

**2014
LAKE
MINNETONKA**



**SHORELINE
BOAT STORAGE
COUNT**

INTRODUCTION

Beginning in 1971, the Lake Minnetonka Conservation District (LMCD) has conducted an inventory of watercraft stored at riparian and multiple dock sites on Lake Minnetonka. This project has been conducted during 31 boating seasons, providing for inventorying even years only from 2000 forward.

The purpose of this Report is to summarize the results of this project conducted in 2014. Three primary objectives were established for the 2014 Shoreline Boat Storage Count. These include: 1) establish the total number of watercraft stored in 2014, 2) outline data collected from historical shoreline boat storage counts, and 3) identify any observable trends from the data collected.

METHODOLOGY

To ensure consistency and accuracy in the completion of the 2014 Shoreline Boat Storage Count, LMCD staff established the following five parameters:

1. Survey all lakeshore frontage (125 miles) from Monday through Thursday. To best represent when LMCD staff could count the maximum number of watercraft stored on Lake Minnetonka, surveying hours were historically set between 8:00 a.m. and 12:00 p.m. As of 2006, the Board requested that staff complete the Proactive Code Enforcement Program in conjunction with the Shoreline Boat Storage Count on a bay-by-bay basis. Due to combining the two programs, surveying hours increased to as late as 4:00 p.m. Friday was established as an alternative day when needed. No Fridays were utilized in 2014.
2. Fieldwork for this project was to be counted during the month of June, with a completion date of July 4th. These dates were selected to best represent when LMCD staff could count the maximum number of watercraft stored on Lake Minnetonka. Due to combining the two programs and accommodating for staff availability, surveying dates were expanded. In 2014, fieldwork for this project commenced on June 10th and was completed on September 7th; as compared to June 4th and August 7th in 2012. The expansion of the 2014 dates were primarily contributed to adhering to the minimum wake restrictions (entire Lake) put in place. Although a good part of the fieldwork is now taking place after July 4th, LMCD staff believe, under normal operating conditions, this has little or no impact on the outcome of the project. The total number of watercraft offered under this unusual year of high water levels are addressed under the "Conclusions/Trends" section of this report.
3. The count of watercraft stored on Lake Minnetonka was conducted by LMCD staff, utilizing the LMCD's 19-foot runabout.
4. A shoreline storage count worksheet was established to assist in conducting the fieldwork for this project. Ten classifications of watercraft were established on this worksheet to categorize each watercraft type. The watercraft classifications

include: runabout, cruiser, sailboat, pontoon, houseboat, charterboat, fishing boat, personal watercraft (PWC), aircraft, and miscellaneous (misc.). Further definition of the watercraft classifications are outlined in Appendix A.

5. Identify the number of sites that have three or four plus restricted watercraft stored within the authorized dock use area, along with those that have empty slips. For this project, a slip is defined as “either a docking structure with three clearly defined sides or a boat lift.”

SUMMARY OF THE 2014 SHORELINE STORAGE COUNT

The total number of watercraft stored on Lake Minnetonka during the 2014 boating season was 10,174; 6,329 for residential storage and 3,845 for multiple dock facilities. Analysis of watercraft storage for the following respective categories are detailed below: 1) riparian sites, 2) multiple dock facilities, 3) docks with three or more watercraft, as well as those maintaining empty slips, and 4) historical multiple dock and riparian storage.

Riparian Sites: Appendix B highlights the 6,329 watercraft stored at riparian sites in 2014. Of the 6,329 watercraft, approximately 53% were found to be in either the runabout or cruiser classification. Further breakdown of this figure indicates that runabouts were 32% of the watercraft inventoried and cruisers were 21%. The establishment of the figures took into account watercraft included in the Mound Commons Docking Program. Therefore, watercraft counts within the individual categories are slightly skewed because LMCD staff was unable to distinguish the watercraft inventoried, by classification, at riparian residences. However, the 6,329 figure is accurate as staff backed out the total number of watercraft provided by the City of Mound for their docking program. Further details are outlined below under “Multiple Dock Facilities.”

