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This study of recreational boater safety in Ohio during 1999 was conducted for the Ohio Department of Natural Resources, Division of Watercraft in January 2000. The investigator was provided with a complete list of the owners of registered boats in Ohio from which a random sample of 1300 was selected. Three mailings were made with respondent names eliminated as questionnaires were returned. Mailings were made on February 4, February 18 and March 3, 1999. The first and third mailings included a cover letter, a questionnaire and a business reply return envelop. The second mailing was a reminder post card.

From the mailing to 1300 owners of boats registered in Ohio, 549 useable questionnaires were returned and 116 were not deliverable. The adjusted response rate was 46 percent (549 of 1184). Twelve respondent questionnaires were removed from the sample because they did not boat in Ohio during 1999. An additional 20 respondents were kept in the sample, but the only useable information they provided was that they did not use their boats during 1999.

In Table 1, all registered boats and all respondent boats reported are compared. A tabulation of boats registered in Ohio during 1999, by type, was obtained from the Ohio Department of Natural Resources, Division of Watercraft. Based on all boats registered, the sample is under represented for motorboats, very close on personal water craft (PWC), and over represented for all other categories. The Other category in Table 1 includes sailboards and inflatable boats, separate categories in the questionnaire.

Boat Type	All Ohio		Respondents	
	#	%	#	%
Motorboat	300,162	73.4	465	62.6
PWC	40,370	9.9	68	9.2
Houseboat	1,333	0.3	11	1.5
Sailboat, no motor	7,369	1.8	16	2.2
Sailboat, w/motor	2,006	0.5	21	2.8
Canoe/kayak	41,410	10.1	87	11.7
Rowboat	9,223	2.3	32	4.3
Other	6,807	1.7	43	5.8
Sum	408,680	100	743	100.1

Means of selected questions were compiled for early (N = 389) and late (N = 160) returns, approximately those responding to mailings 1 and 2 and those responding to mailing 3. The means for the two subgroups were highly similar. For example, mean boat length for the

early group was 19.7 ft and for the late group 19.1 ft. Number of people on the boat was 2.83 for the early and 2.84 for the late group. The mean personal safety rating was 3.55 for the early and 3.62 for the late group. Years of operating experience was 26 for the early and 23 for the late group.

Table 2 shows the tabulation of boater exposure in hours per year by type of boat. A boater exposure hour is one hour of boater time. For example, if 3 people spend 5 hours on a boat, 15 boater exposure hours are incurred. The total boats registered by type from Table 1, the weighting factor, were reduced by 5.8 percent to adjust for registered boats which were not used during 1999 (3.6%) and boats which were used only outside of Ohio during 1999 (2.2%). The number of boat occupants is compiled from question 3, number of days per year from 5a, and number of hours per day from 5b, all by type of boat (see Table 3).

Exposure is presented as hours per boat and hours per year by type of boat in Table 2. The highest exposure per boat is for houseboats followed by motorboats. Motorboats comprise about 91 percent of total exposure in 1999. Motorboats are disaggregated into open + pontoon and cabin motorboats in the footnote to Table 2. Days per year and hours per day for every category of boat in the questionnaire are presented as part of questions 5a and 5b in Table 3.

Table 3 presents the tabulation of the questionnaire for the 537 respondents who boated in Ohio during 1999 after the 12 not boating in Ohio were removed. More detailed tabulations for some of the variables are available from the author or from ODNR, Division of Watercraft.

Table 2. Exposure in hours/year by type of boat

Type of Boat	Weighting Factor # of Boats ^a	Number of Boat Occupants	Number of Days/Year	Number of Hours/Day	n	Exposure Hours/Boat	Exposure Hours/Year
Motorboat ^c	282,753	3.08	28.92	4.65	465	414.19	117,114,098.44
PWC	38,028	1.80	17.59	2.68	68	84.85	3,226,834.00
Houseboat	1,256	3.00	28.18	5.58	11	471.73	592,496.90
Sailboat, no motor	6,942	2.00	13.97	3.11	16	86.89	603,213.98
Sailboat, w/motor	1,890	2.92	24.21	4.75	21	335.79	634,648.20
Canoe/kayak	39,008	1.93	12.72	3.36	87	82.49	3,217,639.48
Rowboat	8,688	1.94	18.78	4.38	32	159.58	1,386,408.59
Other	6,412	2.36	27.50	4.72	17	306.33	1,964,175.14
Sum	384,977	2.82	505				128,739,514.72
^a Boat registrations of 408,680 adjusted downward by 5.8% of boats not used on Ohio waters during 1999 to 384,977							
^b Sailboard and inflatable boat respondents are excluded.							
^c Motorboats are disaggregated into open motor + pontoon boats (77 percent) and cabin motorboats (23 percent) based on sample responses.							
Open + Pontoon	217,720	2.95	291	4.56	359	381.36	83,030,613.62
Cabin	65,033	3.46	95	4.97	106	530.16	34,477,820.23
							117,508,433.86

