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CREEL SURVEY OF UNCHA AND
BINTA LAKES
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A CREEL SURVEY OF
UNCHA AND BINTA LAKES

June - August, 1982

BY

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INTRODUCTION

Uncha and Binta Lakes are located within the heart of the "lakes country" between Francois Lake and Ootsa Lake. They provide a well-known fishery for rainbow trout (Salmo gairdneri) and lake trout (Salvelinus namaycush) and are heavily utilized by area residents as well as tourists.

Indications are that the fishery on these lakes has declined over the past few years. Consequently, it was decided a creel census was necessary in order to gather angling data upon which future management decisions could be made. Two B.C. Fish and Wildlife personnel carried out a creel census on Uncha and Binta Lakes in June, July and August, 1982. This report presents and analyzes the information gathered during that survey.

DESCRIPTION OF STUDY AREA

A. UNCHA LAKE

Uncha Lake ($53^{\circ} 55' N$; $125^{\circ} 36' N$) is located approximately 30 kilometers south-east of Burns Lake (Fig. 1). The surface area is 1267 hectares (3136 acres) with a mean depth of 17 meters (55.7 feet) and a maximum depth of 37 meters (121 feet). It has numerous inlet streams, and is drained by Uncha Creek which flows about 5.5 kilometers north-east to Francois Lake.

An angling lodge and a substantial number of recreational and residential dwellings are located on the north shore of the lake. There are also a few range-land clearings. A single Forest Service recreational campsite is located about halfway along the south shoreline.

