

Boaters in Oregon are fortunate to have both a variety and an abundance of waterbodies to choose from when they use their boats. From rivers and lakes to the Pacific Ocean with its bays and estuaries, Oregon has more to offer boaters than many other states.

Unlike many other states, most waterbodies in Oregon cannot be considered as overcrowded with boats. Certainly on summer weekends or when salmon fishing is excellent, some waters experience unusually heavy pressure from the boating public. But for the most part, factors such as Oregon’s low population base, its typically frigid water temperatures, its relatively short season of use, and the disperse geographic locations of its waterbodies all combine to temper the amount of boating activity in the state.

As in previous triennial surveys, owners of boats registered in Oregon were asked whether they used their boats, how often they used them, where they used them, and a number of other questions. From their responses it is possible to understand general use patterns for resident boats. Boats not registered in Oregon or trailered in from outside the state could not be included but make up a fair portion of all boating in the state.

The questionnaire sent to randomly selected boaters provided specific definitions of boat use. A “use day” is defined as any part of a 24-hour period during which a boat was used. An “activity day” is any part of a 24-hour period during which the particular activity was performed. The number of “use days” and “activity days” for a boat often are not the same, since a boat may be used for more than one activity in a given day.

## 3.1 Statewide Boat Use

### Boats Not Used

Nearly one-third of all registered boats, or 58,336 boats, were not used between October 1, 2000 and September 30, 2001. This is a significantly higher proportion of boats compared with previous surveys. In 1998, for instance, the figure was 27 percent. According to responses received, low water conditions caused by severe drought in 2000, was the leading reason why boats were not used. See Table 3-1.

Drought conditions, resulting in low and empty reservoirs and reduced river flows around the state, influenced nearly a fourth of the boaters who did not use their boat. Based on these results, an estimated 13,767 boats were idled because waterways were not accessible or usable due to the drought. Poor fishing, cited by sixteen percent of respondents, was the second most-frequently mentioned reason a boat was not used. Having a boat out of service was a contributing factor for 14.5 percent of boaters who did not use their boats. Health issues only influenced ten percent.

*Information about how registered boats in Oregon are used is presented in this chapter and includes survey results for the entire state, by county and for selected waterbodies.*

**Table 3-1: Reasons for Non-Use**

Reason Boat Not Used	Percent
Boat was sold	0.3%
Poor fishing	15.8%
Boat was out of service	14.5%
Health or illness	9.6%
Low water conditions	23.6%
Other	26.2%

## The “Typical” Boat

For boats that were used, owners indicate that they spent an average of 26.2 days boating between October 1, 2000 and September 30, 2001. This is down sharply from the 28 days of average boat use registered in 1998, probably due to drought conditions experienced in 2001.

Boaters took more trips when they used their boats in 2000-01, averaging nearly 18 trips during the year. In 1998, the average number of trips was 11.4. Boaters averaged 1.4 days per trip when they used their boat compared with 1.5 days in 1998. A trip is defined in the questionnaire as leaving a residence to go boating.