Table 3. Survey of Recreational Boater Safety in Ohio During 1999

N = 537 (Excludes 12 respondents who did not boat in Ohio during 1999)

1. Which of the following type of boat did you operate most often in 1999? Select only one.

N = 516

Open Motorboat	243	Sailboat (Sail only)	7
Cabin Motorboat	95	Sailboat w/Aux Motor	13
PWC	23	Canoe	37
Houseboat	5	Kayak	8
Pontoon boat	52	Rowboat	18
Sailboard	2	Inflatable boat	2
		Other	11

2. What is the length of the boat you operated most often during 1999?

Mean = 19.6 feet N = 502

Less than 11'	25	20' but less than 26"	121
11' but less than 14'	26	26' but less than 32'	38
14' but less than 16'	58	32' but less than 46'	26
16' but less than 20'	206	Greater than 46'	2

3. How many people total, including yourself, were usually on the boat you operated Most often during 1999?

N = 518 Mean = 2.82 (8 people set = 8)

1 person	47	5 people	23
2 people	241	6 people	20
3 people	84	7 people	5
4 people	93	8 people	5

4. For the boat you operated most often, fill in the table below with the number of days you used this boat each month during 1999.

N = 491 Mean sum = 39.47

January	0.18	July	8.06
February	0.14	August	7.26
March	0.58	September	5.41
April	2.15	October	2.75
May	4.90	November	0.60
June	7.26	December	0.17

5a. During 1999, on how many days did you operate any of the following types of boats?
 Include boating on boats that you or your household owns, rented, or borrowed from
 someone else.

Type	N	1	2 to 3	4 to 6	7 to 9	10 to 14	15 to 29	30 to 59	60+	Days/Yr ^a
Open Motorboat	280	6	12	31	14	27	67	80	43	28.91
Cabin Motorboat	106	3	6	9	3	10	23	33	19	30.83
PWC	68	6	6	12	5	11	14	11	3	17.58
Houseboat	11	0	2	3	1	0	1	0	4	28.18
Pontoon Boat	79	4	8	7	1	9	19	21	10	26.36
Sailboard	4	0	2	0	0	1	1	0	0	9.75
Sailboat (Sail only)	16	1	5	4	2	0	2	0	2	13.96
Sailboat w/Aux motor	21	1	3	2	1	2	4	6	2	24.21
Canoe	66	2	19	14	5	11	9	4	2	11.81
Kayak	21	0	4	5	3	2	2	4	1	16.76
Rowboat	32	3	4	6	0	5	9	1	4	18.78
Inflatable Boat	22	1	2	7	2	3	2	5	0	15.31
Other	17	0	1	4	0	2	3	4	3	27.50
Did not boat	20									

^aDays per year calculated using midpoints of classes: 1, 2.5, 5, 8, 12, 22, and 40, respectively, and 60+ = 65.

5b. Then, for the boat(s) you operated during 1999, how many hours each day that you
 boated
 did you usually spend on the water? This includes time spent moving, drifting, or at anchor
 while you were on board.

Type	N	0 to 1	1 to 2	3 to 4	5 to 6	Over 6	Hrs/Day ^b
Open Motorboat	255	3	21	86	91	54	4.75
Cabin Motorboat	96	2	9	27	25	33	4.97
PWC	60	7	25	18	9	1	2.67
Houseboat	12	1	1	1	1	8	5.58
Pontoon Boat	68	1	19	25	12	11	3.81
Sailboard	3	2	1	0	0	0	0.83
Sailboat (Sail only)	14	1	5	5	2	1	3.10
Sailboat w/Aux motor	18	1	0	8	4	5	4.75
Canoe	55	0	17	24	6	8	3.60
Kayak	15	0	8	7	0	0	2.43
Rowboat	28	1	2	13	7	5	4.37
Inflatable Boat	21	5	10	2	2	2	2.35
Other	16	1	1	4	7	3	4.71
Did not boat	20						

^bHours per day calculated using midpoints of classes: 0.5, 1.5, 3.5, and 5.5, respectively, and Over 6 = 7.

6. Not including yourself, how many other persons in your household have operated a boat

for recreational purposes in 1999?