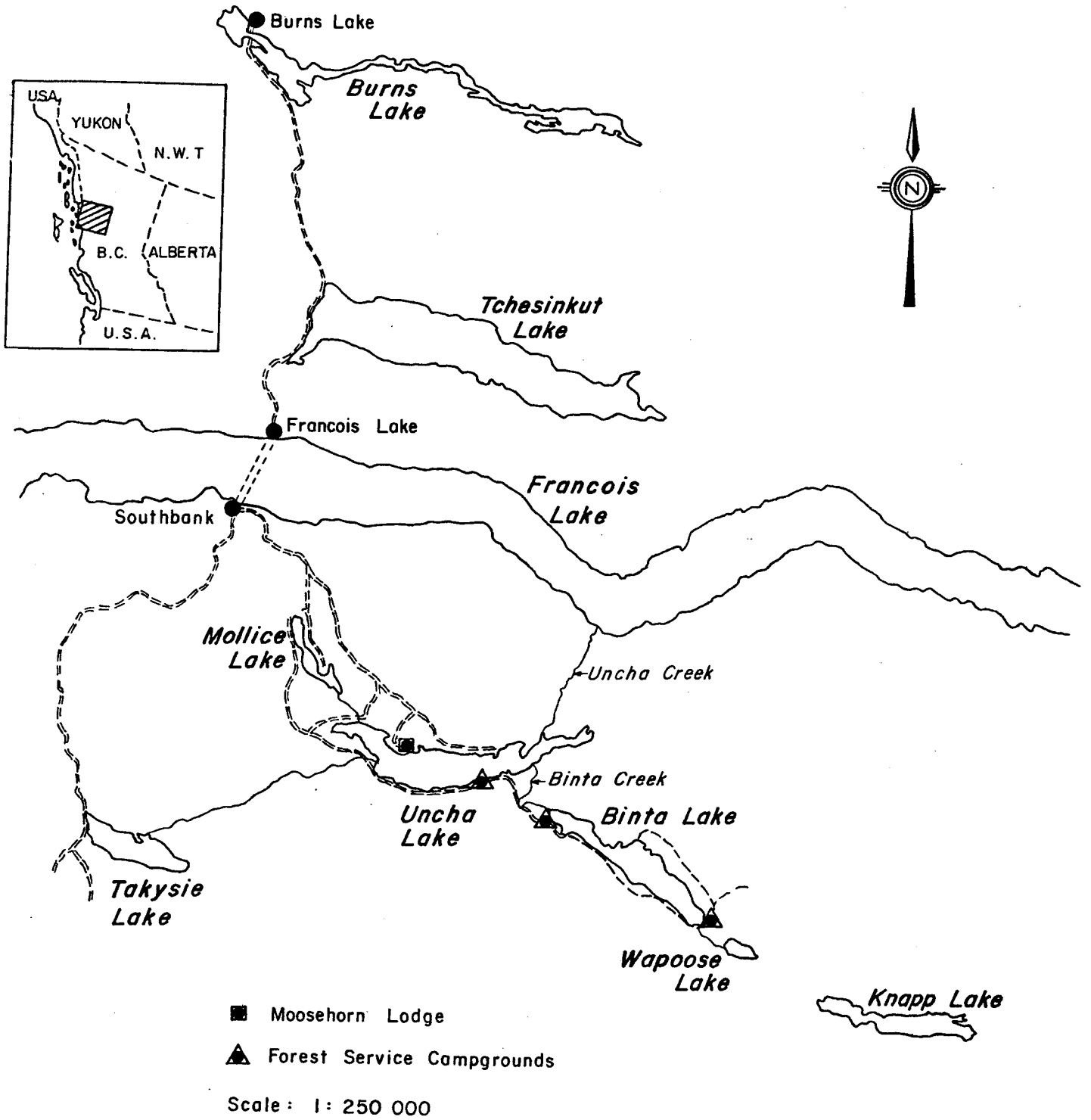


Fig. 1. Uncha and Binta Lakes

Resident sport fish species include rainbow trout, lake trout, lake whitefish (Coregonus clupeaformis), mountain whitefish (Prosopium williamsoni) kokanee (Oncorhynchus nerka) and burbot (Lota lota) (Burns and Tredger, 1975).

Other resident fish species include coarse scale suckers (Catostomus macrocheilus), longnose suckers (Catostomus catostomus), white suckers (Catostomus commersonni), prickly sculpins (Cottus asper), reidside shiner (Richardsonius balteatus), squaw fish (Ptychocheilus oregonensis) and peamouth chub (Mylocheilus caurius).

B. BINTA LAKE

Binta Lake (53° 12' N; 125° 28' W) is located approximately 45 kilometers southeast of Burns Lake. It encompasses an area of 789 hectares (1949 acres), has a mean depth of 21.3 meters (70 feet) and a maximum depth of 40.2 meters (132 feet). It has several inlet streams of which Wapoose is the largest and likely the most significant. The lake is drained by Binta Creek which flows approximately 3.5 kilometers northwest to Uncha Lake. It is probably the major spawning stream for rainbow trout emanating from Binta Lake and Uncha Lake.

Much of the country surrounding Binta Lake has been logged and in the past few summers tree planting crews have been quite active. There is some open rangeland on the hills above the north-east portion of the lake. A cabin is located at the outflow of Binta Creek, and two Forest Service recreational campsites are situated at each end of the lake.

Resident sport fish species within the lake and adjoining streams are the same as those listed for Uncha Lake (Burns and Tredger, 1975).

METHODS

Creel census data were obtained from Uncha and Binta Lake anglers between June 5 and August 28, 1982 (Table 1) by two B.C. Fish and Wildlife personnel.

Uncha Lake anglers were interviewed at Moosehorn Lodge; at the Forest Service campsite; and while fishing on the lake. The anglers on Binta Lake were interviewed at both of the Forest Service campgrounds and while fishing on the lake.

Anglers were interviewed either during angling or after having completed angling. A record was kept of place of residence, time spent fishing, time of interview, tackle used, target fish species, and the number of each species killed or released.

Scales from killed rainbow trout and lake trout were taken from between the dorsal and anal fins above or below the lateral line. The length, weight, and sex for each fish was recorded. In the laboratory, scale samples were placed between microscope slides and coded as to fish length, weight and sex. They were then placed onto a Leitz Neo-Promar projection microscope which magnified the image onto a screen at 150 X. The scales were aged by two individuals with disagreements settled by a third independent party.

Table 1. Schedule - Uncha, Binta Lakes Creel Census, 1982.