The following percentages highlight the change in riparian watercraft storage from the 2012 boating season (see “Conclusions/Trends” for further evaluation):

Runabout	-1%	Charter	0%
Cruiser	-10%	Fishing	21%
Sailboat	2%	PWC	-28%
Pontoon	1%	Aircraft	68%
Houseboat	36%	Misc.	-12%

Multiple Dock Facilities: Appendix C highlights the 3,845 watercraft stored at multiple docks in 2014. Of the 3,845 watercraft, approximately 58% were found to be in the runabout and cruiser classification. Further breakdown of this figure indicates that runabouts were 38% of the watercraft inventoried and cruisers were 20%. Again, the figures for the individual watercraft categories are slightly skewed as the number of watercraft reported by the City of Mound for their Commons Docking Program are not included. However, that number was added to the total 3,845 watercraft.

The following percentages highlight the change in multiple dock licensed watercraft storage from the 2012 boating season (see “Conclusions/Trends” for further evaluation):

Runabout	5%	Charter	-25%
Cruiser	-2%	Fishing	-2%
Sailboat	-1%	PWC	-24%
Pontoon	22%	Aircraft	0%
Houseboat	233%	Misc.	5%

The City of Mound has communicated to LMCD staff that there were 514 watercraft stored within the Mound Commons Docking Program in 2014. The bays that the watercraft were located within are highlighted by an (*) in Appendix B and C. Further breakdown of the 514 watercraft are detailed below:

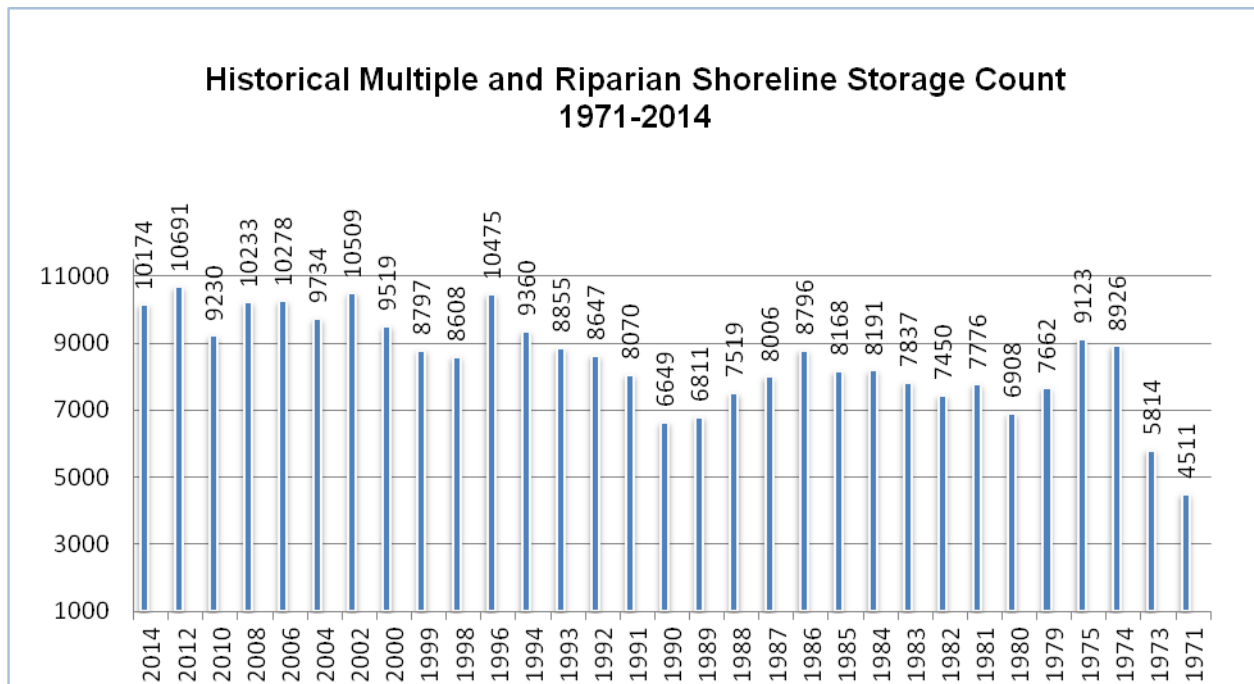
Priest Bay	32	Emerald Lake	1
Cooks Bay	59	Seton Lake	34
West Upper Lake	4	Harrisons Bay	149
Phelps Bay	119	Jennings Bay	53
Black Lake	59	West Arm	4