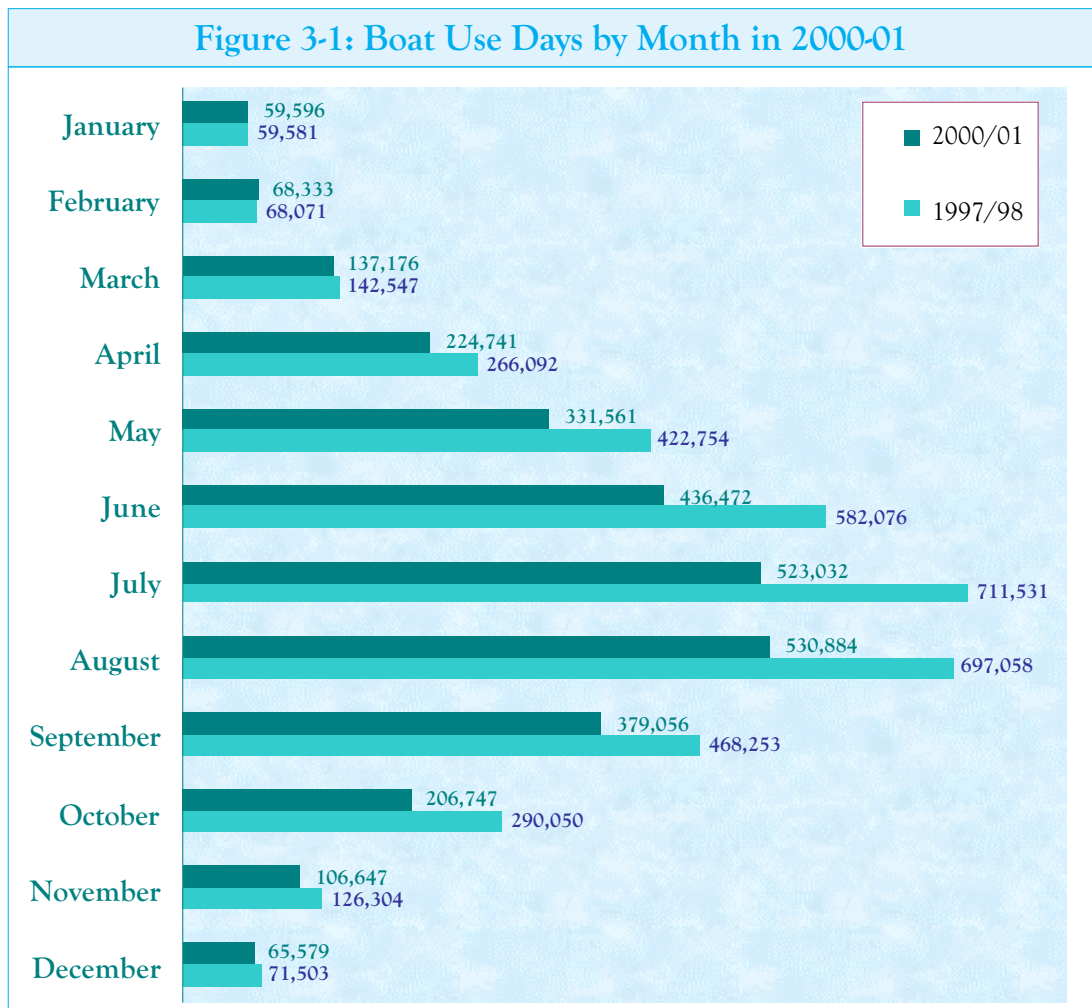
## Seasonal Boat Use

The majority of boating (72%) continues to occur from May to September. August was the most popular month for boating, with 530,032 days reported. In prior surveys July was consistently the most-used month. Except January and February, use levels in 2000-01 were lower each month when compared with 1997-98. See Figure 3-1. It is likely that use in the warmer, summer months was suppressed because of the statewide drought.

*August has the highest average number of days of boat use and November the lowest.*

October '00	4.9
November	4.8
December	4.9
January '01	4.9
February	4.7
March	5.0
April	5.2
May	5.3
June	5.7
July	6.3
August	6.5
September	5.8

Figure 3-1: Boat Use Days by Month in 2000-01



## Total Boat Use Days

Statewide, boaters who used their boats reported just over three million days of boat use in 2000-01. Like other boating measures, total boat use days dropped substantially as a result of the drought. In comparison, almost four million days of boat use occurred in 1997-98. The current total represents a drop in use of over 21 percent from 1998 and is the lowest number of total boat use days reported since the 1985 survey where 2.7 million use days were recorded. See Figure 3-2.

## Boating Activities

Fishing is the most popular boating activity, engaged in by over two-thirds of boaters who used their boats. This represents an increase over 1998 where fishing garnered only 60 percent of all activity days. All other activities declined in proportion to fishing. Cruising is the second-most popular activity at 15 percent (compared with 19 percent in 1998), followed by water skiing with 12 percent, personal watercraft (PWC) riding with four percent and sailing with two percent. See Figure 3-3.

Overall, activity days in 2001 are off by -22 percent statewide. See Table 3-2. Sailing sustained the largest decrease from the last survey, suffering a -68% decline. Cruising and water skiing were down by more than a third. PWC riding was off by nearly one-third and fishing days declined by nine percent. These declines may be attributable to drought conditions which made popular reservoirs like Detroit Lake and Fern Ridge Reservoir unusable during the prime boating season.

Figure 3-2: Statewide Boat Use Days (1989-2001)

