.8%	271	81.4%	259
Sailboats	72.1%	36	80.1%	33	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

*Maryland differs from Federal life jacket regulations for children in that children under the age of 13 are required to wear life jackets only on boats less than 21 feet in length.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

MASSACHUSETTS

Adult powerboat wear rates are similar to the national average but adult sailboat wear rates are notably higher. Adult paddlecraft wear rates increased across the twelve years of data to just over 95% and are higher than the national average. Teen and youth wear rates on paddlecraft are both higher than the national average.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.6%	1492	4.1%	1844	5.0%	1062	6.6%	1559
Sailboats	38.3%	611	46.8%	628	53.1%	782	43.4%	779
Paddlecraft	87.0%	622	92.4%	885	93.2%	1090	95.1%	924
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	28.1%	87	37.0%	43	26.3%	29	28.0%	50
Sailboats	53.7%	25	.	.	.	.	52.5%	17
Paddlecraft	89.0%	80	97.9%	86	99.4%	74	97.8%	43
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	90.7%	145	85.5%	167	85.7%	83	92.1%	80
Sailboats	91.8%	48	.	.	.	.	71.5%	20
Paddlecraft	99.3%	83	100.0%	91	99.5%	85	99.9%	55

(Cells with observations <=15 are removed from report)

*Massachusetts differs from Federal life jacket regulations for children in that children under the age of 12 are required to wear life jackets in all boats that are underway and/or when they are above board.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

MICHIGAN

Adult sailboat wear rates are markedly lower across the 12 years than the national rates. Wear rates for adults on powerboats fluctuate in Michigan. The youth powerboat wear rate has been lower than the national average except for the last three years, probably because mandatory regulations only apply for those under the age of 6.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	8.1%	2778	2.0%	3299	10.1%	2499	4.9%	2198
Sailboats	6.6%	321	13.5%	302	6.7%	167	9.7%	112
Paddlecraft	88.7%	17	35.3%	27	40.0%	36	57.9%	57
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	18.4%	163	32.9%	115	43.6%	92	34.5%	84
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	83.8%	246	83.7%	205	76.5%	238	89.5%	121
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

*Michigan differs from Federal life jacket regulations for children in that children under the age of 6 while underway are required to wear life jackets when riding on the open deck on all boats.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

MINNESOTA

Minnesota adult powerboat wear rates are among the lowest in the 30 states across the 12 years displayed here. Teen powerboat rates are lower as well across all 12 years. Youth rates fluctuate but were similar to the national rate. Adult paddlecraft wear rates are noticeably lower than the national rates for the past nine years but they are based on a relatively small number of observations.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	1.0%	5258	1.8%	4958	1.1%	3010	1.8%	5625
Sailboats	25.1%	119	20.5%	28	.	.	18.3%	33
Paddlecraft	38.9%	21	7.2%	25	7.7%	16	10.7%	45
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	15.4%	207	28.6%	248	20.8%	124	28.9%	254
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	83.1%	572	89.8%	488	92.1%	340	85.2%	560
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

*Minnesota differs from Federal life jacket regulations for children in that children under the age of 10 are required to wear life jackets on all boats that are underway.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

MISSOURI

Missouri wear rates for adults on powerboats are lower than the national rates. Youth powerboat wear rates have declined somewhat across the 12 years and are lower than national rates for the past nine years; probably because mandatory regulations only apply to those six and under.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	1.6%	6058	3.0%	5573	1.9%	5299	3.9%	3936
Sailboats	16.7%	16	.	.	.	.	.	.
Paddlecraft	.	.	43.0%	29	14.0%	27	.	.
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	17.4%	311	34.4%	320	24.4%	261	29.4%	272
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	90.0%	753	85.3%	478	84.5%	487	81.1%	429
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

*Missouri differs from Federal life jacket regulations for children in that children under the age of 7 are required to wear life jackets at all times.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

