

Dear Angler:

As you requested, we are enclosing summaries of the results of the Yellowstone National Park Volunteer Angler Report (VAR) for 1998. For the past 25 years, this volunteer survey has been a partnership between anglers and biologists in gathering data that has helped in the management of Yellowstone's fisheries.

Approximately 4,300 people returned usable VAR cards this year, which is a good response based on our past experience. The data provided by anglers such as yourself were used to calculate estimates of parkwide angling.

Thank you for your involvement and interest. If you have questions or comments, please contact Dan Mahony, Fisheries Biologist, at (307) 344-2280.

Sincerely,

Michael V. Finley
Superintendent

Enclosures

YELLOWSTONE NATIONAL PARK ANGLING - 1998

Approximately 3.1 million people visited Yellowstone National Park in 1998. The National Park Service issued approximately 71,800 fishing permits this year, and anglers returned 4,342 usable Volunteer Angler Report catch cards (6 % of those issued). Exit gate surveys, where visitors are interviewed as they leave the park, revealed that 5.2 percent of anglers who purchased a fishing permit did not fish, which resulted in an estimate of 70,712 total anglers fishing in 1998. The following sport fishery statistics were estimated using data from exit gate surveys and the volunteer angler report system.

Parkwide angler use with respect to the total number of days anglers spent fishing was 232,296 in 1998, with a total angler effort (hours spent fishing) of 604,333 hours. The number of days fished by anglers decreased 3.3 percent from 1997. The amount of fishing effort per day, however, increased by nearly 16,600 total hours in 1998. Anglers landed 596,645 fish and creeled only 21,535, releasing approximately 96 percent of all fish landed. The average angler fished 2.5 days, 1.3 different waters/day, and 2.6 hours/day. Mean annual landing and creel rates were 0.99 and 0.04 fish/hour, respectively. Nearly 81 percent of single-day anglers landed one or more fish.

Cutthroat trout *Oncorhynchus clarki* were the most frequently captured fish in 1998 (64%), followed by rainbow trout *Oncorhynchus mykiss* (15%), brown trout *Salmo trutta* (8%), and brook trout *Salvelinus fontinalis* (6%). Mountain whitefish *Prosopium williamsoni*, lake trout *Salvelinus namaycush*, Arctic grayling *Thymallus arcticus*, and unidentified fishes made up the remaining 7 percent of angler landed fish.

Mean length of the 37,521 angler-landed fish reported from the volunteer angler report system was 13.0 inches (330 mm); 63 percent of these fish were >12 inches (305 mm), and over 47 percent were >14 inches (356 mm). Lake trout had the greatest average length (17.9 inches; 455 mm), followed by cutthroat trout (14.4 inches; 366 mm), mountain whitefish (12.8 inches; 325 mm), brown trout (11.4 inches; 290 mm), rainbow trout (10.9 inches; 277 mm), Arctic grayling (9.7 inches; 246 mm), and brook trout (7.4 inches; 188 mm).

An estimated 83 percent of park anglers reported being satisfied with their overall fishing experience in 1998; 75 percent and 76 percent, respectively, reported being satisfied with numbers and sizes of fish landed. Satisfied anglers landed about 1.1 fish/hour (mean length, 13.2 inches or 335 mm) and nearly 3 fish/day. Anglers unsatisfied with their fishing experience landed slightly over 1 fish/day (0.5 fish/hour) which were smaller (mean length, 11.1 inches or 282 mm) in size. Mean angler-skill level was 1.97 (experienced). Fishery statistics for 23 lakes and streams that collectively constituted approximately 95 percent of reported parkwide angler use in 1998 are listed in Table 1. Parkwide angling statistics for the period 1973-1998 are listed in Tables 2 and 3.

Table 3. Estimates of park visitors, fishing permits issued, total parkwide anglers, and total parkwide angler days in Yellowstone National Park, 1973 to 1998.

Year	Total park visitors	Total * Park fishing permits	Total parkwide anglers	Total parkwide angler days	95% confidence limits
1973	2,061,500	169,100	121,900	230,100	225,500 - 234,700
1974	1,937,800	164,600	116,500	220,000	215,500 - 224,300
1975	2,246,100	191,600	136,300	257,300	248,400 - 266,300
1976	2,525,200	213,200	151,700	284,200	278,500 - 298,900
1977	2,487,100	217,000	154,600	311,300	304,000 - 318,500
1978	2,623,100	218,000	155,700	333,800	326,200 - 341,300
1979	1,891,900	195,100	139,100	291,300	274,500 - 308,200
1980	2,009,600	184,200	130,800	311,300	287,000 - 334,600
1981	2,544,200	172,300	160,000	383,400	363,400 - 403,300
1982	2,404,900	205,000	152,000	332,500	314,700 - 350,300
1983	2,405,700	166,800	120,500	275,900	261,800 - 289,900
1984	2,263,000	176,800	135,000	329,200	305,400 - 341,000
1985	2,262,500	166,700	123,800	279,000	260,800 - 297,200
1986	2,405,100	163,300	124,900	294,800	269,300 - 320,400
1987	2,618,200	183,900	151,500	370,900	349,100 - 392,800
1988	2,219,100	165,700	134,600	293,800	272,700 - 314,900
1989	2,680,400	159,200	124,400	320,900	301,100 - 340,700
1990	2,857,100	171,700	150,400	422,100	386,700 - 457,500
1991	2,957,900	187,200	161,100	403,100	372,500 - 433,800
1992	3,142,600	157,800	130,800	343,400	324,200 - 362,700
1993	2,912,200	161,000	141,100	398,100	371,400 - 424,700
1994	3,046,100	90,800	88,300	237,700	223,000 - 252,300
1995	3,125,300	87,600	85,400	270,000	237,300 - 302,300
1996	3,012,200	69,200	69,600	233,900	248,900 - 218,900
1997	2,889,500	67,900	67,000	240,100	263,700 - 216,500
1998	3,120,830	71,800	70,700	232,300	249,300 - 215,200