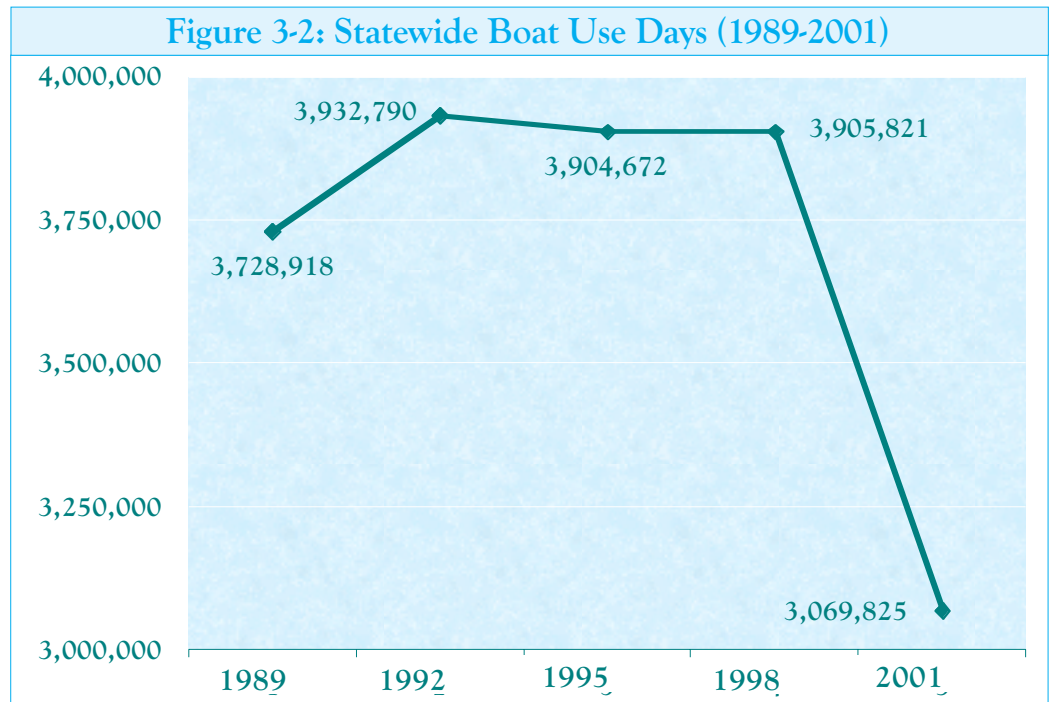


Figure 3-3: Boating Activities

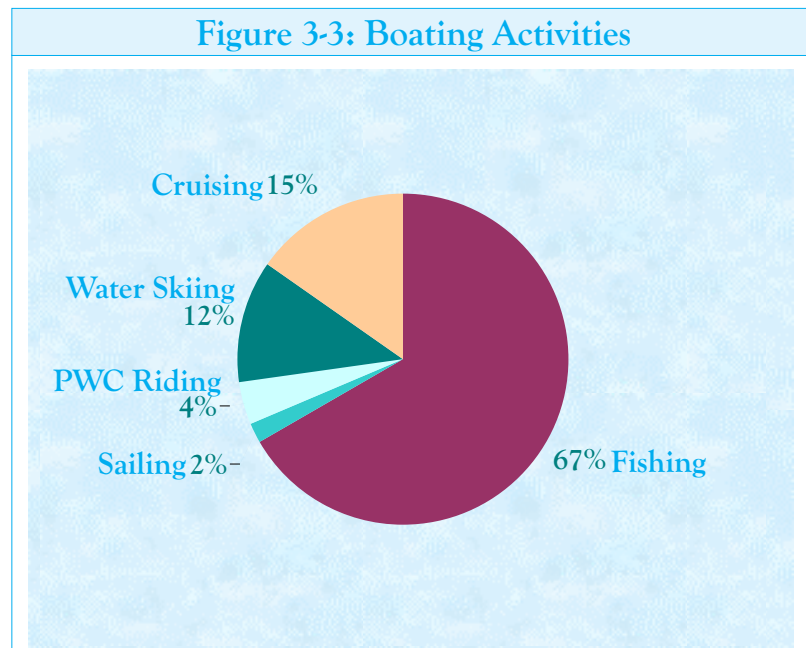


Table 3-2: Boating Activities (1990 to 2001)

Year	Fishing	Sailing	PWC Riding	Water Skiing	Cruising	Total
1990	2,070,000	280,000	n/a	500,000	620,000	3,470,000
1992	2,398,777	158,599	93,910	589,340	619,388	3,860,014
1995	2,009,800	156,266	111,847	491,116	661,310	3,430,339
1998	1,925,027	148,314	164,655	487,142	642,163	3,367,300
2001	1,746,381	47,505	111,866	309,070	403,133	2,617,955
1998 to 2001	-9.3%	-68.0%	-32.1%	-36.6%	-37.2%	-22.3%

The majority of boaters, 68 percent, engage in only one activity when they use their boats. Eighteen percent of boaters participate in two activities, and less than five percent list three or more activities. Fishing and cruising are the most common activity pairs listed by boaters, enjoyed by 42 percent who listed multiple activities. Water skiing and cruising (28 percent) and fishing and water skiing (22 percent) are the next most common pairings. Not surprisingly, sailing and PWC riding are the least likely activities to be paired by boaters.

### 3.2 Boat Use by County

In their responses to the questionnaire, boaters could identify up to four waterbodies and launch site where they used their boat in 2000-01. Information about the number of days they used their boat at each waterbody, total trips, and days spent in activities could also be provided. Waterbody and launch site-specific data could then be attributed to counties, a useful measure for Marine Board planning purposes.