NEW YORK

Adult powerboat wear rates are higher than the national rate for the past six years, and show steady increases across the 12 years. Adult sailboat wear rates increased as well across the 12 years, up 10 percentage points since 2014. Paddlecraft wear rates for adults fluctuate above and below the national rates across the 12 years. Teen powerboat wear rates are lower than the national rates across the 12 years. Youth powerboat rates have decreased in the past six years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	2.5%	2632	2.9%	3043	5.9%	1919	8.8%	3013
Sailboats	6.5%	396	22.3%	352	22.5%	240	32.5%	424
Paddlecraft	38.5%	67	80.0%	166	71.0%	323	51.6%	293
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	19.0%	95	28.0%	118	16.7%	143	24.1%	228
Sailboats	57.3%	17	.	.	.	.	36.1%	17
Paddlecraft	.	.	.	.	63.7%	28	.	.
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	94.8%	257	95.6%	284	85.5%	176	85.1%	272
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	100.0%	16

(Cells with observations <=15 are removed from report)

*New York differs from Federal life jacket regulations for children in that children under the age of 12 in boats, including canoes and kayaks, less than 65 feet in length that are underway are required to wear life jackets.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

NORTH CAROLINA

Adult wear rates for powerboats and sailboat are much lower than national averages. Adult paddlecraft rates fluctuate and in half the years are higher than the national average. Youth powerboat wear rates are somewhat higher than the national average across the 12 years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	1.3%	3580	1.3%	3919	1.5%	4839	2.2%	4324
Sailboats	6.6%	39	17.9%	47	13.3%	45	21.1%	38
Paddlecraft	83.4%	41	45.8%	82	61.1%	101	47.8%	269
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	36.2%	218	26.4%	189	27.6%	287	34.7%	233
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	55.3%	16
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	93.2%	429	93.9%	399	89.6%	592	89.4%	451
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	94.7%	16

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

OKLAHOMA

Adult paddlecraft wear rates stand out, as they are dramatically lower than the national rates across all twelve years (although observations are primarily from one site on the Illinois River). Adult powerboat wear rates are about at the national average. Teen powerboat wear rates are higher than the national average across the 12 years. However, youth paddlecraft wear rates are noticeably lower than the national rates.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.7%	1387	6.1%	1109	7.0%	1492	5.6%	1945
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	3.0%	1355	4.3%	757	3.8%	631	5.6%	368
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	49.4%	89	54.0%	63	57.1%	119	50.6%	184
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	18.6%	250	29.6%	147	30.7%	24	53.4%	31
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	84.4%	204	95.6%	115	88.6%	195	92.0%	211
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	84.6%	178	52.2%	78	89.0%	58	53.2%	49

(Cells with observations <=15 are removed from report)

*Oklahoma differs from Federal life jacket regulations for children in that children under the age of 13 are required to wear life jackets only on boats less than 26 feet in length.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

OREGON

Adult powerboat wear rates are higher than the national average across all 12 years but particularly so in the past six years. Adult sailboat wear rates have also increased substantially in the last six years to now be above the national average. Adult paddlecraft rates are also higher than national averages across all 12 years. Teen powerboat rates fluctuate between the national average and higher than the national average. Youth powerboat wear rates are also higher than the national rate across all 12 years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	9.4%	2529	10.1%	1703	16.6%	2318	15.2%	2531
Sailboats	19.9%	204	17.5%	140	34.6%	248	34.9%	144
Paddlecraft	81.1%	133	91.6%	141	67.0%	279	64.0%	292
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.5%	243	52.1%	119	34.7%	135	65.4%	207
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	87.4%	23	82.8%	17	92.7%	16
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	94.8%	227	94.8%	146	90.0%	199	89.7%	189
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	84.1%	17