* Prior to 1994, data is based on the number of free permits issued. Beginning in 1994, data is based on number of permits sold.

Table 1. Fishery statistics for Yellowstone National Park waters with 20 or more angler days reported that collectively constituted approximately 95% of the estimated parkwide angler use in 1998.

	% of total parkwide angler days	Total reported angler days	Number of anglers	Mean length of angler day (h)	Angler days (trips)	Angler effort (hours)	Landing rate (fish/hr)	Creel rate (fish/hr)	Total fish landed	Total fish creeled	Mean length fish landed (inches)	Mean length fish creeled (inches)	% anglers landing 1 or more fish	Mean * expertise	% anglers satisfied with:		
															Overall experience	Numbers caught	Sizes caught
Parkwide fishery	100	7,698	70,712	2.60	232,296	604,333	0.99	0.04	596,645	21,535	13.0	13.3	81	1.97	83	75	76
Yellowstone Lake	31.5	2,425	20,862	2.84	73,167	207,888	1.17	0.04	242,449	8,825	15.1	13.1	83	1.87	85	78	86
Yellowstone River	14.1	1,083	9,022	2.62	32,668	85,662	0.79	0.01	67,469	1,076	15.0	13.0	72	2.05	80	70	84
Firehole River	12.2	937	8,517	2.47	28,262	69,691	0.98	0.02	68,262	1,086	10.2	10.3	84	2.04	88	78	65
Madison River	8.3	642	5,456	2.33	19,359	45,197	0.68	0.01	30,828	682	12.4	11.7	69	2.06	73	58	63
Slough Creek	6.2	474	4,479	2.89	14,289	41,332	0.89	0.02	36,779	666	14.2	15.7	78	2.07	92	82	91
Gibbon River	4.4	338	3,876	1.76	10,185	17,949	0.95	0.05	17,068	932	8.6	9.4	80	1.96	76	64	59
Lamar River	2.3	174	1,889	2.62	5,236	13,732	0.96	0.02	13,240	276	11.2	13.6	85	1.97	88	81	85
Lewis Lake	2.3	175	1,612	2.97	5,266	15,618	0.56	0.15	8,749	2,314	15.0	15.4	80	2.03	81	69	81
Soda Butte Creek	1.9	149	1,498	2.69	4,481	12,037	1.02	0.02	12,256	191	12.4	9.0	83	2.04	87	72	82
Shoshone Lake	1.7	130	831	3.83	3,908	14,975	0.76	0.06	11,421	851	18.2	18.5	63	1.96	53	56	62
Gallatin River	1.6	125	1,010	2.43	3,757	9,128	0.60	0.03	5,482	288	11.2	12.4	76	2.11	68	46	62
Gardner River	1.6	124	1,449	2.00	3,727	7,465	1.57	0.05	11,718	340	9.2	7.5	87	2.04	87	77	66
Grebe Lake	1.0	75	961	2.44	2,248	5,495	2.09	0.02	11,500	98	9.6	9.0	96	1.91	94	88	71
Lewis River	0.9	66	749	2.05	1,977	4,043	0.75	0.04	3,014	181	10.0	15.5	80	1.96	76	71	55

Table 1. Continued.