Multnomah County, a perennial leader, tops all other counties in boat use days with 424,909. Clackamas County resumed its second place ranking with 275,807 use days after slipping to third in 1998. Lane County (243,585), Washington (238,881), and Marion (165,268) counties round out the top five. See Table 3-3 below.

Table 3-3: Annual and Mean Use Days by County

Rank	County	Mean	Use Days	Rank	County	Mean	Use Days	Rank	County	Mean	Use Days
1	Multnomah	26.5	424,909	13	Josephine	25.1	59,429	25	Union	15.8	15,218
2	Clackamas	22.8	275,807	14	Umatilla	28.6	58,787	26	Crook	18.2	13,475
3	Lane	22.8	243,585	15	Yamhill	20.7	58,198	27	Baker	15.7	11,782
4	Washington	25.5	238,881	16	Klamath	20.7	56,650	28	Jefferson	18.5	9,690
5	Marion	19.8	165,268	17	Clatsop	34.8	55,134	29	Morrow	24.1	8,581
6	Coos	32.1	131,670	18	Tillamook	33.7	50,155	30	Wallowa	16.3	5,185
7	Deschutes	16.2	117,535	19	Lincoln	23.7	46,949	31	Harney	11.0	2,905
8	Jackson	16.8	110,493	20	Benton	18.5	37,045	32	Grant	10.7	2,895
9	Douglas	22.0	92,149	21	Malheur	17.0	18,161	33	Lake	11.9	2,636
10	Columbia	30.4	88,851	22	Wasco	28.0	17,583	34	Sherman	26.1	2,150
11	Linn	18.8	84,558	23	Polk	12.3	16,357	35	Gilliam	13.4	901
12	Curry	48.3	66,534	24	Hood River	24.8	16,172	36	Wheeler	16.0	643

Slipping noticeably from the top rungs are Douglas County (4th to 9th), Tillamook County (6th to 18th), Lincoln County (7th to 19th) and Jefferson County (9th to 28th) since 1998. Only eleven counties experienced a positive change in boat use comparing 1998 with 2001 results. Benton and Washington counties showed the largest increase with 4 to 5 times as much boating in 2001. All other counties had fewer boat use days, with Jefferson County losing the most, a -93% drop. Drought conditions are likely responsible for many of the dramatic changes, with counties where water was available benefitting from the low water in other counties.

According to county of residence, boaters in Curry County are the most active, using their boats 48 days per year. Residents of Clatsop, Tillamook, Coos and Columbia counties spent 30 or more days boating in 2001. Residents of counties with few local bodies of water, like Grant, Harney, Lake, and Polk, spent the least amount of time boating. See Table 3-3.

### Boating Activities by County

Multnomah County leads the state in total activity days by county. It also tops the list for all other activities except water skiing where Clackamas County is the leader. Tillamook County often ranks highly for fishing but dropped out of the top ten during this survey period. Similarly, in previous surveys Lane County has hosted the most sailing days in the state - due in large part to Fern Ridge Reservoir - but slipped to seventh in this survey because Fern Ridge did not fill due to the drought. Otherwise, Lane County placed among the top five counties in all other activities, reflecting the diversity and abundance of waterbodies in the county. Washington County ranked fourth or higher on the list for every activity, presumably because its major water body (Hagg Lake) was not directly affected by the drought.

Table 3-3 below shows the top 10 counties for activity days. Appendix C also displays complete county rankings for boating activities.

*Change in boat use days by county from 1998 to 2001:*

<u>County</u>	<u>% Change</u>
Benton	548.7%
Washington	424.4%
Josephine	158.3%
Grant	135.8%
Marion	123.5%
Union	48.8%
Clackamas	37.3%
Yamhill	27.0%
Multnomah	26.7%
Umatilla	20.9%
Hood River	1.0%
Columbia	-0.6%
Lane	-4.3%
Linn	-14.5%
Malheur	-20.3%
Jackson	-20.6%
Deschutes	-23.0%
Coos	-25.9%
Curry	-29.4%
Clatsop	-30.3%
Polk	-35.4%
Harney	-36.8%
Douglas	-48.7%
Klamath	-54.3%
Wheeler	-56.4%
Gilliam	-56.8%
Morrow	-57.1%
Wasco	-63.8%
Baker	-65.3%
Lake	-68.6%
Wallowa	-69.6%
Lincoln	-69.9%
Tillamook	-70.5%
Crook	-74.2%
Sherman	-89.5%
Jefferson	-93.1%