<u>June</u>	<u>July</u>	<u>August</u>
<u>5</u> - U	<u>1</u> - U	<u>1</u> - B
<u>6</u> - U	<u>4</u> - B	<u>2</u> - U
<u>12</u> - B	5 - B	<u>14</u> - B
<u>13</u> - B	<u>10</u> - B	<u>15</u> - B
17 - B	<u>11</u> - B	<u>21</u> - B
<u>19</u> - U	<u>17</u> - U	<u>22</u> - U
<u>22</u> - U	<u>18</u> - U	<u>23</u> - U
<u>26</u> - B	<u>25</u> - U	<u>24</u> - U
<u>27</u> - B	28 - U	25 - B
30 - U	<u>31</u> - B	<u>28</u> - B

Note: 1. Underlined dates = weekend days
 2. U = Uncha, B = Binta

RESULTS

ANGLER EFFORT AND SUCCESS

A. UNCHA LAKE

From June 5 to August 24, 1982, a total of 365 anglers were interviewed. During this period the census dates accounted for 8% of the possible week-days (Monday to Friday) and 32% of the week-end days (Saturday, Sunday and statutory holidays). Anglers fished a total of 365 angler-days and caught 523 fish, of which 492 (94%) were rainbow trout, and 31 (6%) were lake trout (Table 2).

Table 2. Monthly Catch Statistics for Anglers on Uncha Lake Between June 5 and August 24, 1982

Date	Angler Days Rainbow Trout	Angler Days Lake Trout	Total Angler Days Both Species	No. of Rainbow Caught	Rainbow Catch/ Day	No. of Lake Trout Caught	Lake Trout Catch/Day	Total Catch/ Day Both Species
June * 5	20	8	28	49	2.45	9	1.13	2.07
* 6	35	12	47	70	2.00	4	.33	1.57
* 19	37	12	49	75	2.03	3	.25	1.59
22	12	6	18	48	4.00	3	.50	2.83
30	20	5	25	29	1.45	1	.20	1.20
TOTALS	124	43	167	271	3.53	20	.47	1.74
July * 1	36	3	39	63	1.75	3	1.00	1.69
* 17	10	7	17	11	1.10	2	.29	.76
* 18	7	8	15	7	1.00	0	0	.47
* 25	29	3	32	26	.90	0	0	.81
28	11	-	11	9	.82	1	-	.91
TOTALS	93	21	114	116	1.25	6	.29	1.07
Aug. * 2	36	5	41	43	1.19	0	-	1.05
* 22	11	3	14	22	2.00	0	-	1.57
23	11	6	17	20	1.82	4	.67	1.41
24	10	2	12	20	2.00	1	.50	1.75
TOTALS	68	16	84	105	2.78	5	.31	1.31
Total Weekend * Days	221	61	282	366	1.66	21	.34	1.37
Total Weekday Days	64	19	83	126	1.97	10	.53	1.64
Total All Days	285	80	365	492	1.73	31	.39	1.43

The average success rate for the rainbow fishery was 1.73 fish per angler-day and .39 fish per angler day for the lake trout fishery. The average success rate for both species combined was 1.43 fish per angler-day.

Angling was most productive during June when 271 rainbow trout and 20 lake trout were caught. The total of 291 fish accounted for 46% of all the fish caught during the survey period. Fishing pressure was also the heaviest during June with an effort of 167 angler days. This comprised 46% of the total angler effort.

From these data obtained during the creel census, projections of angler effort and catch were made for the three month study period (Table 3). Monthly totals were projected on the basis that the following percentages of week-end days and week-days were surveyed for each month.

June	week-end days	3 of 8 = 38%
	week-days	2 of 22 = 9%
July	week-end days	4 of 10 = 40%
	week-days	1 of 21 = 5%
August	week-end days	2 of 10 = 20%
	week-days	2 of 21 = 10%

On the basis of these weighted percentages it is estimated that during the months of June, July and August, the Uncha Lake sport fishery provided a total of 1873 angler-days and a catch of 2566 rainbow trout and 175 lake trout. The success rate would of course be unchanged, at 1:43 (all species) per angler-day.

Table 3. Projected Monthly Catch Statistics for Uncha Lake June to August, 1982

Month	Rep'd Angler Days	Est'd Angler Days	Rep'd Rainbow Catch	Est'd Rainbow Catch	Rep'd Lk Trout Catch	Est'd Lk Trout Catch	Success (Rep'd Catch/Day)
June	167	804	271	1364	20	89	1.74
July	114	489	116	457	6	33	1.07
August	84	580	105	745	5	53	1.31
TOTALS	365	1873	492	2566	31	175	1.43

B. BINTA LAKE

From June 12 to August 28, 1982, a total of 260 anglers were interviewed. They fished 260 angler-days and caught 526 fish, of which 525 were rainbow trout. The other lone fish was a lake trout (Table 4).