The various watercraft stored for the Lost Lake Villas are included in the multiple dock count and outlined within the individual watercraft categories as that site has a separate multiple dock license that is managed by LMCD staff.

Docks With Three or More Watercraft and Empty Slips: The LMCD initiated the documentation of docks with three or more watercraft and empty slips in 1999. Appendix D highlights the number of sites that stored three or more restricted watercraft, as well as those maintaining empty slips for the 2014 boating season: three watercraft (355), four or more watercraft (137), and empty slips (1,099). This compares to the 2012 statistics of 407 (-13% decrease); 218 (-37% decrease); and 891 (23% increase), respectively. Further comparison of the below statistics are offered under “Conclusions/Trends.”

Year	3 Boats	4 Boats	Empty Slips
2014 *	355	137	1099
2012	407	218	891
2010	360	207	773
2008	332	188	1102
2006 *	376	269	490
2004 *	398	242	602
2002 *	401	238	476
2000	355	186	254
1999 *	279	168	409
<i>Average</i>	363	206	677
* High Water Declared			

Historical Multiple and Riparian Shoreline Storage: Appendix E highlights historical multiple dock and riparian shoreline counts conducted by the LMCD from 1971 to 2014.



CONCLUSIONS/TRENDS

The 2014 boating season offered an unusual year in performing this inventory based on the additional minimum wake restrictions. Staff initiated the inventory of watercraft seven days later than usual to accommodate for adjustments in watercraft storage and dock structures that were taking place around the Lake. Based on the data collected from the 2014 Lake Minnetonka Shoreline Storage Count, the following conclusions and trends are offered:

1. The following highlights the percentage change in watercraft storage from 2012 for both the riparian and multiple dock storage counts (as compared to the individual counts provided above).

Runabout	2%	Charter	-25%
Cruiser	-7%	Fishing	13%
Sailboat	0%	PWC	-28%
Pontoon	8%	Aircraft	67%
Houseboat	8%	Misc.	-12%

- Watercraft storage decreased by 517 (10,691 in 2012 to 10,174 in 2014). Based on the inability to operate above minimum wake, staff believed the reduction in cruisers and personal watercraft (PWC) made sense, as well as the increase in pontoons and fishing boats.

- Although the houseboat, charter and aircraft make up less than 1% of the total watercraft stored, the percentages for houseboats and aircraft are higher due to their slight increase (11 and 2, respectively). The five aircraft documented were from riparian sites only.
- In 2012, staff reported a large increase in miscellaneous watercraft, which was a result of the smaller sail boats being interpreted as a miscellaneous watercraft vs. sail boat (as typically documented). In 2014, staff returned back to the consistent way of counting that watercraft under the sailboat category. To this end, the 2014 miscellaneous watercraft count of 1,481 should more be compared with the 2010 count of 781 (a 90% increase) based on the recent popularity of paddle board use. Although miscellaneous watercraft, i.e., canoes, paddleboats, etc., are typically stored on shore and may, at times, be over 16 feet in length, staff counts them as an active miscellaneous watercraft regularly used on the Lake. This year offered many bright colored paddle boards (at times six to a dock), in which staff believed this contributed to a more normal increase in miscellaneous watercraft vs. a comparison to the 2012 data.