**Table 3-3: Top Ten Ranking Counties by Boating Activities**

<u>Activity Days</u>	<u>Fishing</u>	<u>Sailing</u>	<u>PWC Riding</u>	<u>Water Skiing</u>	<u>Cruising</u>
1	Multnomah	Multnomah	Multnomah	Multnomah	Clackamas
2	Clackamas	Clackamas	Benton	Washington	Multnomah
3	Lane	Lane	Marion	Clackamas	Lane
4	Washington	Washington	Washington	Columbia	Washington
5	Marion	Marion	Jackson	Lane	Jackson
6	Coos	Coos	Lincoln	Deschutes	Deschutes
7	Deschutes	Deschutes	Lane	Linn	Yamhill
8	Jackson	Jackson	Columbia	Josephine	Marion
9	Linn	Douglas	Deschutes	Marion	Linn
10	Douglas	Linn	Yamhill	Jackson	Coos

## County of Use and County of Residence

Boaters frequently stay close to home when they go boating. Having water bodies nearby makes it easy to fish on a regular basis, to water ski after work, or just go for a spin in the boat on a whim. However, water bodies in Oregon are spread throughout the state and boaters often travel a fair distance from home, either out of choice or necessity, in order to go boating. Popular lakes and rivers attract local residents and boaters from out of the local area as well. Other lakes and river are less well known and are used primarily by boaters that live nearby.

In Appendix B boat use is displayed by county of use and county of residence. Counties where local boaters are the predominate users of the water bodies located in the county include Wheeler, Umatilla, Marion, Yamhill, Coos, Malheur, Lane, Hood River, and Washington - each with less than one-third of total boat use days on county waters coming from residents outside the county. Water bodies in Lincoln, Tillamook, Wallowa, Crook, Grant, Baker, Polk, Sherman, and Jefferson counties are used largely by nonresidents, with less than one-third of all boating use coming from county residents.

Looking at net use, which can be characterized as counties that import and those that export, counties are evenly split. Counties that have the highest ratio of boaters coming into the county compared with resident boaters who leave the county to boat include Jefferson, Lincoln, Baker, Tillamook, Clatsop, all of which have relatively low populations and popular lakes or rivers. Each of these counties import nine or more boats for every resident boat that leaves.

*Boaters travel throughout the state to visit their favorite lake or river.*



Other counties have more resident boaters seeking boating opportunities outside the county than there are nonresident boaters coming into the county. Exporting counties are Grant, Umatilla, Union, Wheeler, Washington, Marion, Benton. The latter three are fairly populous counties with limited waterways. The other counties are more rural and located on the east side of the state where lakes and rivers are less abundant.

### 3.3 Boat Use by Waterbody

A wide variety of waterbodies are available in Oregon for boaters to explore. Whether water skiing on a placid lake, sailing on the open sea, or fishing one of the state’s world-renown rivers, boaters have many options from which to choose. In the questionnaire, boaters were asked where they used their boats and their responses make it possible to track boating activity by waterbody type, by individual waterbody, and by launch site.

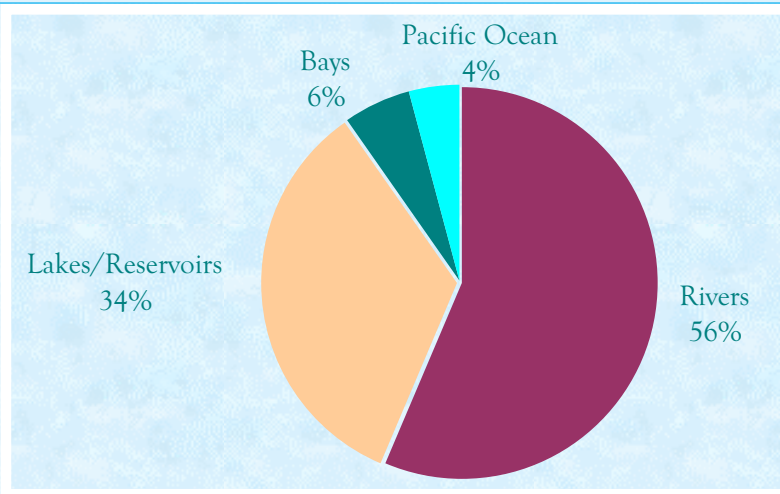
#### Use by Type of Waterbody

Rivers are the most popular type of waterbody for all boating activities except water skiing. Use of lakes and reservoirs, which in past surveys has been a close second to rivers, dropped considerably overall and in all activities. This drop is the result of drought conditions that prevented a number of popular reservoirs from filling. The only type of waterbody experiencing an increase in use was the Pacific Ocean, up from 75,575 use days in 1998. Nearly all of this use is related to fishing. Table 3-4 and Figure 3-4 show use by type of waterbody.