The average success rate for the rainbow fishery was 2.29 fish per angler-days. Angling was most productive on Binta Lake during July when 246 rainbow were caught. This represented 47% of all the fish caught over the survey period. Fishing pressure was also the greatest in July. Angler effort was 126 angler-days, which accounted for 46% of the total effort.

The data obtained on the creel census days can be used to project monthly totals for angler effort and catch (Table 5). Weighted ratios are as follows:

June	week-end days	4 of 8 = 50%
	week-days	1 of 22 = 4%
July	week-end days	4 of 10 = 40%
	week-days	1 of 21 = 5%
August	week-end days	5 of 10 = 50%
	week-days	1 of 24 = 5%

Table 4. Monthly Catch Statistics for Anglers on Binta Lake, June 12 to August 28, 1982.

Date	Angler Days Rainbow Trout	Angler Days Lake Trout	Total Angler Days Both Species	No. of Rainbow Caught	Rainbow Catch/ Day	No. of Lake Trout Caught	Lake Trout Catch/Day	Total Catch/ Day Both Species
June *12	12	-	12	11	.92	0	.00	.92
*13	12	-	12	28	2.33	0	.00	2.33
17	7	1	8	13	1.86	0	.00	1.63
*26	17	1	18	48	2.82	0	.00	2.66
*27	0	0	0	0	0.00	0	.00	0.00
TOTALS	48	2	50	100	2.08	0	.00	2.00
July * 4	32	7	39	56	1.75	0	.00	1.44
5	17	0	17	49	2.88	0	.00	2.88
*10	18	1	19	42	2.33	0	.00	2.21
*11	16	3	19	21	1.31	0	.00	1.11
*31	26	6	32	78	3.00	0	.00	2.44
TOTALS	109	17	126	246	2.26	0	.00	1.95
Aug. * 2	25	2	27	54	2.16	0	.00	2.00
*14	18	2	20	68	3.78	0	.00	3.40
*15	4	0	4	11	2.75	0	.00	2.75
*21	10	3	13	13	1.30	1	.33	1.00
25	10	2	12	13	1.30	0	.00	1.08
*28	6	2	8	20	3.33	0	.00	2.50
TOTALS	73	11	84	179	2.45	1	.09	2.14
Total * Weekend Days	196	27	223	450	2.30	1	.04	2.02
Total Weekday Days	34	3	37	75	2.21	0	.00	2.03
Total All Days	230	30	260	525	2.29	1	.03	2.02

Table 5. Projected Monthly Catch Statistics for Binta Lake June to August, 1982

Month	Rep'd Angler Days	Est'd Angler Days	Rep'd Rainbow Catch	Est'd Rainbow Catch	Rep'd Lk Trout Catch	Est'd Lk Trout Catch	Success (Rep'd Catch/Day)
June	50	260	100	460	0	0	2.00
July	126	630	246	1522	0	0	1.95
August	84	396	179	605	1	2	2.14
TOTALS	260	1286	525	2587	1	2	2.02

Extrapolation of these data for the combined monthly totals of June, July and August provides an angler effort (all species) of 1286 angler days with a catch of 2589 fish, of which 2587 are rainbow trout. the average catch per angler day (all species) remains the same, at 2.02.

ANGLER TACKLE PREFERENCE

A. UNCHA LAKE

Anglers using bait accounted for 71% of the angler effort (Table 6) and caught 80% of the total catch. Anglers using lures made up 28% of the total angler effort while catching 17% of the total catch. Flies accounted for 1% of the angler effort and provided 3% of the total catch.

Fly fishermen were the most successful with an average of 3.25 fish caught per angler-day. Bait anglers were second with 1.62 fish per angler-day while lure anglers had a success rate of .88 fish per angler day.

The only type of bait used by those anglers interviewed was worms.

B. BINTA LAKE

Binta Lake anglers using bait accounted for 63% of the total angler effort (Table 7) and caught 69% of the total catch. Lure anglers expended 28% of the total catch. Flies accounted for 9% of the total angler effort and tallied 14% of the total catch.

Fly fishermen were the most successful with an average success rate of 3.48 fish per day. Bait anglers were second with an average of 2.20 fish per angler day. Lure anglers came third with an average of 1.14 fish caught per angler-day. Again, the only type of bait noted during the creel census was worms.

Table 6. Tackle Preference and Catch by Tackle Type on Uncha Lake June to August, 1982.