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

RHODE ISLAND

Adult powerboat wear rates have increased across the 12 years but have always been lower than the national average. Adult sailboat wear rates measure about half of the national rate across all twelve years. Adult paddlecraft rates have been higher than the national average except for the past three years. Teen powerboat rates are similar to national averages in the past six years. Teen sailboat wear rates fluctuate and are based on relatively few observations. Youth powerboat rates were higher than the national average except in the last three years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	1.8%	4858	2.6%	3218	2.5%	3509	4.1%	3304
Sailboats	11.3%	1260	20.7%	1112	13.7%	958	17.2%	995
Paddlecraft	52.8%	116	69.9%	51	64.6%	98	50.8%	47
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	24.8%	218	24.0%	154	33.5%	185	32.9%	140
Sailboats	80.2%	25	50.6%	21	53.0%	36	69.4%	45
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	95.1%	421	91.0%	202	96.8%	190	84.1%	164
Sailboats	81.4%	40	89.3%	19	85.5%	40	86.4%	20
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

SOUTH CAROLINA

Adult powerboat and sailboat wear rates are noticeably lower than the national rates across all 12 years of data. However, adult paddlecraft wear rates are higher in the past nine years than the national averages, though the observation counts are low. Teen and youth powerboat rates are substantially below national averages; this may in part be due to youth mandatory life jacket requirements only cover boats under 16 feet in length.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	1.5%	3654	1.3%	3966	0.6%	3413	2.2%	2968
Sailboats	6.1%	174	7.3%	216	2.2%	170	7.7%	91
Paddlecraft	.	.	64.5%	17	76.6%	34	68.8%	32
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	10.3%	230	11.4%	217	17.8%	72	30.0%	189
Sailboats	.	.	16.2%	21	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	77.2%	356	69.1%	393	71.0%	218	78.2%	276
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

*South Carolina differs from Federal life jacket regulations for children in that children under the age of 12 in boats less than 16 feet in length are required to wear life jackets.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

SOUTH DAKOTA

Adult powerboat wear rates are somewhat higher than the national rate over the first nine years. Teen and youth powerboat wear rates are noticeably higher than national rates across all 12 years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	6.7%	895	5.5%	1450	6.5%	1382	4.7%	1032
Sailboats	.	.	21.8%	53	.	.	7.9%	20
Paddlecraft	.	.	.	.	42.6%	36	42.2%	54
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	50.6%	126	39.8%	133	56.8%	125	58.4%	129
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	76.6%	17
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	93.5%	241	92.3%	363	95.4%	302	94.4%	278
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

*South Dakota differs from Federal life jacket regulations for children in that children under the age of 7 are required to wear life jackets on boats operating at greater-than-no-wake speed.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

TENNESSEE

Adult powerboat wear rates have shown a steady increase across the 12 years and surpass national averages in the past nine years. However, sail and paddlecraft wear rates for adults are lower than the national rates based on relatively few observations. Teen powerboat rates are substantially higher than the national rates. Youth powerboat rates are also higher than national rates except in 2014-2016.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	2.8%	2589	7.0%	2541	7.8%	2656	8.6%	3404
Sailboats	12.4%	23	6.0%	30	1.8%	18	30.6%	59
Paddlecraft	.	.	33.4%	20	43.8%	22	51.0%	43
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	42.3%	206	41.2%	158	42.6%	128	58.2%	270
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	92.4%	167	90.5%	357	84.9%	248	93.5%	353
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

TEXAS

Adult powerboat wear rates are lower than the national average. Youth powerboat wear rates are higher than the national rates across all 12 years. Adult sailboat wear rates are dramatically lower than the national rate across all 12 years. Teen powerboat wear rates are higher than national averages for the past nine years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	2.3%	3173	2.9%	2841	2.6%	3091	4.3%	4148
Sailboats	2.6%	527	2.2%	459	12.1%	499	9.5%	566
Paddlecraft	.	.	32.2%	24	40.1%	26	.	.
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	30.6%	199	51.2%	114	42.9%	107	37.4%	254
Sailboats	18.3%	25	.	.	.	.	17.6%	16
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	93.8%	341	95.2%	272	95.6%	274	93.2%	380
Sailboats	89.5%	28	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

*Texas differs from Federal life jacket regulations for children in that children under the age of 13 are required to wear life jackets only on boats less than 26 feet in length.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