**Table 3-4: Boating Use, Trips and Activities by Type of Waterbody**

Waterbody Type	Use Days	Trips	Activity			PWC Riding	Water Skiing	Cruising
			Days	Fishing	Sailing			
Rivers	1,350,091	989,237	1,287,902	856,354	24,836	57,988	119,060	229,664
Lakes/Reservoirs	814,180	524,043	887,010	500,936	11,932	48,621	181,358	144,163
Bays	135,505	101,276	133,759	127,302	2,613	0	10	3,834
Pacific Ocean	99,421	65,528	102,261	91,789	7,435	1,676	0	1,361

**Figure 3-4: Boat Use by Type of Waterbody**



*Appendix D lists all waterbodies in rank order according to total boat use days.*

## Boating Use by Waterbody

Boaters who were surveyed reported using a total of 251 waterbodies throughout the state. According to their responses, the Columbia River is once more the most-used waterbody in the state. It also leads all other waterbodies in total trips, total activity days, and in all boating activities except water skiing. The Willamette River ranks second in every category other than water skiing where it ranks first and sailing where it fails to rank even in the top ten. Boating use on the Columbia and Willamette rivers was higher in 2001 when compared with 1998. Table 3-5 shows the top fifty waterbodies in boat use days.

The Pacific Ocean ranks third in boat use, up from eighth place in the 1998 survey. Its popularity rose due to improved fishing conditions and low water levels elsewhere around the state. Although total use days increased by 32 percent from the previous survey, offshore boating only amounts to a little over one-fourth of the boating that takes place on just the Willamette River and only eighteen percent of all use on the Columbia River. Fishing is the main reason boaters are attracted to the Pacific. Ninety percent of all boating activity on the ocean involves fishing.

**Table 3-5: Waterbodies Declining in Use Since 1998**

Waterbody	Decline
Gerber Reservoir	-98.8%
Fern Ridge Reservoir	-97.8%
Wolf Creek Reservoir	-93.8%
Detroit Lake	-85.7%
Applegate Reservoir	-81.7%
Agency Lake	-80.0%
Hells Canyon Reservoir	-72.7%
Phillips Reservoir	-71.8%
McKay Creek Reservoir	-71.1%
Unity Lake	-67.7%
Crane Prairie Reservoir	-64.2%
Blue River Reservoir	-62.7%
Hills Creek Reservoir	-51.7%
Prineville Reservoir	-46.8%
Cooper Creek Reservoir	-46.6%
Cougar Reservoir	-42.0%
Ochoco Reservoir	-40.6%
Wickiup Reservoir	-38.3%
Dexter Reservoir	-37.3%
Lost Creek Reservoir	-35.6%
Howard Prairie Reservoir	-28.4%
Dorena Reservoir	-28.0%
Green Peter Reservoir	-27.2%
Blue River	-23.4%
Cottage Grove Reservoir	-23.4%

Fourth place in statewide use days, the Rogue River is also dominated by anglers. Eighty percent of the boating activity reported on the Rogue centers on fishing. Compared with 1998 results, the Rogue moved up from sixth place, although total use days were lower in 2001. Off by 21 percent, use of the Rogue was affected by low flows in the summer and early fall when popular fish runs occur.

Lake Billy Chinook ranks fifth (fourth in 1998) and continues to be the most-heavily boated lake in the state, a distinction it has held since the 1992 survey. However, boating on Lake Billy Chinook declined in 2001 and was only 61 percent of levels measured in the previous survey. Though lake levels did not vary greatly at Lake Billy Chinook, widespread news stories about the drought and empty lakes around the state may have discouraged some boaters from using their boats and/or traveling a distance to reach a resource such as Lake Billy Chinook. Still it was the most-used lake for water skiing and cruising and ranks second only to Green Peter Reservoir in PWC riding on lakes.

A number of waterbodies experienced dramatic declines in use because of the drought. Some, like Fern Ridge Reservoir and Detroit Lake, did not fill and saw precipitous declines in boat use of 85% and more compared with 1998. Drought conditions caused problems in nearly all corners of the state, even the Willamette Valley which is often a reliable basin for stored winter rainfall and snowpack. Table 3-5 displays selected reservoirs where boating use in 2001 was significantly lower than in 1998.