2. The current methodology has been consistently utilized since 1998 (i.e., use of a flyover survey in 1996, etc.). Taking those past years into consideration (1998-2014), the current total storage count of 10,174 is 4% higher than the ten year storage count average of 9,777. Statistics to this comparison is offered below:

Year	Runabout/Cruiser	Sailboat	Pontoon	Houseboat	Charter	Fishing	PWC	Aircraft	Misc.	Total
2014	5611	627	674	25	15	811	925	5	1481	10174
2012	5725	627	625	14	20	717	1284	3	1675	10690
2010	5369	674	558	13	21	746	1064	4	781	9230
2008	5816	693	521	12	22	768	1062	2	1337	10233
2006	5982	629	574	20	17	995	1277	0	784	10278
2004	5634	655	557	17	15	986	1015	1	854	9734
2002	5977	728	560	24	30	1007	1086	8	1089	10509
2000	5964	773	490	25	29	764	811	4	659	9519
1999	5380	719	477	31	26	785	639	2	738	8797
1998	5186	720	461	32	20	732	644	4	809	8608
Average	5664	685	550	21	22	831	981	3	1021	9777

- As of 2012, staff has been documenting the number of PWC within each bay, as well as the number of sites storing such watercraft and whether a site with three or four watercraft maintained one, two, or three PWCs. Of the 925 PWCs documented within the above chart, 862 were stored throughout 579 riparian sites (acknowledging 54 of those were categorized by the City of Mound within their Commons Docking Program). Additionally, of those sites that maintained three or four watercraft, 111 sites stored one PWC, 184 stored two PWCs, and 13 sites stored three plus PWC.
3. There was no significant change for sites storing three and four or more watercraft at a site. However, in reviewing the chart on page 3, you will note the consistency in figures between 2014 and 2008; specifically the number of empty slips. The 1,099 empty slips could well be attributed to the high water levels. Although high water

levels were not a factor in 2008, this was the year the recession hit. Taking 2008 out of the equation, the average eight year storage count of empty slips was 624 (providing for 2014 to be 76% higher).

Staff will report on the 2014 Proactive Code Enforcement Program at an upcoming Board meeting as the assessment of that documentation is currently being finalized.

The next Shoreline Boat Storage Count would typically be performed in 2016. Staff solicits the Board's interest in continuing with the 2016 inventory or possibly extending it further out to every three years.

Watercraft Classification Definitions (Appendix A)

- **Runabout-** single hull-pointed bow, tri-hull-blunt bow, hull may be partially covered, windshield often visible. These boats are usually over 16 feet in length, and powered by a 10 horse power motor or more.

- **Cruiser-** super structure, flying bridge, two windshields usually visible, hull mostly covered. This craft usually has sleeping accommodations.

- **Sailboat-** sails often visible, single hull-long slender shape, catamaran-twin hulls visible.

- **Pontoon-** rectangular shape, outboard motor, pontoons extend beyond the platform. These boats are often seen with a colorful canvas top.

- **House Boat-** relatively large, rectangular shape, with blunt rounded bow. This superstructure is sometimes present.

- **Charter Boat-** excursion or party boats that are licensed by LMCD.

- **Fishing Boat-** any boat 14 feet or longer, used for fishing. This craft is usually out-rigged with special fishing equipment.

- **Personal Watercraft (PWC)-** is a watercraft less than 14 feet in length, which uses a motor powering a water jet pump. This water jet pump is its primary source of motive power. This craft is designed to be operated by a person in the sitting, standing or kneeling position, rather than in the conventional manner such as sitting or standing inside the watercraft.

- **Aircraft-** any contrivance invented or designed for navigation or flight in the air. The term includes aircraft equipped with floats or skis.

- **Miscellaneous-** This designation of watercraft includes any craft other than rowboats, 16 feet or less in length. Miscellaneous watercrafts are usually unmotorized, or sometimes equipped with motors of 10 hp or less. Some examples of this miscellaneous watercraft are canoes, wet sailboards and paddleboats.