UTAH

Adult powerboat wear rates are lower than the national rates in the past six years. Paddlecraft wear rates are substantially higher than the national rates for all three age groups, most likely due to mandatory wear regulations for all boaters on the Provo River.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	7.3%	1954	3.9%	2246	3.6%	2326	3.8%	2286
Sailboats	45.8%	35	38.3%	45	9.5%	63	32.0%	40
Paddlecraft	77.6%	250	75.0%	423	77.2%	720	81.7%	831
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	29.2%	202	40.5%	300	31.5%	261	17.0%	300
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	90.1%	32	71.5%	63	89.8%	125	93.9%	118
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	94.4%	489	91.3%	546	87.1%	561	88.2%	474
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	99.6%	31	99.9%	74	99.9%	151	99.1%	181

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

VIRGINIA

Adult powerboat wear rates fluctuate above and below national rates. For adults on sailboats, there has been a steady increase in wear rates across the 12 years but always below the national rates. Youth powerboat wear rates have shown a steady increasing trend across the 12 years to now match the national average.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	5.9%	2513	4.3%	2434	4.4%	3428	7.2%	2687
Sailboats	5.4%	151	9.7%	24	12.7%	109	23.6%	58
Paddlecraft	68.6%	32	59.9%	62	66.3%	91	62.9%	55
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	33.0%	121	35.9%	173	34.0%	253	25.5%	189
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	77.2%	277	78.4%	207	83.4%	323	88.6%	190
Sailboats	72.9%	17	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

VERMONT

Adult powerboat wear rates are higher than national rates across all 12 years. Adult sailboat wear rates have shown steady increases across the 12 years but are always lower than national rates. Youth wear rates on Powerboats are somewhat higher than the national wear rate for the past 6 years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	6.6%	1197	5.6%	1716	8.0%	1636	8.2%	1841
Sailboats	3.4%	166	7.7%	342	17.4%	348	22.1%	246
Paddlecraft	52.6%	70	45.9%	53	47.9%	122	57.3%	81
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	34.2%	112	33.4%	80	32.0%	114	51.5%	100
Sailboats	15.0%	21	.	.	.	.	.	.
Paddlecraft	.	.	.	.	81.2%	16	.	.
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	82.4%	139	84.4%	155	91.7%	154	88.3%	142
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	.	.	.	.	.	.	.	.

(Cells with observations <=15 are removed from report)

*Vermont differs from Federal life jacket regulations for children in that children under the age of 12 are required to wear life jackets in boats that are underway or when they are on an open deck.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

WASHINGTON

Adult wear rates on powerboats and sailboats are noticeably lower than national rates across all 12 years. In contrast, paddlecraft wear rates are substantially higher than national wear rates. Teen powerboat wear rates are also noticeably lower than national wear rates. Youth powerboat wear rates are also somewhat lower than national wear rates in nine of the 12 years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	1.9%	5587	2.2%	5940	2.2%	7006	2.3%	5870
Sailboats	7.8%	460	11.3%	413	16.9%	314	13.4%	205
Paddlecraft	88.6%	219	89.6%	527	81.0%	504	81.9%	668
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	19.3%	348	13.3%	259	25.1%	270	13.6%	293
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	93.1%	17	88.8%	57	.	.	80.1%	62
Youth (<13)*	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	87.8%	298	93.1%	479	85.7%	466	83.3%	463
Sailboats	.	.	.	.	95.0%	18	70.8%	18
Paddlecraft	.	.	100.0%	45	.	.	96.1%	30

(Cells with observations <=15 are removed from report)

*Washington differs from Federal life jacket regulations for children in that children under the age of 13 are required to wear life jackets only on boats less than 19 feet in length.