Table 3-6: Top 50 Waterbodies in Boat Use Days

Rank	Waterbody	Boat Use Days	Trips	Activity Days	Fishing	Sailing	PWC Riding	Water Skiing	Cruising
1	Columbia River	552,744	422,329	538,092	350,687	22,058	23,143	36,361	105,842
2	Willamette River	374,410	261,728	364,889	178,678	135	20,171	72,897	93,008
3	Pacific Ocean	99,421	65,528	102,261	91,789	7,435	1,676	-	1,361
4	Rogue River	70,689	51,959	69,293	61,252	72	3,660	605	3,705
5	Lake Billy Chinook	58,568	38,166	90,825	29,038	135	5,787	27,481	28,384
6	Tillamook River/Bay	57,366	42,112	47,628	47,274	81	49	-	225
7	South Tenmile Lake	54,201	20,597	54,980	22,904	591	1,092	8,128	22,265
8	Multnomah Channel	50,278	15,320	23,601	10,668	-	2,899	719	9,315
9	Umpqua River	45,880	33,212	38,320	34,124	-	-	3,591	606
10	Coos Bay	32,212	25,422	33,770	32,469	887	-	-	414
11	Coquille Bay (Coquille River)	29,997	22,729	27,351	26,526	-	-	-	825
12	Nehalem Bay	29,130	21,018	29,301	28,271	-	-	-	1,030
13	Odell Lake	29,037	15,811	27,436	26,998	193	-	-	245
14	Siletz River	28,639	23,886	28,903	28,604	-	-	-	299
15	Lost Creek Reservoir	26,941	18,374	28,345	18,783	394	1,985	4,185	2,998
16	Green Peter Reservoir	26,733	24,345	28,956	16,241	-	6,260	2,852	3,604
17	Brownlee Reservoir	25,546	14,106	29,101	22,743	-	304	2,974	3,079
18	Howard Prairie Reservoir	24,502	19,315	31,859	23,355	853	98	5,616	1,937
19	Foster Reservoir	24,031	19,692	25,321	14,422	249	967	6,317	3,366
20	Wickiup Reservoir	23,454	15,590	24,229	23,199	-	136	492	403
21	Triangle Lake	23,193	2,670	20,274	2,147	-	-	12,088	6,038
22	Lake of the Woods	22,688	9,923	27,560	4,584	2,625	893	9,417	10,041
23	Siuslaw River	20,973	17,391	22,486	22,094	-	-	392	-
24	Yaquina Bay	20,869	14,348	20,939	18,748	706	-	-	1,484
25	Prineville Reservoir	20,468	15,015	24,106	14,218	-	626	6,238	3,024
26	Umpqua River - N. Fork	19,675	15,133	20,066	18,678	-	-	1,388	-
27	Fall Creek Reservoir	19,251	16,102	20,293	4,479	-	653	13,806	1,355
28	Siltcoos Lake/River	18,855	9,385	15,504	14,593	-	-	545	366
29	Scoggins Reservoir/Henry Hagg L	18,683	16,165	19,454	11,315	135	2,148	4,541	1,314
30	Crane Prairie Reservoir	17,879	10,765	17,800	17,033	-	-	-	767
31	Devils Lake (Lincoln)	17,571	10,181	18,661	4,119	229	3,260	6,244	4,808
32	Lake Simtustus	15,966	7,329	16,271	7,001	-	3,457	2,881	2,933
33	Paulina Lake	15,876	11,774	16,274	15,881	51	-	-	342
34	Upper Klamath Lake	15,641	11,851	13,442	8,482	2,507	152	1,269	1,032
35	Deschutes River	15,599	13,276	15,531	12,465	-	-	68	2,998
36	Snake River	14,959	9,975	15,754	14,006	82	308	678	680
37	Diamond Lake	13,574	8,171	15,031	12,150	-	-	888	1,993
38	Chetco Bay (Chetco River)	13,150	9,413	9,776	9,735	-	-	-	41
39	Cottage Grove Reservoir	13,101	5,438	15,541	2,509	-	3,980	7,876	1,176
40	Nestucca River	12,843	11,776	13,041	12,541	-	-	-	500
41	Detroit Reservoir/Lake	12,189	9,441	13,400	8,129	-	3,709	306	1,256
42	Crescent Lake	11,520	8,698	13,075	8,465	-	51	3,432	1,128
43	Nehalem River	11,180	8,153	11,180	11,131	-	-	-	49
44	Clackamas River	10,863	9,382	9,790	8,278	-	1,172	340	-
45	East Lake	10,838	6,424	10,542	10,445	-	-	-	98
46	Alsea River	10,825	5,936	10,979	10,979	-	-	-	-
47	Dexter Reservoir	10,385	10,116	10,518	5,356	65	326	3,202	1,568
48	Winchester Bay	10,162	6,591	10,097	10,097	-	-	-	-
49	Emigrant Lake	10,153	6,777	11,064	2,091	-	1,854	4,675	2,444
50	Mercer Lake	9,696	1,715	10,936	2,234	-	522	2,610	5,570