Month	EFFORT (Angler-Days)				CATCH (Rainbow and Lake Trout)			
	Lure	Bait	Fly	Totals	Lure	Bait	Fly	Totals
June	68	96	3	167	73	207	11	291
July	20	78	1	99	12	108	2	122
August	14	85	0	99	5	105	0	110
TOTALS	102	259	4	365	90	420	13	523
% of Totals	28%	71%	1%		17%	80%	3%	
Catch per angler-day					0.88	1.62	3.25	1.43

Table 7. Tackle Preference and Catch by Tackle Type on Binta Lake, June to August, 1982.

Month	EFFORT (Angler - days)				CATCH (Rainbow and Lake Trout)			
	Lure	Bait	Fly	Totals	Lure	Bait	Fly	Totals
June	13	23	6	42	4	59	37	100
July	44	61	14	119	66	138	42	246
August	16	80	3	99	13	165	1	180
TOTALS	73	164	23	260	83	362	80	526
% of Totals	28%	63%	9%		16%	69%	15%	
Catch per angler-day					1.14	2.21	3.48	2.02

ANGLER ORIGIN

A. UNCHA LAKE

Of the 365 anglers interviewed, 18% (64) were local residents from the Lakes District Area; 16% (60) were Regional residents; 47% (172) were other B.C. residents; 11% (39) were Canadian residents and 8% (30) were aliens (Table 8).

Table 8. Angler Origin on Uncha and Binta Lakes, June to August, 1982

	Local	Region 6	B.C. Residents	Canadians	Alien	Totals
Uncha	64	60	172	39	30	365
% of	18%	16%	47%	11%	8%	
Total						
Binta	10	62	152	10	26	260
% of	4%	24%	58%	4%	10%	
Total						

B. BINTA LAKE

Of the 260 anglers interviewed 4% (10) were local residents from the Lakes District area; 24% (62) were Regional residents; 58% (152) were other B.C. residents; 4% (10) were Canadian residents and 10% (26) were aliens. (Table 8).

RAINBOW TROUT LIFE HISTORY

A. UNCHA LAKE

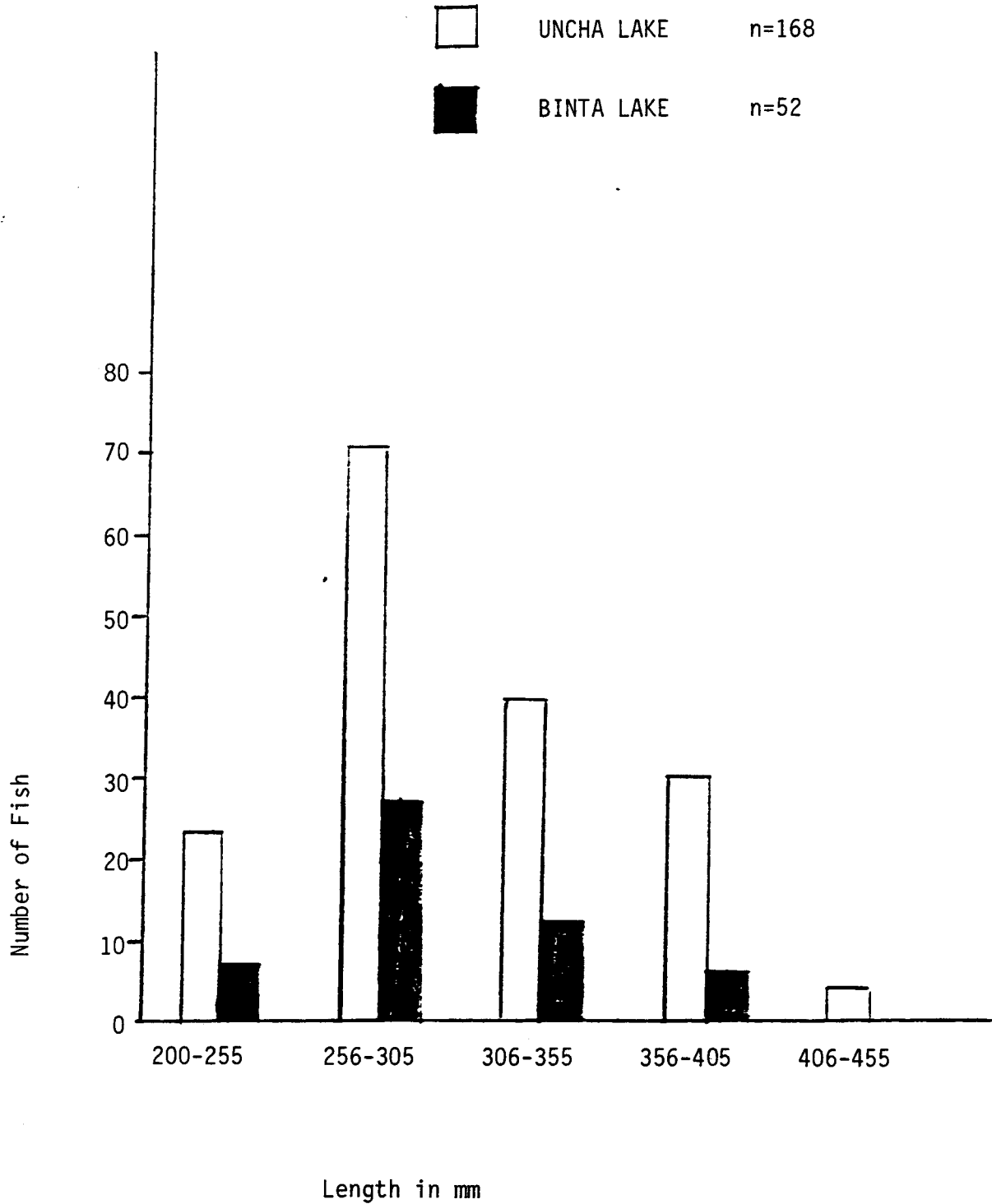
A sub-sample of 168 rainbow trout ranging in length from 23.5 cm to 43.5 cm (avg. length = 30.2 cm) was taken from the 492 rainbow trout killed. The fish varied in age from two years to six years. The mean lengths of each age class were as follows: 25.0 cm for age two, 26.0 cm for age three, 31.0 cm for age four, 28.0 cm for age five, and 41 cm for age six (Table 9). The majority of the fish caught were four years of age, and accounted for 60% of the total sub-sample.