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

WISCONSIN

Adult powerboats wear rates are slightly below the national rates across all 12 years. However, sailboat wear rates for all three age groups are substantially higher than national averages. Adult paddlecraft wear rates are below national averages for the past nine years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.1%	1800	3.3%	1583	3.1%	3051	5.0%	3014
Sailboats	54.8%	864	48.8%	416	55.1%	643	71.7%	1072
Paddlecraft	42.1%	502	26.7%	503	43.0%	1297	50.1%	1336
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	22.5%	67	16.9%	89	22.1%	108	22.4%	174
Sailboats	87.8%	26	71.3%	25	65.6%	26	91.6%	56
Paddlecraft	71.9%	32	46.2%	39	75.8%	62	93.4%	61
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	82.8%	165	81.0%	118	87.0%	255	77.5%	213
Sailboats	100.0%	17	88.3%	25	87.0%	24	93.1%	28
Paddlecraft	100.0%	21	97.7%	38	94.3%	18	97.0%	44

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
Sailboats	21.5%	10148	24.2%	9368	28.0%	8143	30.9%	7603
Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

WYOMING

Adult powerboats rates in Wyoming are particularly striking at nearly four times higher than the national rates for all 12 years of data. Adult paddlecraft rates are substantially above national rates and have shown steady increases over the past 12 years. Teen powerboats rates are above 50% across the 12 years and paddlecraft rates are substantially above national rates. Youth paddlecraft rates are above 90% in the past six years.

LIFE JACKET WEAR RATE REPORT BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	21.2%	1084	21.0%	1142	26.1%	1188	27.5%	1050
Sailboats	24.6%	32	.	.	13.9%	30	.	.
Paddlecraft	54.4%	356	64.0%	463	68.8%	452	75.5%	404
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	51.0%	133	56.5%	118	58.6%	76	56.7%	120
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	81.2%	52	88.2%	43	83.6%	50	96.4%	84
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	85.3%	149	97.2%	228	86.5%	254	95.2%	177
Sailboats	.	.	.	.	.	.	.	.
Paddlecraft	99.8%	47	99.7%	77	93.6%	90	96.0%	74

(Cells with observations <=15 are removed from report)

NATIONAL LIFE JACKET WEAR RATE COMPARISON BY YEAR GROUPS (2008 to 2019)

Boat Type	Observation Years							
	2008	2010	2011	2013	2014	2016	2017	2019
Adult (18+)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	4.3%	88271	3.9%	83984	5.1%	82283	5.6%	84397
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Paddlecraft	36.9%	6082	52.8%	5882	52.6%	8461	58.1%	8072
Teen (13-17)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	32.1%	5956	33.7%	4907	34.1%	4318	35.7%	5443
Sailboats	58.0%	390	53.5%	391	58.0%	307	57.0%	308
Paddlecraft	54.3%	657	63.5%	578	77.3%	562	78.6%	632
Youth (<13)	%	N	%	N	%	N	%	N
All Powerboats (No PWCs)	89.1%	9862	88.8%	9096	87.5%	8274	86.6%	8264
Sailboats	83.6%	391	86.9%	361	86.9%	269	86.7%	224
Paddlecraft	90.8%	529	89.1%	535	95.0%	624	90.9%	646

Ranking All States on Average Life Jacket Wear Rates 12 Years of Data 2008-2019

The following tables show all 30 project states rank ordered by average wear rates across 12 years of data.

Adult Wear Rates

Powerboat wear rates range from 23.2% for Alaska to 0.7% for Georgia. States with noticeably higher wear rates (Wyoming, Alaska and Oregon) tend to have colder waters, in contrast to the lowest rates, which are all in hot weather states – South Carolina, North Carolina and Georgia.

Sailboat wear rates range from 49.7% for Wisconsin to 4.6% for Oklahoma. Again, wear rates seem to reflect weather and water temperatures. In addition, the proportion of smaller day sailors observed impact those states, as their wear rates are higher than other sailboats.

Paddlecraft wear rates range from 92.8% for Alaska to 3.7% for Oklahoma. Rates appear to reflect water and weather temperatures and the proportion of kayaks observed, which tend to have higher wear rates.