2014 Riparian and Multiple Shoreline Storage Count (Appendix B)

	Runabout	Cruiser	Sailboat	Pontoon	House Boat	Charter	Fishing	PWC	Aircraft	Misc.	Riparian Total *	Multiple Total	Grand Total
1. Halstead Bay	68	32	0	25	3	0	15	42	1	18	204	29	233
2. Priest Bay*	33	29	0	13	0	0	4	20	0	11	78	32	110
3. Cooks Bay (Inc. Lost Lake)*	66	39	10	18	0	0	12	24	0	34	144	120	264
4. West Upper Lake*	69	40	4	13	0	0	21	36	0	52	231	38	269
5. South Upper Lake	59	29	6	12	0	0	20	25	1	57	209	156	365
6. Smithtown Bay	34	18	1	3	0	0	7	16	0	17	96	20	116
7. Phelps Bay*	77	38	3	24	0	0	21	32	0	38	114	119	233
8. East Upper Lake	68	25	5	11	0	0	16	27	0	42	194	0	194
9. Cairman Bay	64	46	3	12	1	0	24	33	0	43	226	13	239
10. Old Channel Bay	30	16	1	3	0	0	6	18	0	16	90	4	94
11. Spring Park Bay	50	26	3	10	1	0	8	11	0	31	140	148	288
12. Black Lake*	53	34	0	14	1	0	17	8	0	28	96	69	165
13. Emerald Lake*	19	11	0	1	0	0	2	2	0	10	44	6	50
14. Seton Lake*	23	17	0	8	0	0	9	3	0	11	37	87	124
15. Harrisons Bay*	133	101	2	41	1	0	28	45	0	69	271	190	461
16. Jennings Bay*	86	66	3	28	0	0	21	39	0	69	259	114	373
17. West Arm*	91	80	3	29	1	0	23	36	0	66	325	227	552
18. Forest Lake	43	23	0	12	0	0	10	16	0	43	147	12	159
19. Coffee Cove	17	13	1	3	0	0	6	12	0	8	60	1	61
20. Crystal Bay, West	81	46	1	9	0	0	19	30	0	41	227	5	232
21. Crystal Bay, East	34	17	0	6	0	0	5	18	0	23	103	5	108
22. North Arm	92	42	2	15	1	0	21	33	0	69	275	8	283
23. Stubbs Bay	32	17	1	6	1	0	3	20	0	32	112	12	124
24. Maxwell Bay	27	23	0	3	1	0	2	25	0	13	94	166	260
25. Lafayette Bay	65	64	8	6	0	0	17	26	0	38	224	59	283
26. Smiths Bay	13	6	5	1	0	0	5	6	1	7	44	83	127
27. Tanager Lake	3	5	0	1	0	0	2	1	0	0	12	83	95
28. Browns Bay	29	15	5	3	0	0	6	7	0	18	83	104	187
29. Wayzata Bay	60	42	8	6	2	0	14	27	0	60	219	467	686
30. Grays Bay	50	38	4	10	0	0	12	22	0	74	210	62	272
31. Libbs Lake	47	30	0	7	0	0	7	7	0	25	123	10	133
32. Robinsons Bay	17	8	3	0	0	0	2	5	0	13	48	17	65
33. St. Louis Bay	8	4	3	0	0	0	1	0	0	0	16	251	267
34. Carsons Bay	47	24	13	13	0	0	18	16	0	69	200	199	399
35. St. Albans Bay	67	52	0	11	2	0	9	25	0	61	227	234	461
36. Excelsior Bay	7	6	0	2	0	0	2	1	0	5	23	230	253
37. Gideons Bay	123	154	8	28	0	0	122	52	2	93	582	199	781
38. Echo Bay	27	9	6	6	0	0	9	18	0	26	101	252	353
39. Big Island Passage	0	0	0	1	0	0	2	0	0	0	3	3	6
40. Veterans Bay	8	1	3	3	0	0	4	7	0	4	30	0	30
41. Lower Lake South	49	23	4	4	0	0	13	26	0	51	170	0	170
42. Lower Lake North	62	47	11	8	0	0	10	45	0	55	238	11	249
TOTAL	2031	1356	130	429	15	0	575	862	5	1440	6329	3845	10174

* Minus City of Mound Boat Storage Count (Added to Multiple Dock Statistics)