## Substitute Waterbodies Used Because of Low Water Conditions

*Waterbodies where boaters were displaced because of the drought and low water:*

<u>Waterbody</u>	<u>Boaters</u>
Detroit Reservoir/Lake	3,708
Fern Ridge Reservoir	1,203
Green Peter Reservoir	848
Columbia River	824
Howard Prairie Reservoir	465
Emigrant Lake	444
Cougar Reservoir	430
Hyatt Reservoir	262
Lake of the Woods	197
Foster Reservoir	179
Applegate Reservoir	164
Brownlee Reservoir	156

Boaters were asked in the questionnaire if the waterbodies they used were substitutes for other waterbodies they did not use because of low-water conditions. Based on responses, an estimated 16,749 boaters altered their choice of waterbody because of the drought. This is in addition to the 13,767 boats whose owners indicated were not used at all because of the drought. Combined, the 30,516 boaters demonstrably affected by the drought represents 16% of boats registered in the state.

Detroit Lake and Fern Ridge Reservoir were the waterbodies with the most displaced boaters. For most of the boating season in 2001, ramps at these popular lakes were unusable or of marginal value because water levels failed to reach the toes of the ramps. Even the Columbia River was affected by the drought. Although many ramps were available on the Columbia, low flows in the river revealed sand bars and other hazards that made boating tenuous. The drought was truly statewide, impacting reservoirs in the Willamette Valley, such as Green Peter and Cougar, as well as Howard Prairie Reservoir and Emigrant Lake in southern Oregon and Brownlee Reservoir in extreme eastern Oregon.

Waterbodies that boaters used as substitutes included, in order of frequency, the Willamette River (1,372), Foster Lake (939), Lost Creek Reservoir (589), the Columbia River (525), Lake Billy Chinook (448), Dorena Lake (392), Dexter Lake (392), Devil's Lake (304), Green Peter Reservoir (298), and Fall Creek Reservoir (260). Boaters generally found substitutes in the vicinity of the waterbody they could not use, although Lake Billy Chinook was a substitute for waterbodies throughout the state.

**Table 3-7: Selected Drought-Impacted Waterbodies and Substitutes**

<u>Preferred Waterbody</u>	<u>Substitutes (In Descending Order of Frequency)</u>
Detroit Lake	Willamette R., Foster Res., Lake Billy Chinook Devil's L., Siletz R., Columbia R., Timothy Lake
Fern Ridge Reservoir	Dexter L., Dorena L., Cougar Res., Fall Creek Res., S. Tenmile L., Waldo L., Triangle L.
Green Peter Reservoir	Foster Res., Willamette River, Columbia River
Columbia River	Clackamas R., Lake Billy Chinook, Hagg Lake
Howard Prairie Reservoir	Lost Creek Res., Lake of the Woods, Emigrant L.
Emigrant Lake	Diamond L., Willow Creek Res., Lost Creek Res.
Cougar Reservoir	Odell L., Green Peter Res., Cottage Grove Res.
Hyatt Lake	Lost Creek Res., Lemolo Res., Howard Prairie Res.
Applegate Reservoir	Emigrant Lake, Rogue River, Lake Selmac
Brownlee Reservoir	Owyhee Res., Phillips Res., Tillamook Bay
Blue River Reservoir	Cottage Grove Res., Beaver Creek

### 3.4 Damage to Boats Caused by Low Water Conditions

To determine if the low water conditions that occurred during the 2001 boating season caused boaters more than an inconvenience of having to use an alternate waterbody, boaters were asked if the boat they used sustained any damage to its hull, keel, lower unit, propeller or any other component of the boat. Only 8.5 percent of boaters indicated having any damage related to low water. Still, this represents 10,250 boats, which is a significant number of boats to be damaged.

Residents of eastside counties were more likely to damage their boats. Malheur (16.4 percent), Jackson (14), and Crook (13.6) counties topped the list in percentage of boaters who reported damage. Multnomah County (12.7 percent) was fourth in percentage but ranked highest in number of boaters. Columbia County (10.7) was fifth and Deschutes (9.8), Hood River (9), Douglas (8.9), and Union (8.6) round out the list of ten counties whose residents experienced boat damage from low water conditions.

When asked how much it cost to repair the damage figures ranged from zero to \$7,200. The average cost of repair reported was \$613 and the total estimated statewide repair bill was \$6,384,259. Residents of Umatilla County had the highest average repair cost - \$2,278 followed by Clatsop County with \$1,383. The least expensive counties in terms of average repair costs were Lane and Gilliam, both less than \$60 each. The highest total repair bills were incurred by residents of the three most populous counties: Multnomah (\$1,564,757), Washington (\$ 920,876), and Clackamas (\$835,678).



*An estimated 30,516 boaters were forced to seek alternate lakes and rivers because of the drought and low water conditions in 2001. Over 10,000 boaters who used drought-impacted lakes reported sustaining some damage to their boats because of low water conditions. The average cost of repairs was over \$600.*