Table 6.1 – Average Life Jacket Wear Rates – Adults (18+) – 2008-2019

Rank	State	Powerboats (No PWCs)	(N)	State	Sailboats	(N)	State	Paddlecraft	(N)
1	WY	23.2%	4437	WI	49.7%	2995	AK	92.8%	220
2	AK	12.5%	12820	AK	47.0%	308	MA	92.4%	3521
3	OR	12.4%	9036	CO	38.0%	1335	WA	84.5%	1918
4	VT	6.6%	6344	CA	33.9%	8383	UT	78.4%	2222
5	TN	6.4%	11101	MA	33.8%	2800	OR	72.3%	845
6	MI	6.0%	10755	KS	29.1%	337	SC	70.9%	96
7	LA	6.0%	7149	OR	28.1%	736	CO	67.8%	1057
8	OK	5.6%	5882	NY	27.1%	1412	WY	66.0%	1675
9	CA	5.3%	23020	SD	23.0%	81	GA	64.4%	281
10	VA	5.2%	11042	AZ	19.8%	35	VA	64.2%	240
11	KS	5.0%	6825	UT	19.8%	183	NY	63.5%	849
12	MA	4.9%	5957	WA	17.8%	1392	RI	59.0%	312
13	NY	4.9%	10581	MD	16.6%	2477	MD	57.6%	460
14	AZ	4.3%	13308	VT	16.0%	1102	KS	54.6%	66
15	WI	4.1%	9443	NC	16.0%	169	NC	53.2%	493
16	CO	4.1%	11092	TN	15.5%	130	MI	52.5%	137
17	SD	3.6%	4640	RI	15.2%	4325	VT	50.8%	326
18	UT	3.2%	8698	ME	15.0%	955	CA	50.7%	1408
19	ME	3.2%	9812	TX	13.7%	2051	LA	47.2%	53
20	TX	2.8%	13232	WY	13.3%	89	TN	43.3%	97
21	RI	2.7%	14882	GA	12.7%	54	WI	43.3%	3638
22	MO	2.7%	20815	MI	12.5%	902	SD	40.8%	115
23	HI	2.5%	4430	LA	11.8%	155	AZ	36.8%	245
24	MD	2.2%	14904	HI	10.5%	1359	MO	36.3%	77
25	WA	2.2%	24390	MN	10.4%	193	TX	35.4%	65
26	MN	1.6%	18827	MO	10.1%	24	FL	30.8%	182
27	FL	1.4%	6733	VA	10.1%	342	MN	14.9%	107
28	SC	1.0%	13999	SC	9.6%	651	ME	14.8%	2716
29	NC	0.9%	16631	FL	9.5%	265	HI	8.9%	1921
30	GA	0.7%	6568	OK	4.6%	21	OK	3.7%	3108

(Cells with observations <=15 are removed from report)



Teen Wear Rates

Teen wear rates are somewhat influenced by water temperature but the relationship is not as strong as for adult wear rates. Sail and paddlecraft wear rate rankings should be viewed with caution since many of the states have relatively few observations, even when aggregating the observations over a 12-year period.

Table 6.2 – Average Life Jacket Wear Rates – Teens (13-17) – 2008-2019

Rank	State	Powerboats (No PWCs)	(N)	State	Sailboats	(N)	State	Paddlecraft	(N)
1	LA	53.8%	356	WI	75.7%	133	MA	96.1%	283
2	WY	53.6%	435	OR	72.0%	31	CO	95.7%	66
3	AK	47.2%	419	KS	66.0%	33	OR	89.4%	67
4	OK	42.8%	375	CO	65.4%	60	WY	89.0%	229
5	KS	39.2%	538	MI	63.7%	22	RI	87.9%	16
6	OR	38.7%	623	RI	59.6%	127	UT	86.4%	337
7	TN	38.3%	640	NY	58.9%	54	WA	86.4%	151
8	SD	35.9%	390	CA	57.1%	250	VA	82.9%	17
9	TX	34.9%	637	WA	54.1%	47	SD	82.6%	24
10	CO	31.8%	799	MD	53.9%	171	CA	80.4%	95
11	CA	30.0%	1199	HI	53.2%	132	NC	76.2%	29
12	AZ	29.6%	1281	MN	51.3%	26	WI	75.2%	194
13	MA	29.3%	208	MA	46.2%	63	VT	72.2%	32
14	NC	27.9%	889	ME	43.9%	21	NY	67.3%	52
15	RI	27.8%	690	TX	42.4%	68	AZ	64.1%	31
16	MI	27.2%	434	VT	33.8%	49	KS	59.3%	17
17	VA	26.7%	681	SC	30.5%	40	FL	52.8%	21
18	VT	26.7%	344	UT	.	.	ME	42.8%	130
19	UT	25.0%	1000	SD	.	.	OK	25.3%	451
20	ME	23.0%	515	LA	.	.	HI	23.9%	115
21	MN	20.4%	787	AK	.	.	TX	.	.
22	NY	20.3%	569	VA	.	.	SC	.	.
23	MO	20.2%	1066	NC	.	.	GA	.	.
24	GA	19.7%	322	FL	.	.	MD	.	.
25	WI	18.7%	423	WY	.	.	MN	.	.
26	WA	16.6%	1152	OK	.	.	TN	.	.
27	MD	16.5%	744	TN	.	.	AK	.	.
28	SC	14.7%	694	AZ	.	.	MO	.	.
29	HI	14.6%	303	GA	0.0%	0	MI	.	.
30	FL	13.6%	353	MO	0.0%	0	LA	0.0%	0