From the sub-sample, 43% of the fish were between 25.6 and 30.5 cm long (Figure 2).

Table 9. Age-Length Relationship of Rainbow Trout from Uncha Lake, June 5 - August 24, 1982 (N=168)

	Age (Years)					Total
	2	3	4	5	6	
Number	5	40	101	14	8	168
% of total	3%	24%	60%	14%	5%	100
Min. Length (cm)	23.5	21.5	24.5	29.0	38.5	
Max. Length (cm)	27.0	33.0	40.0	36.5	43.5	
Mean Length (cm)	25.0	26.0	31.0	28.0	41.0	

Fig. 2 LENGTH - FREQUENCY DISTRIBUTION OF ANGLER CAUGHT RAINBOW FROM UNCHA AND BINTA LAKES, JUNE 5 - AUGUST 28, 1982



B. BINTA LAKE

A sub-sample of fifty-two rainbow trout ranging in length from 23.0 cm to 37.5 cm (avg. length = 30.0 cm) was taken during the creel census (Table 10). The fish varied in age from two years to four years. The average lengths of each age class is as follows: 23.5 cm for age two; 28.5 cm for age three and 35.5 cm for age four. Most of the fish were in the three year age class and comprised 65% of the sub-sample.

The sex ratio from the sub-sample was 1 male to 1.5 females.

Table 10. Age-Length Relationships of Rainbow Trout from Binta Lake, June 12 - August 28, 1982. (n = 52)

	Age (Years)			
	2	3	4	Total
Number	5	34	13	52
% of Total	10%	65%	25%	100
Min. Length (cm)	23.0	23.5	31.0	
Max. Length (cm)	24.0	33.5	37.5	
Mean Length (cm)	23.5	28.5	35.5	

DISCUSSION AND CONCLUSIONS

It would appear that over the past five to ten years the sport fishery on both Uncha and Binta Lakes has declined. Many of the anglers interviewed felt that the number of fish they caught in past years is perhaps comparable to the present. However, they felt that the size of fish has declined noticeably. There were many comments about fish being caught in the 2 to 3 lb range (1.3 - 1.9 kg) with 4 lb. (2.5 kg) fish not being uncommon. From this creel census, the major portion of the catch was in the size range of 25 to 35 cm which is about .2 to .4 kg in weight.

