

PART III
PRESENT
UTILIZATION

CHAPTER 7

Headwater Lakes

Upon gaining an estimate of what is available in terms of sport fishes in the Okanagan Basin (both types and numbers), it then becomes a logical following step to acquire an insight into what degree of use is being made of this resource. Present resource use was estimated by angler interview, boat counts and other techniques discussed in the methodology section of the following chapters.

With these data (the present resource base and present utilization) at hand, the extent of utilization of the fishery can be determined and attempts at estimating additional stocks available for exploitation (or lack thereof) can be made. These data then, will provide part of the essential basis for evaluation in Part V.

Data were collected only from anglers. With the exception of the ceremonial and subsistence sockeye salmon fishery of native indians in the Okanagan River, angling is the only legally acceptable way of making consumptive use of the Okanagan Basin fishery resource.

7.1 METHODS

From June 1971 to May 1972, angler use data were collected from essentially all Okanagan headwater lakes. Direct interviews consisted of questions concerning length of time fished, place or origin, how often the interviewee fished in the Okanagan and average trip duration. Anglers' catches were examined as to species composition, number of fish and fork length of fish. Most interviews were conducted at the end of an angling day.

Numbers of anglers were estimated from a concurrent B.C. Fish and Wildlife aerial boat count survey and about 1500 ground observations. Numbers of ice fishermen were also based on data collected as part of the Fish and Wildlife census. Number of fishing hours per fishing day was determined from interviews. Separate day lengths were derived for boat angling and ice fishing.

For analysis, data were lumped for two periods; boat fishing during the summer and ice fishing during the winter periods. Estimates of total annual angling pressure and associated fish harvest were made for the 57 lakes where ten or more angling days were recorded.

7.2 ANGLER USE AND CATCH

Fifty-seven headwater lakes in the Okanagan Basin (key lakes) are presently utilized by anglers. These waters have extremely limited natural reproductive

capacities and are maintained almost entirely by stocking. They supported an estimated 60,091 angling days during the twelve-month census period. The fishery is almost completely for rainbow trout. A limited number of brook trout are also taken.

Almost all angling during the open-water period was conducted from boats. The average number of anglers per boat was 2.00 with no discernible trends or important deviations. The length of an angling day varied in relation to access, catch success and time of year. No significant trends were derived from examination of individual lake data. Pooled data indicated length of angler day varied seasonally as illustrated in Figure 7.1. The overall average angler day during the open water period was 4.06 hours.

Ice fishing was pursued to a minor degree in all but a few lakes. The average fishing day length tended to be shorter (3.24 hours) than in summer and fishing success (catch-per-unit-effort) only 80% as efficient as summer angling. No significant difference in size of fish during summer and winter fishing were noted.

Catch-per-unit-effort (fish kept per angler hour) varied from 0 to 3.25 among lakes. No seasonal trends within lakes could be discerned. Variation between lakes tended to be greater than variation within lakes.

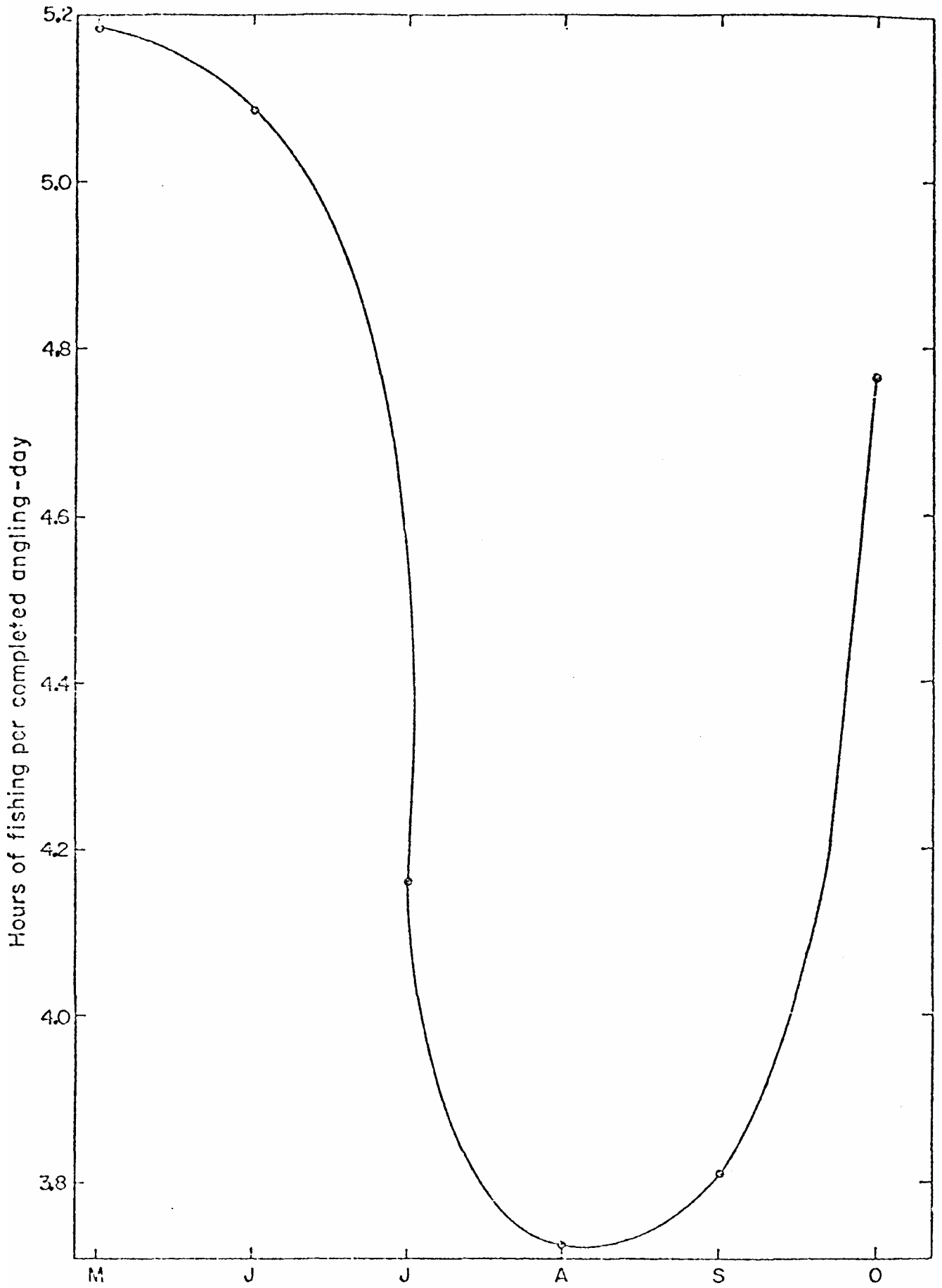
Harvest potential in Okanagan headwater lakes is ultimately linked to lake productivity. Altitude is the primary factor in this regard, as discussed earlier, although angler success is presently also heavily influenced by access, geographic location, water level manipulation and present stocking practices. Water level manipulation and stocking practices were dealt with in Chapter 3. Data pertaining to lake characteristics, access, angler effort, catch and harvest estimates are summarized in Table 7.1. Lower altitude lakes tend to be more accessible, thus more heavily utilized. Access factors (Table 7.1) were derived by multiplying the time (in hours) required to reach the lake from a paved highway by:

- 1, - if accessible by ordinary car
- 2, - if accessible by truck
- 3, - if accessible by four-wheel drive
- 4, - if walk-in required

Major headwater lakes which draw a large number of anglers, tend to have a "spin-off" effect by encouraging angling on minor adjacent lakes.

Lakes subject to heavy drawdown tend to be lightly fished, probably due to reduced fish productivity and their unaesthetic nature.

Relatively few sport fishing headwater lakes exist in the extreme southern end of the basin. Those that do (Madden, Ripley, Allendale) are subjected to high participation and harvest. Ripley and Madden Lakes had the highest number of angling hours per acre of all the lakes examined (Table 7.1).



SEASONAL VARIATION IN LENGTH OF ANGLING DAYS AMONG CHANGAN

TABLE 7.1

SUMMARY OF LAKE CHARACTERISTICS AND ANNUAL TROUT-FISHING EFFORT. CATCH AND HARVEST ESTIMATED BY BOAT-FISHERMEN AND ICE-FISHERMEN COMBINED, OKANAGAN HEADWATER LAKES, 1971-72.

LAKE	Lake Area (Acres)	Elevation (Feet)	Access Factor	Angling-Days	Angling-Hours	Hours/Acre	Catch(no) per Hour ^a	Av. Size (pounds)	Harvest Tot.lb.	Harvest lb/Acre	Harvest No.Fish
Agur	9	3800	.06	162	658	73	0.78	0.40	205	24	427
Alex	21	4800	3.00	30	122	6	1.17	0.65	93	4	179
Allendale	49	5000	2.00	1052	4215	86	0.98	0.36	1476	30	2838
Bardolph	27	3200	1.50	167	609	22	1.84	-	514*	19*	791
Bear	20	4400	1.50	66	268	13	0.90	-	100*	5*	277
Becker	25	4000	1.50	95	333	13	1.14	-	186*	7*	988
Bouleau	158	4600	1.50	851	3443	22	1.14	0.51	1997	13	3840
Browne	61	4300	1.50	1156	4686	77	0.62	0.39	1131	19	2570
Burnell	41	2400	0.30	46	171	5	0.00	-	0	0	0
Chute	70	3800	1.00	1004	4076	58	0.37	0.28	422	6	879
Darke	72	3000	0.60	1326	5245	73	0.61	0.50	1784	25	2745
Dee Chain	485	4400	1.00	6596	26780	55	0.55	0.27	3977	8	9039
Deep	10	1600	2.00	301	1088	109	0.55	-	350*	35*	539
Deer (Tsu)	28	4700	2.50	282	1145	41	2.33	0.41	1095	39	2106
Echo	35	4800	3.00	110	447	13	1.00	0.59	264	8	508
Eneas ^b	49	4700	3.00	202	820	17	0.80	0.43	282	6	542
Esperon	50	5400	1.20	156	633	13	0.80	-	200*	4*	526
Fish Hawk	43	6000	5.00	22	89	2	3.25	0.24	69	2	288
Garnet Valley	87	2100	0.42	312	1218	14	0.55	-	321*	4*	494
Geen	40	5400	5.33	74	300	8	0.47	-	69	2	182
Glen	29	3800	0.42	12	49	2	0.21	-	5	+	10
Haynes	136	4200	0.75	120	487	4	0.38	0.21	39	+	89
Headwaters #1	161	4200	0.75	680	2761	17	0.66	0.13	237	2	539
" #2	54	4300	0.83	216	877	16	0.34	0.31	92	2	209
" #3	54	4300	0.83	389	1616	30	0.25	-	198	4	450
" #4	52	4300	0.83	124	503	10	0.45	-	100*	2*	227
Hereron	25	5200	4.00	26	106	4	0.81	-	42	2	111
High	30	4500	3.00	140	561	19	1.01	-	194*	9*	411
Hydraulic	644	4000	0.75	184	747	1	0.10	0.57	43	+	90
Ideal	420	4400	3.75	244	991	2	1.18	-	573	1	1302
Jackpine	106	4300	2.50	1028	4140	39	0.21	0.86	747	7	1698
James	140	4500	2.00	48	187	2	0.85	-	70*	+	159
Kaiser Bill	6	4500	1.75	83	316	52	0.67	-	100*	17*	227
King Edward	82	4500	1.67	155	560	6	0.30	0.64	101	1	230
Lady King	15	3300	0.50	490	1989	133	0.29	0.55	317	21	488
Lambly	182	3800	0.75	2161	8689	48	0.81	0.40	2756	15	5472
Lone Pine	25	5500	0.83	116	471	19	3.80	0.34	609	24	1603
Lost	45	4500	1.74	94	382	8	0.44	-	82	2	186
McCall	15	3300	0.50	68	277	18	0.49	-	90*	6*	138