(Cells with observations <=15 are removed from report)

Youth Wear Rates

All youth wear rates are relatively high since almost all 30 states have mandatory regulations for this age group.

Warm waters and a lower mandatory age limit compared to other states (under age 6) may explain Florida's noticeably lower wear rates.

Sail and paddlecraft wear rate rankings for youth should be viewed with caution since many of the states have relatively few observations, even when aggregating the observations over a 12-year period.

Table 6.3 – Average Life Jacket Wear Rates – Youth (<13) – 2008-2019

Rank	State	Powerboats (No PWCs)	(N)	State	Sailboats	(N)	State	Paddlecraft	(N)
1	TX	94.2%	1184	OR	97.4%	42	NY	100.0%	37
2	LA	93.9%	769	CO	95.3%	53	UT	99.8%	437
3	RI	92.9%	969	WI	92.2%	94	MA	99.6%	314
4	OR	91.9%	680	CA	91.2%	292	WA	98.3%	103
5	CO	91.4%	1759	KS	91.0%	16	WI	97.4%	121
6	SD	91.4%	967	TX	87.2%	66	CO	97.0%	98
7	AK	91.3%	717	MA	86.8%	97	WY	96.7%	286
8	KS	91.3%	934	MN	86.6%	16	NC	95.4%	20
9	ME	91.0%	1021	NY	85.4%	46	SD	94.2%	19
10	NY	91.0%	955	RI	85.0%	119	GA	93.8%	16
11	AZ	90.7%	2081	WA	85.0%	65	OR	93.5%	44
12	WY	90.5%	800	VA	82.3%	24	ME	91.6%	147
13	TN	90.2%	985	MD	79.1%	94	CA	88.2%	98
14	NC	90.1%	1827	ME	79.0%	31	VT	84.0%	32
15	UT	89.0%	2006	HI	74.1%	60	OK	74.5%	363
16	MA	88.4%	475	VT	73.2%	40	HI	61.1%	98
17	OK	88.3%	584	MI	70.5%	23	TN	.	.
18	WA	86.9%	1674	SD	.	.	MO	.	.
19	VT	86.6%	542	TN	.	.	VA	.	.
20	CA	86.3%	2162	UT	.	.	MD	.	.
21	MO	86.1%	2017	SC	.	.	MN	.	.
22	GA	86.1%	733	WY	.	.	AK	.	.
23	MN	85.6%	1891	LA	.	.	SC	.	.
24	MI	82.3%	773	NC	.	.	RI	.	.
25	WI	81.8%	744	FL	.	.	MI	.	.
26	MD	81.7%	1111	AK	.	.	AZ	.	.
27	VA	80.8%	953	GA	.	.	KS	.	.
28	SC	73.0%	1225	AZ	0.0%	0	FL	.	.
29	HI	69.0%	400	MO	0.0%	0	LA	0.0%	0
30	FL	56.8%	422	OK	0.0%	0	TX	0.0%	0

(Cells with observations <=15 are removed from report)