2014 Multiple Dock Storage Count (Appendix C)

	Runabout	Cruiser	Sailboat	Pontoon	House Boat	Charter Boat	Fishing Boat	PWC	Aircraft	Misc.	Total Multiple Dock Count *
1. Halstead Bay	12	14	0	1	0	0	1	1	0	0	29
2. Priest Bay*	0	0	0	0	0	0	0	0	0	0	32
3. Cooks Bay (Incl. Lost Lake)*	30	16	0	6	0	4	3	2	0	0	120
4. West Upper Lake*	19	8	1	1	0	0	3	2	0	0	38
5. South Upper Lake	83	22	11	20	0	0	19	1	0	0	156
6. Smithtown Bay	10	5	0	1	0	0	3	1	0	0	20
7. Phelps Bay*	0	0	0	0	0	0	0	0	0	0	119
8. East Upper Lake	0	0	0	0	0	0	0	0	0	0	0
9. Carman Bay	7	2	0	1	0	0	0	3	0	0	13
10. Old Channel Bay	1	3	0	0	0	0	0	0	0	0	4
11. Spring Park Bay	64	57	1	14	0	0	12	0	0	0	148
12. Black Lake*	4	4	0	2	0	0	0	0	0	0	69
13. Emerald Lake*	4	0	0	0	0	0	1	0	0	0	6
14. Seton Lake*	19	28	0	3	0	0	2	0	0	1	87
15. Harrisons Bay*	9	11	1	11	0	0	4	5	0	0	190
16. Jennings Bay*	25	20	0	8	0	0	4	4	0	0	114
17. West Arm*	155	35	0	23	0	0	10	0	0	0	227
18. Forest Lake	6	1	0	1	0	0	0	3	0	1	12
19. Coffee Cove	1	0	0	0	0	0	0	0	0	0	1
20. Crystal Bay, West	5	0	0	0	0	0	0	0	0	0	5
21. Crystal Bay, East	4	1	0	0	0	0	0	0	0	0	5
22. North Arm	6	2	0	0	0	0	0	0	0	0	8
23. Stubbs Bay	2	1	0	2	0	0	1	5	0	1	12
24. Maxwell Bay	119	40	0	3	0	0	2	2	0	0	166
25. Lafayette Bay	33	13	2	4	0	0	3	4	0	0	59
26. Smiths Bay	47	24	10	1	0	0	1	0	0	0	83
27. Tanager Lake	54	24	0	4	0	0	0	1	0	0	83
28. Browns Bay	36	43	0	21	0	0	3	1	0	0	104
29. Wayzata Bay	136	65	207	17	0	0	20	5	0	17	467
30. Grays Bay	44	8	0	8	2	0	0	0	0	0	62
31. Libbs Lake	4	2	0	0	0	0	1	1	0	2	10
32. Robinsons Bay	9	7	0	0	0	0	1	0	0	0	17
33. St. Louis Bay	43	16	104	13	0	0	61	8	0	6	251
34. Carsons Bay	50	13	76	7	0	0	40	8	0	5	199
35. St. Albans Bay	137	65	0	18	0	0	12	1	0	1	234
36. Excelsior Bay	81	87	5	25	0	11	17	0	0	4	230
37. Gideons Bay	71	30	59	21	0	0	10	5	0	3	199
38. Echo Bay	136	81	20	7	8	0	0	0	0	0	252
39. Big Island Passage	0	3	0	0	0	0	0	0	0	0	3
40. Veterans Bay	0	0	0	0	0	0	0	0	0	0	0
41. Lower Lake South	0	0	0	0	0	0	0	0	0	0	0
42. Lower Lake North	6	1	0	2	0	0	2	0	0	0	11
TOTAL	1472	752	497	245	10	15	236	63	0	41	3845