Madden	17	2800	0.60	873	3378	199	0.17	0.73	410	24	631
Munro	35	5200	3.00	140	561	16	0.63	0.41	194	5	511
Oyama	630	4400	3.50	2199	8623	14	0.43	0.68	2206	4	5011
Peachland	60	4100	1.33	454	1843	31	0.83	0.64	979	16	2225
Pinaus	407	3300	0.50	19536	79521	197	0.26	0.78	16199	40	24921
Little Pinaus	17	3100	0.67	130	472	27	0.10	-	33	2	51
Postill	226	4500	0.67	1899	7657	33	0.71	-	2653	12	6030
Ripley	13	3100	0.67	869	3403	262	0.45	0.45	675	52	1038
Rose Valley	70	2000	0.20	480	1558	22	0.50	-	544	8	837
Round	35	4800	2.50	189	707	20	0.64	-	265	8	510
Silver	30	3400	1.33	248	991	33	0.66	0.88	571	19	878
South	60	4500	2.33	178	715	12	0.88	-	306	5	695
Square	25	3600	0.75	697	2786	111	0.65	0.73	1310	52	2729
Streak	50	4500	3.50	544	2120	42	0.31	0.30	193	4	439
Swalwell	750	4500	0.58	9836	39934	53	0.92	0.40	14696	20	33400
Swan	973	1300	0.20	342	1153	1	0.18	-	88	+	135
Whitehead	105	4700	0.75	962	3906	37	0.39	0.67	1021	10	1963
Wilma	25	4500	1.70	118	479	19	0.77	0.49	181	7	411

*Indicates that the catch-per-unit-effort component of the harvest estimates, at least in part, was a non-measured value; i.e. was a pooled average derived from other lake

^aFrom boat-fishermen only

^bIncludes Big Eneas, Little Eneas, and Island Lakes.

The more inaccessible lakes tend to provide more successful angling. The lakes with an access factor less than 2.0 had an average catch-per-unit-effort of 0.66, while those with an access factor of 2.0 or greater produced 1.1 fish per angler hour. The average size of fish caught in both categories was the same.

The effect of altitude on fish production is evident from Table 7.2. All the lakes producing more than 40 pounds of trout per acre are located below 4,000 feet elevation as are over half of those producing between 20 and 40 pounds per acre. This is despite the fact that only 26% of the headwater lakes with sport fishing opportunities are below 4,000 feet elevation.

TABLE 7.2
GROUPING OF 57 OKANAGAN HEADWATER LAKES ACCORDING TO
ESTIMATED ANNUAL SPORT-FISH HARVEST, 1971-72.

ESTIMATED ANNUAL HARVEST, POUNDS PER ACRE				
0 - 5	5 - 10	10 - 20	20 - 40	40 - 52
Alex	Becker	Bardolph	Agur	Pinaus
Bear	Chute	Bouleau	Allendale	Ripley
Burnell	Dee Chain	Browne	Darke	Square
Esperon	Echo	Kaiser Bill	Deep	
Fish Hawk	Eneas	Lady King	Deer	
Garnet Valley	High	Lambly	Lone Pine	
Geen	Jackpine	Peachland	Madden	
Glen	McCall	Postill	Swalwell	
Haynes	Munro	Silver		
Headwaters #1-4	Rose Valley	Whitehead		
Hereron	Round			
Hydraulic	South			
Ideal	Wilma			
James				
King Edward				
Lost				
Oyama				
Little Pinaus				
Streak				
Swan				

CHAPTER 8

Tributary Streams

Since Okanagan Basin tributary streams support only a very small in-channel stream fishery, (comparatively speaking), no concentrated angler use information was collected. Some limited data was collected on Trout Creek, which was presented earlier (Section 4.2.). From these data it was extrapolated that tributary streams presently support about 2300 angling-days annually. Fish are small (average 0.07 pounds) and opportunities for angling are limited by lack of public access, lack of stream stability and the inherent low productivity.