	% of total parkwide angler days	Total reported angler days	Number of anglers	Mean length of angler day (h)	Angler days (trips)	Angler effort (hours)	Landing rate (fish/hr)	Creel rate (fish/hr)	Total fish landed	Total fish creeled	Mean length fish landed (inches)	Mean length fish creeled (inches)	% anglers landing 1 or more fish	Mean expertise	% anglers satisfied with:		
														Overall experience	Numbers caught	Sizes caught	
Trout Lake	0.8	63	554	2.01	1,886	3,790	0.44	0.01	1,666	45	15.2	-	83	2.15	88	78	91
Nez Perce Creek	0.8	59	537	2.04	1,765	3,600	0.55	0.04	1,978	126	8.2	8.2	70	1.91	86	75	71
Heart Lake	0.6	49	293	4.25	1,464	6,215	0.66	0.31	4,104	1,899	17.7	19.2	80	1.83	88	69	81
Indian Creek	0.6	48	440	1.79	1,433	2,562	1.05	0.19	2,693	301	5.9	7.3	60	1.72	83	78	43
Bechler River	0.5	37	407	2.44	1,101	2,691	1.57	0.03	4,220	81	10.1	15.7	81	2.28	72	76	56
Obsidian Creek	0.4	35	456	1.65	1,041	1,718	1.63	0.18	2,800	311	5.9	7.0	91	1.72	80	76	16
Falls River	0.4	32	326	3.01	951	2,864	1.31	0.03	3,744	82	8.6	11.0	100	2.05	74	79	53
Snake River	0.4	30	407	2.16	890	1,926	1.06	0.04	2,043	72	10.2	17.7	86	1.96	68	68	47
Pebble Creek	0.3	24	212	1.92	709	1,359	1.35	0.01	1,834	16	10.9	-	88	1.85	92	83	67

* Based on: 1.0 = inexperienced; 2.0 = experienced; 3.0 = expert.

Table 2. Estimates of angler use, effort, success, and harvest for Yellowstone National Park, 1973-1998.

Year	Angler days	Mean length of angler day (h)	Total hours fished (days x h)	Landing rate (fish/hr)	Total fish landed	Creel rate (fish/hr)	Total fish creeled	% of anglers satisfied with			Average length of fish landed (in) ^a	Mean expertise ^b
								Overall experience	Numbers caught	Sizes caught		
1973	230,100	2.45	564,400	0.86	485,400	0.16	90,300	--	--	--	--	--
1974	220,000	2.42	531,300	0.86	456,900	0.19	101,000	--	--	--	--	--
1975	257,300	2.31	594,400	1.09	647,900	0.23	136,700	77	74	75	13.3	--
1976	284,200	2.36	670,700	1.02	684,100	0.20	134,100	74	69	69	13.2	1.90
1977	311,300	2.33	725,300	0.98	710,800	0.20	145,100	75	68	70	13.4	1.83
1978	333,800	2.23	744,400	0.99	736,900	0.17	126,500	73	66	68	13.4	1.86
1979 ^c	291,300	2.49	725,300	1.01	731,100	0.15	107,300	73	67	68	13.6	1.88
1980	311,300	2.44	758,000	0.96	725,300	0.13	101,000	73	66	68	13.4	1.87
1981	383,400	2.41	923,000	0.93	844,700	0.12	110,800	73	65	66	13.4	1.88
1982	332,500	2.34	777,600	0.95	740,200	0.14	107,500	74	67	68	13.5	1.88
1983	275,900	2.36	652,100	0.95	622,400	0.11	71,600	76	69	68	13.6	1.89
1984	329,200	2.40	790,100	0.93	732,700	0.12	92,100	76	68	69	13.5	1.91
1985	279,000	2.47	688,500	0.92	629,700	0.10	69,800	76	68	71	13.3	1.90
1986	294,800	2.49	734,700	1.01	740,900	0.10	73,400	79	72	72	13.3	1.93
1987	370,900	2.47	917,800	0.94	865,900	0.07	61,600	73	64	66	12.3	1.93
1988	293,800	2.56	753,400	1.05	788,100	0.09	65,300	78	69	70	12.8	1.90
1989	320,900	2.50	801,300	0.92	735,800	0.07	55,400	77	68	71	13.2	1.91
1990	422,100	2.47	1,042,900	0.97	1,009,900	0.06	61,700	80	71	73	13.3	1.88
1991	403,100	2.62	1,059,300	0.98	1,039,700	0.06	66,600	81	72	74	13.4	1.90
1992	343,400	2.57	881,600	0.91	802,700	0.04	37,000	78	68	72	12.9	1.92
1993	398,100	2.58	1,026,100	0.92	942,600	0.06	56,600	84	73	78	13.5	1.91
1994	237,700	2.73	647,900	0.84	541,000	0.04	28,500	77	65	71	13.3	1.91
1995	270,000	2.52	681,300	0.85	580,800	0.06	42,100	79	67	73	13.3	1.90
1996	233,900	2.70	631,700	0.80	507,500	0.05	29,400	77	66	72	13.1	1.90
1997	240,100	2.45	587,800	0.95	558,100	0.06	32,100	83	72	78	13.0	1.94
1998	232,296	2.60	604,333	0.99	596,645	0.04	21,535	83	75	76	13.1	1.97

^a Unadjusted average lengths for 1973-1984. Adjusted lengths for 1985-1998 are 13.6, 13.7, 12.8, 13.3, 13.6, 13.7, 13.7, 13.4, 13.9, 13.7, 13.6, 13.5, 13.4, and 13.4 in, respectively.

^b Based on: 1.0 = inexperienced; 2.0 = experienced; 3.0 = expert.

^c Revised from that reported in Jones et al. (1980).