* City of Mound Multiple Dock Counts Included in Respective Bay's Total Count

2014 Docks with 3 and 4 Boats and Empty Slips (Appendix D)

	3 Boats	4 Boats	Empty Slips
1. Halstead Bay	17	4	53
2. Priest Bay	8	0	28
3. Cooks Bay	6	3	36
4. West Upper Lake	17	6	52
5. South Upper Lake	7	7	44
6. Smithtown Bay	9	1	26
7. Phelps Bay	14	7	47
8. East Upper Lake	13	3	39
9. Carman Bay	13	7	44
10. Old Channel Bay	8	2	9
11. Spring Park Bay	5	4	31
12. Black Lake	5	0	26
13. Emerald Lake	2	0	12
14. Seton Lake	2	1	24
15. Harrisons Bay	18	9	44
16. Jennings Bay	14	8	49
17. West Arm	12	2	64
18. Forest Lake	7	2	42
19. Coffee Cove	3	2	18
20. Crystal Bay, West	10	4	48
21. Crystal Bay, East	6	3	17
22. North Arm	15	6	24
23. Stubbs Bay	2	3	11
24. Maxwell Bay	9	3	9
25. Lafayette Bay	15	8	41
26. Smiths Bay	3	1	3
27. Tanager Lake	1	0	10
28. Browns Bay	3	1	25
29. Wayzata Bay	16	5	32
30. Grays Bay	9	5	20
31. Libbs Lake	5	1	16
32. Robinsons Bay	1	2	3
33. St. Louis Bay	1	0	5
34. Carsons Bay	7	4	23
35. St. Albans Bay	10	5	22
36. Excelsior Bay	3	0	0
37. Gideons Bay	24	4	25
38. Echo Bay	6	3	12
39. Big Island Passage	0	0	2
40. Veterans Bay	3	0	10
41. Lower Lake South	13	2	19
42. Lower Lake North	13	9	34
TOTAL	355	137	1099

Historical Multiple and Riparian Shoreline Storage Count (Appendix E)

Year	Runabout	Cruiser	Sailboat	Pontoon	Houseboat	Charter	Fishing	PWC	Aircraft	Misc.	Total
2014	3503	2108	627	674	25	15	811	925	5	1481	10174
2012	3449	2276	627	625	14	20	717	1285	3	1675	10691
2010	3186	2183	674	558	13	21	746	1064	4	781	9230
2008	3146	2,670	693	521	12	22	768	1062	2	1337	10233
2006	3436	2546	629	574	20	17	995	1277	0	784	10278
2004	2734	2900	655	557	17	15	986	1015	1	854	9734
2002	2842	3135	728	560	24	30	1007	1086	8	1089	10509
2000	3867	2097	773	490	25	29	764	811	4	659	9519
1999	3788	1592	719	477	31	26	785	639	2	738	8797
1998	3269	1917	720	461	32	20	732	644	4	809	8608
1996	2907	3117	1021	413	48	26	1135	796	4	1008	10475
1994	2629	2812	874	439	47	26	1202	448	8	875	9360
1993	3056	2016	839	381	40	24	1263	318	6	912	8855
1992	2836	2117	840	386	35	25	1245	273	9	881	8647
1991	3258	1350	890	349	37	25	1210	243	8	700	8070
1990	1606	2206	784	304	44	0	824	157	4	720	6649
1989	1653	2568	748	260	62	0	806	0	7	707	6811
1988	1983	2876	966	236	70	0	816	0	5	567	7519
1987	2134	2771	1064	239	61	0	1009	0	5	723	8006
1986	2512	2816	1238	286	99	0	1047	0	3	795	8796
1985	2882	2186	1056	271	104	0	1022	0	3	644	8168
1984	2638	2153	1182	321	94	0	1075	0	4	724	8191
1983	2930	1958	1207	326	89	0	906	0	5	416	7837
1982	2607	1699	1294	351	91	0	1106	0	5	297	7450
1981	2519	1765	1512	342	105	0	848	0	4	681	7776
1980	2632	1630	1135	394	118	0	511	0	5	483	6908
1979	2694	1549	1372	391	113	0	995	0	5	543	7662
1975	3259	1074	1648	448	156	0	1621	0	0	917	9123
1974	3309	872	1288	557	147	0	1850	0	0	903	8926
1973	1543	528	984	506	101	0	1543	0	0	609	5814
1971	1620	320	535	364	91	0	1326	0	0	255	4511