CHAPTER 9

Main Valley Lakes

9.1 METHODS

About 7,900 angling-hours of fishing activity were tabulated along the Okanagan main valley lakes during the sampling period June 1971 to May 1972. Interviews were recorded on the standardized forms. Anglers were questioned as to the length of time they had fished, their place of origin, how often they fished in the Okanagan Basin and their average trip duration. Species composition of the catch was recorded numerically and fish were measured whenever possible. Many of the interviews were conducted on the lake during the fishing day. To obtain sufficient data for estimating completed day lengths in such cases, fishermen were asked how long they intended to continue fishing beyond the time of the interview.

Data and estimates for the various components of the main valley lake fisheries are presented according to the following schedules:

Boat-angling during "summer" (April-October)	individual months
Boat-angling during "winter" (November-March)	combined period
Lakeshore angling: separate "summer (April-October) and "winter" (November-March)	periods
Ice-fishing	combined ice-cover period

Angling participation by boat-anglers on the main valley lakes was estimated in the course of a concurrent boater-utilization survey conducted by the B.C. Fish and Wildlife Branch. These data are recorded in Appendix P and are summarized in Table 9.1. The boater-day estimates were multiplied by the mean angling-day lengths derived in the course of angler use data collection to obtain estimates of participation in terms of angler-hours. To these were applied estimates of catch composition, catch-per-unit-effort, and mean size of fish to obtain values of total harvest by species and lake according to the time schedules outlined above. In the course of data collection and in the subsequent angler use compilations, Okanagan Lake was considered as two basins; north and south, separated by the floating bridge at Kelowna.

No estimates were made of the numbers of anglers participating in ice-fishing or in lakeside fishing during the months other than November. Lakeside fishing during the summer probably does account for a substantial number of angling-days.

Catch-per-unit-effort was estimated as the number of fish of a particular species kept per hour per fisherman. Fish released were not included. Fish

TABLE 9.1
SUMMARY OF ANNUAL ANGLING EFFORT, CATCH AND HARVEST BY BOAT FISHERMEN,
OKANAGAN MAIN VALLEY LAKES, 1971-72

	Wood	Kalamalka	North Okanagan	South Okanagan	Skaha	Vaseux	Osoyoos
Estimated Fishing Effort							
Angling-days	2,300	2,150	25,100	33,350	5,450	450	1,350
Angling-hours	6,800	6,400	87,000	100,800	18,800	650	4,250
Average hours per day	2.92	2.98	3.47	3.02	3.44	1.43	3.20
Angling-hours per acre	2.96	1.00	2.07	2.40	4.00	0.50	1.15
Estimated catch: (Number kept per angling-hour)							
Kokanee	0.268	0.193	1.840	0.768	0.314	0.015	0.232
Rainbow trout	0.000	0.016	0.035	0.079	0.072	0.000	0.058
Other salmonids	0.000	0.011 ^a	0.002 ^b	0.000	0.000	0.000	0.000
Spiney-rayed fishes ^c	0.000	0.000	0.000	0.000	0.000	0.396	0.300
Other ^d	0.003	0.002	0.003	0.005	0.009	0.126	0.032
TOTAL	0.271	0.222	1.880	0.852	0.395	0.537	0.622
Estimated catch: Total Number							
Kokanee	1,822	1,235	160,080	77,414	5,903	10	986
Rainbow trout	0	102	3,045	7,963	1,354	0	247
Other salmonids	0	70	174	0	0	0	0
Spiney-rayed fishes	0	0	0	0	0	257	1,275
Other	20	13	261	504	169	82	136
TOTAL	1,842	1,420	163,560	85,882	7,426	335	2,644

^aLake trout

^bMountain whitefish

^cIncludes largemouth bass, smallmouth bass, yellow perch, crappie, pumpkinseed

^dIncludes squawfish, peamouth chub, carp, burbot, bullheads

length data were converted to mean weights on the basis of length-weight conversion formulae derived from concurrent test-netting data.