	N = 521	Mean = 0.91	
None	243	5 people	4
1 person	165	6 people	1
2 people	63	7 people	1
3 people	31	8 or more people	1
4 people	12		

7. Did you receive assistance from any of the following agencies when you were operating a boat during 1999? (Those answering "yes")

	N = 502			#
	#	%		
a. Local marine patrol	8	1.6	Total saying yes	34
b. State Watercraft Officer	10	2.0	Yes to 1 option	26
c. U.S. Coast Guard	8	1.6	Yes to 2 options	5
d. State Park Officer	9	1.8	Yes to 3 options	2
e. State Wildlife Officer	8	1.6	Yes to 4 options	1
f. Other	3	0.6		

8. While operating a boat during 1999 were you stopped for a safety equipment check or boating violation by any of the following agencies? (Those answering "yes")

	N = 504			#
	#	%		
a. Local marine patrol	31	6.2	Total saying yes	93
b. State Watercraft Officer	39	7.7	Yes to 1 option	70
c. U.S. Coast Guard	15	3.0	Yes to 2 options	13
d. State Park Officer	22	4.4	Yes to 3 options	5
e. State Wildlife Officer	26	5.2	Yes to 4 options	1
f. Other	6	1.2	Yes to 5 options	0
			Yes to 6 options	6

9. If you answered yes to any item in question 8, did you receive on of the following?

	N = 95			#
	#			
a. Safety equipment inspection	81		Total saying yes	95
b. Warning	13		Yes to 1 option	81
c. Citation	9		Yes to 2 options	10
d. Other	14		Yes to 3 options	0
e. None of the above	7		Yes to 4 options	4

9 d. Other (What?)

- fish count
- fishing
- harassment
- information
- information
- information
- towed in
- verify proper lighting

10. If you indicated that you received assistance or were stopped by any Marine Law Enforcement Officer, how would you rate the following?

Does not apply = 221 Does apply = 96

	Very					N	Mean ^a
	Poor	Poor	Fair	Good	Excellent		
a. Courtesy & professionalism	9	2	9	36	37	93	4
b. Service by Officers	4	2	4	17	14	41	3.9
c. Information provided	3	3	7	20	22	55	4

If you answered yes to one or more parts of Question 7, N = 34

a. Courtesy & professionalism	2	0	2	8	15	27	4.3
b. Service by Officers	2	1	1	5	8	17	3.9
c. Information provided	1	1	3	3	11	19	4.2

If you answered yes to one or more parts of Question 8, N = 93

a. Courtesy & professionalism	8	1	8	33	27	77	3.9
b. Service by Officers	3	2	3	14	9	31	3.8
c. Information provided	2	3	6	16	14	41	3.9

^aMean calculated where Very Poor = 1, Poor = 2, Fair = 3, Good = 4, Excellent = 5

11. In the table below, please write the names of up to three bodies of water in Ohio that you visited in 1999. (Top 5 bodies of water for each category)

	First	Second	Third	Fourth	Fifth	Sixth
Most often	Lake Erie	Ohio River	Indian L.	St. Marys	Ceasar C	Maumee R
(N)	169	26	15	15	14	14
2 nd most often	Lake Erie	Ohio River	Alum Cr	Ceasar Cr	Indian L	Maumee R
(N)	31	11	8	8	8	8
3 rd most often	Lake Erie	Buckeye L	Ohio R	Salt Fork	Piedmont	
(N)	15	7	5	5	4	

After each body of water, write the name of the boat ramp, launch site, or mooring where you started your boating and list the total number days you used your boat there. (Tabulated for Lake Erie sites only. There was little concentration of sites.)

Finally please list the number of days you spent participating in the boating activities listed. Count each part of a day spent on any activity as one day.

	Total	Fishing	Cruising	PWC	Tube/Water Skiing	Sailing	Swimming	Other
Most often	30.7	22	20.1	19	9.4	26.8	10.4	22.6
(N)	(437)	(276)	(193)	(31)	(66)	(22)	(61)	(30)
2nd most often	8.9	8.3	6.9	8.3	6.8	5.3	2.9	5.1
(N)	(193)	(124)	(44)	(19)	(12)	(3)	(14)	(8)
3rd most often	5.3	4.9	4.5	2.7	4.2	4	1.8	6.3
(N)	(98)	(71)	(20)	(3)	(8)	(1)	(4)	(6)

12. At the water body you boated on most frequently in Ohio, please indicate how often you experienced each of the following during 1999.

	Never	Some Trips	Most Trips	Always	N	Mean
a. Boat operators intoxicated	303	129	12	2	446	1.36
b. Excessive boat noise	205	182	48	19	454	1.74
c. Violations of speed limits	195	172	64	21	452	1.8
d. Violations of no-wake zones	155	200	74	38	467	1.99
e. Careless/reckless boat op.	182	202	55	26	465	1.84
f. Other	58	12	17	15	102	1.89
g. Presence of Law Officer	106	232	94	25	457	2.08

Mean calculated where Never = 1, Some trips = 2, Most trips = 3, Always = 4

13. In general how would you rate your feeling of personal safety while on Ohio's waterways?

	<u>N = 485</u>	<u>Mean = 3.59</u>
Very Unsafe (1)	13	
Somewhat unsafe (2)	47	
Safe (3)	193	
Somewhat safe (4)	106	
Very safe (5)	126	

14. How many years of boating experience do you have? 25.1 Years

N = 520

Range = 0 to 66 years

15. How old are you? 52.2 Years

Range = 20 to 85 years

N = 524