9.2 FISHING EFFORT, CATCH AND HARVEST

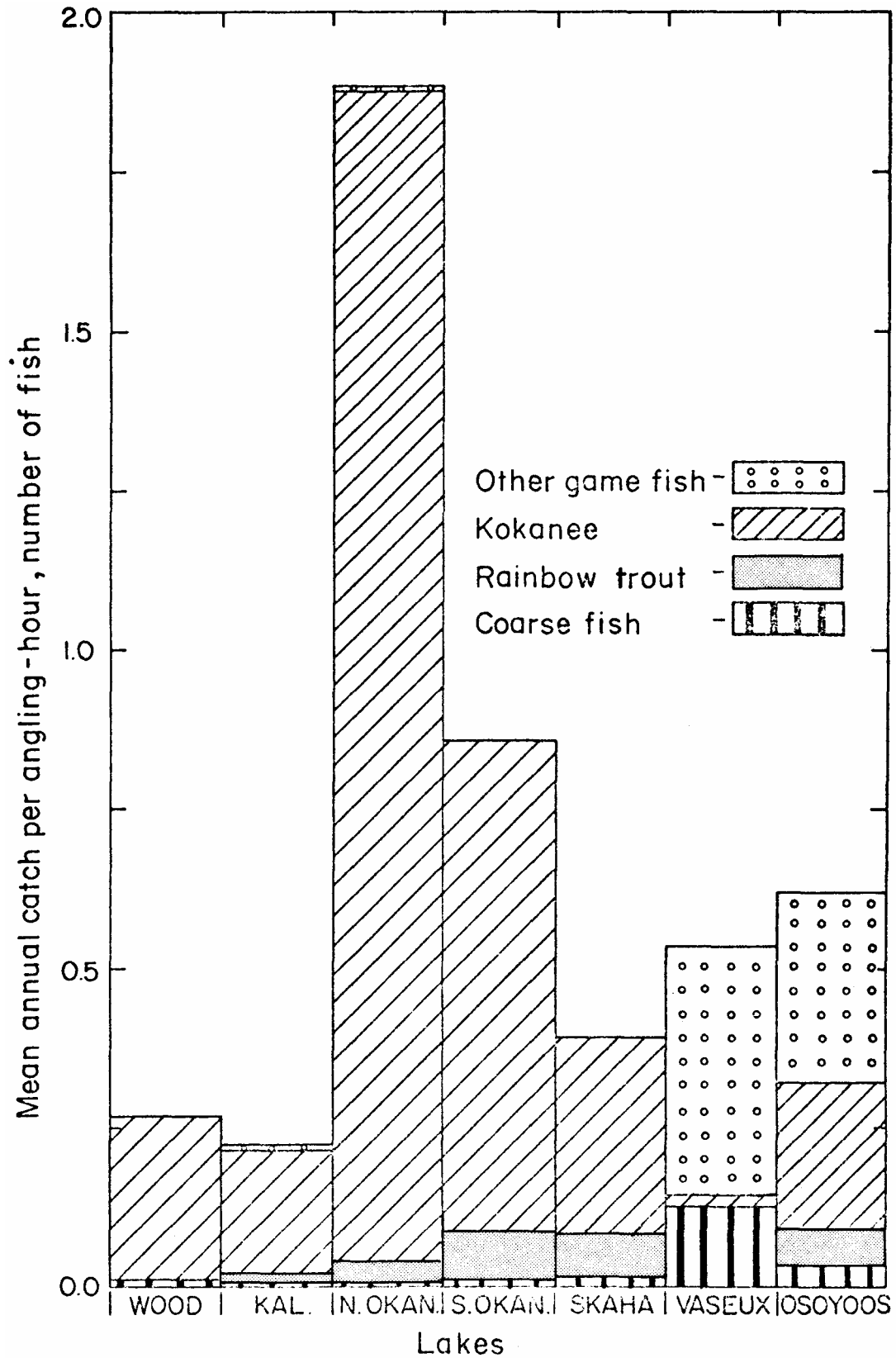
9.2.1 Harvest by Boat-Fishermen

Details of the boat-angling catch and harvest from the main valley lakes are summarized in Table 9.1. Boat-fishermen harvested 87,000 pounds of game fish from these lakes during the one-year census period; 80% by weight was kokanee and 18% was rainbow trout. The proportion of kokanee by numbers was even higher (94%) due to the relatively small size of these fish compared to rainbow trout. The annual numerical catch from the various lakes is presented in Figure 9.1.

Species other than kokanee and rainbow trout account for a large proportion of the sport-fish catch in those three main valley lakes with lowest angling utilization (Table 9.2). In Kalamalka Lake, the recently introduced lake trout already supports a greater harvest (by weight) than any other species. Spiney-rayed fishes (bass, yellow perch, and black crappie) constitute the bulk of the game-fish catch in Vaseux and Osoyoos Lakes. Among the bass; largemouth and smallmouth species occur in both Vaseux and Osoyoos Lakes. However, the two species were not routinely distinguished in the course of the census. Coarse fish species (squawfish, peamouth chub, carp, etc.) contributed progressively more to "kept" fish catches from north to south among the main valley lakes. The recorded catch-per-unit-effort of coarse fish species probably does reflect their availability and abundance to a degree, but also involves the type of fishing being conducted (inshore or offshore), and the relative experience, sophistication and preferences of the fishermen on any particular lake.

Marked seasonal differences were noted in the boat fishing catch (Table 9.1). For the very important Okanagan Lake kokanee fishery, catch-per-unit-effort in the north half of the lake increased progressively from May through September, dropped sharply in October, and was nil from November through April. In the south part of Okanagan Lake, kokanee fishing started earlier and peaked in July. Here too, as in all lakes, no kokanee were caught during the winter months. During this period (November-March) rainbow trout are caught almost exclusively. In Wood and Osoyoos Lakes, peak kokanee catches appear to occur in May, with very poor catches in mid-summer. The exact opposite seasonal pattern prevails for the kokanee fishery at Kalamalka Lake. Fishing for bass at Osoyoos Lake is best during the warm summer months.

In all lakes except Vaseux and Osoyoos, kokanee tended to be the dominant sport fish. The rainbow trout harvest follows the same trend as the kokanee harvest (Table 9.2) and it is suggested that much of the rainbow trout harvest at present is mainly a by-product of the kokanee fishery. The exception to this is



FISH CATCH BY BOAT-FISHERMEN. OKANAGAN MAIN VALLEY LAKES, JUNE 1971-MAY 1972.

Figure 9.1

TABLE 9.2
ESTIMATED TOTAL SEASONAL BOAT-FISHERMAN CATCH FROM OKANAGAN
MAIN VALLEY LAKES, 1971-72

LAKE	SPECIES	TOTAL NUMBER HARVESTED							
		April	May	June	July	August	September	October	November to March
WOOD	Kokanee	0	0	452	0	70	774	0	0
	Rainbow trout	0	0	0	0	0	0	0	0
	Other	0	23	0	0	0	0	0	0
KALAMALKA	Kokanee	0	0	0	952	61	85	139	-
	Rainbow trout	0	0	0	48	16	42	0	-
	Lake trout	0	13	49	0	10	0	0	-
	Other	0	2	0	0	10	0	0	-
OKANAGAN (north)	Kokanee	0	1237	25867	50867	41026	38174	3388	0
	Rainbow trout	14	47	613	1231	755	0	35	383
	Mountain whitefish	0	0	66	116	0	0	0	0
	Other	0	0	66	93	72	0	0	0
OKANAGAN (south)	Kokanee	196	2312	19313	26755	23763	4220	895	0
	Rainbow trout	10	271	2207	3612	1010	689	69	137
	Other	0	0	0	0	185	338	0	0
SKAHA	Kokanee	0	305	1379	1715	1771	735	0	0
	Rainbow trout	6	251	157	236	488	215	0	0
	Other	0	0	0	88	72	17	0	0
VASEUX	Kokanee	0	0	0	10	0	0	0	0
	Rainbow trout	0	0	0	0	0	0	0	0
	Other	0	6	0	91	0	252	0	0
OSOY00S	Kokanee	60	553	282	45	0	29	22	0
	Rainbow trout	28	33	43	0	0	92	44	6
	Other	6	2	737	512	36	122	0	0

the somewhat specialized fishery for large rainbow trout in the fall and winter months. Fisheries which do not appear to be dependent on catchability of kokanee are the lake trout fishery in Kalamalka Lake and the centrachid fisheries of Osoyoos Lake.

Annual sport-fish harvest per acre by boat fishermen ranged from 0.10 lb/ acre for Kalamalka and Osoyoos Lakes to 1.17 lb/acre for the northern half of Okanagan Lake. The northern Okanagan Lake harvest was 1.6 times that of the southern portion of that lake. Total participation ranged from 0.5 angling-hours per acre on Vaseux Lake to 4.0 hours per acre on Skaha Lake. The north half of Okanagan Lake supported more fishing activity than the southern half.

9.2.2 Shore-Fishing and Ice-Fishing

Angling and catch statistics for shore-fishing and ice-fishing among the Okanagan main valley lakes are presented in Table 9.3. Participation was not estimated for these components of the fishery, so overall harvest estimates could not be made. It is clear that shore-fishing makes a significant contribution to total angling effort in all the main valley lakes except possibly Kalamalka and the northern half of Okanagan Lake. Ice-fishing is conducted mainly on Wood, Skaha and the southern portion of Okanagan Lake.

With the exception of Okanagan Lake, very few rainbow trout and virtually no kokanee are taken by shore-fishing, and none were recorded from ice-fishing creels. Coarse fish species constitute the bulk of the shore-fishing catch in summer (April-October) and in the northern lakes (Wood, Kalamalka and the north and south portions of Okanagan Lake). These species also contribute heavily to summer shore-fishing catches in the southern main valley lakes, but are equalled or superseded in these by non-salmonid game fishes - primarily mountain whitefish in Skaha Lake, and bass and yellow perch in Vaseux and Osoyoos Lakes. The winter shore-fishery (November-March) is chiefly for mountain whitefish, with the bulk of activity occurring during November at Wood, Okanagan and Skaha Lakes. The bulk of ice-fishing appears to take place on Wood and Skaha Lakes, with the Skaha fishery more notable for its continuing yield of mountain whitefish.

A special attempt was made to estimate the magnitude and catch of the main valley lakes shore-fishery which occurred during the month of November, 1971. These estimates are given in Table 9.4. The reason for this special interest was that considerable numbers of basin residents took advantage of the opportunity to angle for mountain whitefish during this period when they move inshore to spawn. The winter shore fishery among the main valley lakes is essentially a reflection of this November activity. The bulk of the whitefish fishery takes place on the southern portion of Okanagan Lake (mainly near Summerland) and on Skaha Lake (mainly near Kaleden). Total whitefish harvest for the single month was estimated at about 4000 pounds, with a participation of about 700 angling-days.

TABLE 9.3

SUMMARY OF ANNUAL ANGLING CATCH-PER-UNIT-EFFORT ESTIMATES FOR SHORE-FISHING
AND ICE-FISHING. OKANAGAN MAIN VALLEY LAKES, 1971-1972.

	WOOD	KALAMALKA	NORTH OKANAGAN	SOUTH OKANAGAN	SKAHA	VASEUX	OSOYOOS
<u>SHORE-FISHING</u>							
April-October inclusive:							
Hours per angling-day	1.92	2.25	3.33	2.24	2.28	0.73	2.01
Angling hours sampled	109.0	19.5	42	72	48	22.5	171
Fish kept per angling-hour (No.)							
Rainbow trout	0.000	0.000	0.024	0.139 ^b	0.000 ^c	0.000	0.018
Other salmonids	0.000	0.047 ^a	0.000	0.070 ^b	1.306 ^c	0.000 ^d	0.000
Spiney-rayed fish	0.000	0.000	0.000	0.000	0.000	0.489 ^d	0.715 ^e
Other ^f	0.284	0.372	0.262	0.738	0.393	0.578	0.105
Total	0.284	0.419	0.286	0.947	1.699	1.067	0.836
November-March inclusive:							
Hours per angling-day	2.66	-	3.64	3.76	3.20	-	-
Angling hours sampled	21.5	0	42.0	351.0	86.0	0	0
Fish kept per angling-hour (No.)							
Mountain whitefish	0.930	-	0.521	1.584	1.414	-	-
Other ^f	0.047	-	0.024	0.011	0.035	-	-
Total	0.977	-	0.545	1.595	1.449	-	-
<u>ICE-FISHING</u>							
Hours per angling day	2.29	-	-	1.00	2.52	-	-
Angling-hours sampled	22.0	0	0	3.0	35.0	0	0
Fish kept per angling-hour (No.)							
Mountain whitefish	0.000	-	-	0.000	2.269	-	-
Other ^f	0.045	-	-	0.000	0.483	-	-
Total	0.045	-	-	0.000	2.752	-	-

- a. Kokanee b. Mountain whitefish c. Mountain Whitefish 1.285,
Lake whitefish 0.021.
- d. Bass 0.222, yellow perch 0.267
- e. Includes bass 0.351; yellow perch 0.216; crappie 0.140; pumpkinseed 0.006
- f. Includes variously; squawfish, peamouth chub, carp, suckers, bullheads

TABLE 9.4

EFFORT, CATCH AND HARVEST ESTIMATES FOR SHORE-ANGLERS FISHING THE
OKANAGAN MAIN VALLEY LAKES AND OKANAGAN RIVER DURING NOVEMBER, 1971.

a. Squawfish

	Interviews, Angling-Days	Estimated Total Angling-Days	Mean Hours per Angling-Day	Catch per Hour		Estimated Harvest Mountain whitefish	
				Mountain whitefish	Other	Number	Pounds
Wood	6	20	2.13	0.711	0.000	30	11
Kalamalka	0	0	-	-	-	0	0
North Okanagan	18	47	3.33	0.481	0.028 ^a	75	28
South Okanagan	129	553	3.81	1.682	0.012 ^b	3544	921
Skaha	20	85	3.70	0.566	0.055 ^c	178	121
Vaseux-Osoyoos	0	0	-	-	-	0	0
Okanagan River:							
Upper-improved	3	107	1.38	0.00	+ ^d	0	0
Unimproved	0	0	-	-	-	0	0
Lower improved	2	31	3.75	0.461	0.000	54	37

- b. Squawfish, suckers
- c. Suckers
- d. Rainbow trout

9.3 DISCUSSION

The angling catch-per-unit-effort from the Okanagan main valley lakes shows considerable parallel with the available sport-fish fauna as indicated by a concurrent test netting survey (Northcote et al., MS 1972). However, the realized harvest per acre suggests that some fish populations are being under or over-utilized relative to others. Kokanee in Osoyoos Lake for example, yielded only about 10-15% as much poundage per acre as in the southern portion of Okanagan Lake and Skaha Lake, despite being equally or more abundant in the test-netting catches. Conversely, rainbow trout yielded the same poundage per acre in Skaha and the southern portion of Okanagan Lakes, despite being much more abundant in the latter.

The highest game-fish yield was realized from the northern portion of Okanagan Lake, which is a rather oligotrophic basin. This yield is mainly kokanee. Trophic conditions are believed to be at least as favorable for kokanee in the southern portion of the lake as in the north section, however stream-spawning opportunities in south Okanagan tributaries have been most affected of any in the basin by competing water and landuse practices. The poor kokanee fishing in this part of the lake may be a direct result. Important kokanee shore-spawning sites are also located in the northern portion of the Okanagan Lake area. From observation it appears that kokanee fishing is poorest in the extreme southern end of the lake (Penticton-Summerland) which coincides with what is essentially a complete lack of spawning opportunity south of Peachland.

CHAPTER 10

Okanagan River Fishery

10.1 METHODS

Angler use data on the Okanagan River were collected as part of the main valley lakes survey. Interviews were conducted in the same manner as was done in the main lakes, and data processed in much the same way. (See Section 9.1 for a detailed description of methods).

Sport fishing effort, catch and harvest estimates for three sections of the Okanagan River are given in Appendix S and are summarized in Table 10.1. The definitions of the sectional designations are as follows:

Upper improved section:	between Skaha and Vaseux Lakes
Unimproved Section:	between Vaseux Lake and Oliver
Lower improved section:	between Oliver and Osoyoos Lake

10.2 RESULTS AND DISCUSSION

No specific census was conducted, nor was participation estimated, for that portion of Okanagan River between Okanagan and Skaha Lakes. Casual observation suggests however, that this section would account for 2000± angling days in the course of a year, with the catch comprised mainly of coarse fish species.

Angling activity on the Okanagan River through much of the census period was hampered and discouraged by relatively high river discharge levels. It is apparent that most of the fishing takes place in the upper improved section, chiefly in association with Skaha Lake dam, Okanagan Falls campsite, and the drop structures and railway bridge immediately downstream (Table 10.1). In fact it would appear from the distribution of estimated fishing participation that these artificial structures serve to attract fishing pressure, especially from transient tourists, and particularly in conjunction with high river discharge. The unimproved river section supported notably less angling activity than the improved areas, despite much better catches of the preferred rainbow trout and bass species. The good access along the "improved" sections of the river undoubtedly plays a role in attracting anglers.

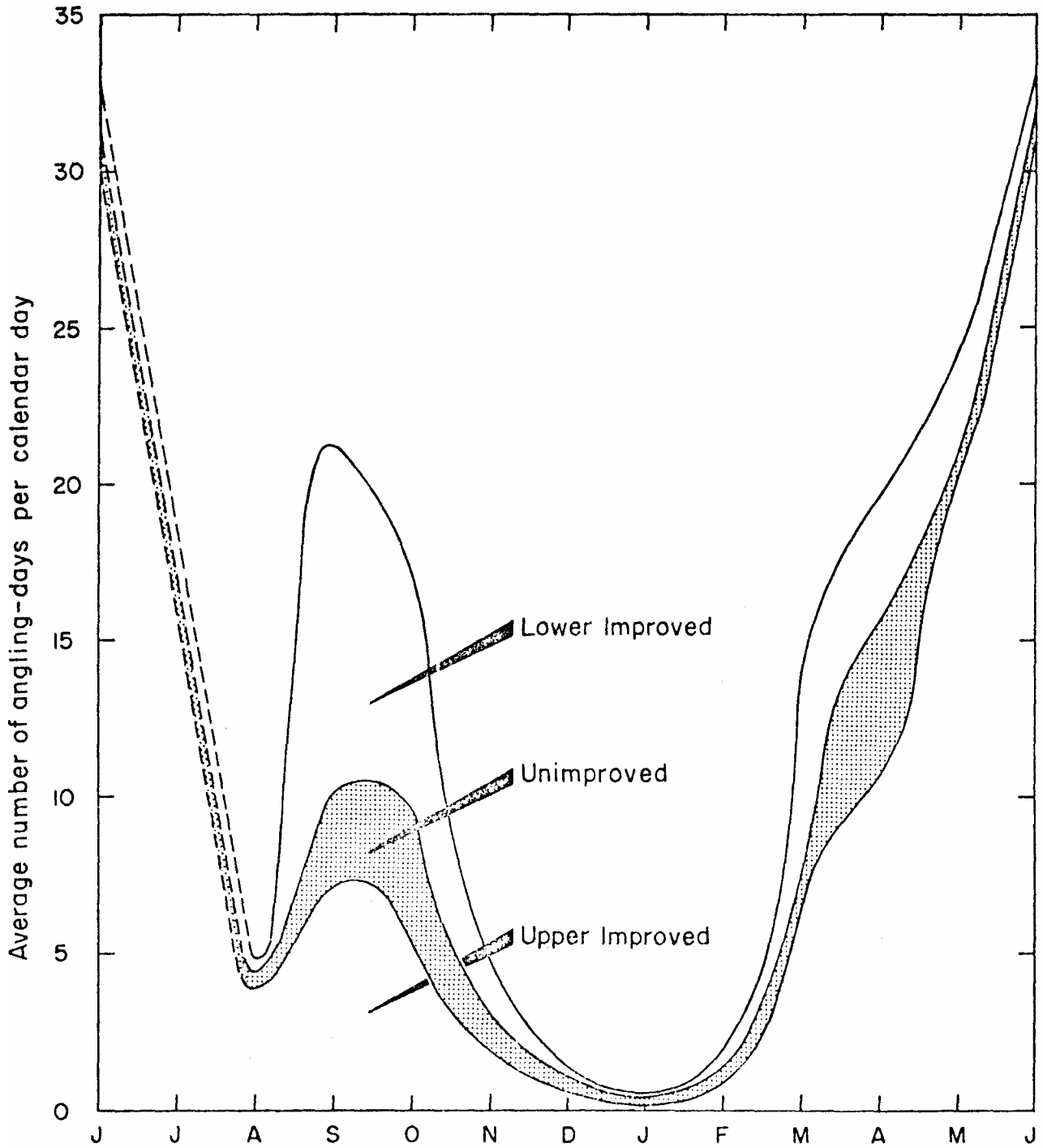
In summary, the river supported about 4,900 angler-days, averaging about two hours' duration. About 680 pounds of game fish were harvested. About 2600 fish were taken in the fishery.

The seasonal distribution of estimated angling activity in these three river areas is depicted in Figure 10.1. Maximum participation was encountered in June, chiefly in the upper improved section. It is of interest that the onset of sockeye salmon migration coincides with an influx of anglers in the river, particularly in the lower improved section. Although it is illegal to fish for these salmon, it is not illegal to fish in the river while they are running, and hence to observe them concurrently.

TABLE 10.1
SUMMARY OF ANNUAL ANGLING EFFORT, CATCH AND HARVEST
IN THREE SECTIONS OF OKANAGAN RIVER, 1971-72

	Upper Improved	Unimproved	Lower Improved
Estimated total angling-days	3,100	650	1,150
Average hours per angling-day	1.68	1.99	2.35
Fish kept (number) per angling-hour			
Rainbow trout	0.059	0.097	0.000
Mountain whitefish	0.004	0.000	0.150
Kokanee	0.000	0.000	0.054
Sockeye salmon	0.000	0.025	0.000
Bass	0.000	+	0.000
Yellow perch	0.000	0.000	0.013
Other	0.191 ^a	0.073 ^b	0.156 ^c
Estimated total harvest, pounds			
Rainbow trout	236	97	0
Mountain whitefish	15	0	273
Kokanee	0	0	65
Sockeye salmon	0	+	0
Bass	0	+	0
Yellow perch	0	0	+
Other	+	+	+

- a. Includes squawfish, peamouth chub, carp, suckers.
- b. Includes squawfish, peamouth chub
- c. Includes bullheads, squawfish, carp, suckers



SMOOTHED CURVES OF SEASONAL SPORT-FISHING PARTICIPATION (angling-days per calendar day) IN THREE SECTIONS (accumulated) OF THE OKANAGAN RIVER BETWEEN VASEUX AND OSOYOOS LAKES, 1971-72

Figure 10.1