Although this creel survey missed most of the lake trout fishery (it occurs in April-May) many of the anglers interviewed had participated in this earlier fishery. Their opinion generally seemed to be that both sizes and numbers of lake trout have declined over the past years.

As to be expected however, the number of anglers at both lakes has greatly increased over the past few years. Both the owner of Moosehorn Lodge and Forest Service personnel have commented on this trend.

The growth pattern of Uncha and Binta rainbow trout, as revealed by scale examination, generally shows two years of relatively slow growth followed by a single year of rapid growth. The years following the third year seem to level off into a stable growth pattern. One possible explanation for this pattern is that the fish reside in a relatively low food producing stream for the first two years and then move into the more productive lake for their third year.

During the survey large numbers of coarse fish were seen throughout, and at the mouths of Uncha, Binta, Takysie and Mollice Creeks. In addition these creeks contain active beaver dams, which are hindering fish passage and causing spawning habitat degradation. This combination of high coarse fish populations and beaver dams, is undoubtedly playing a significant role in reducing fish productivity within the Uncha-Binta Lakes systems.

SUMMARY

A. UNCHA LAKE

1. From June 5 to August 24, 1982, anglers fished a total of 365 angler-days.
2. The total catch was 523 fish of which 492 were rainbow trout and the remaining 31 were lake trout.
3. The average success rate for the rainbow fishery was 1.73 fish per angler-day and .39 fish per angler-day for the lake trout fishery (1.43 fish, both species, per angler-day).
4. A projected estimate of angler effort and catch for the three month census period indicates a total effort of 1873 angler-days with a catch of 2566 rainbow trout and 175 lake trout.
5. Angling was most productive during the month of June with a success rate of 1.74 fish per angler-day. The average success rate was 1.43 fish per angler-day.

6. Anglers using bait accounted for 71% of the total angler effort; lures were used 28% of the time and flies 1%. However, anglers using flies had the greatest success rate of 3.25 fish per angler-day. Bait anglers accounted for 80% of the total catch.
7. Of the anglers interviewed, 47% were B.C. residents, 18% were local anglers and 16% were from Region 6.
8. Rainbow trout varied between two and six years of age and from 235 mm to 435 mm in length.
9. The bulk of the catch was made up of rainbow trout of age three (24%) and four (60%).

B. BINTA LAKE

1. From June 12 to August 28, 1982, anglers effort was 260 angler-days.
2. The total catch was 526 fish, of which 525 were rainbow trout. The other lone fish was a lake trout.
3. The average success rate for the rainbow trout fishery was 2.29 fish per angler-day.
4. The projected estimate of angler effort and catch for the three month census period indicates a total effort of 1286 angler-days with a catch of 2589 fish of which 2587 are rainbow trout.
5. Anglers were most productive in August with a success rate of 2.14 fish per angler-day.

6. Anglers using bait accounted for 63% of total angler effort; lures were used 28% of the time and flies 9%. Anglers using flies had the greatest success rate of 3.48 fish per angler-day. Anglers using bait accounted for 69% of the total catch.

7. Of the anglers interviewed, 58% were B.C. residents, 24% were from Region 6 and 10% were aliens.

8. Rainbow trout varied between two and four years of age and from 230 mm to 375 mm in length.

9. The bulk of the catch was made up of rainbow trout of age three (65%) and four (25%).

10. The sex ratio was 1 male to 1.5 females.

RECOMMENDATIONS

1. It would be desirable to clear all the beaver dams from the streams in the Uncha-Binta lakes watershed. However, the difficulty, if not futility in achieving this, is well recognized.

2. Likewise, eradication or at least control of coarse fish populations would be of great benefit to rainbow trout productivity. This is best achieved by complete chemical rehabilitation. However, the size of these lakes renders this method extremely expensive and therefore not feasible at this time.

3. An experimental attempt at reducing coarse fish numbers by physical means could be tried. Some methods to consider are: 1. erecting coarse fish barriers near the mouths of spawning streams and removing coarse fish species before they have a chance to spawn. 2. Constructing upstream traps near the mouths of spawning streams to capture all fish attempting to migrate upstream. The rainbows would, of course, be released on the upstream side of the trap, while all coarse fish would be killed.

These projects would be very labour intensive and would require a two person crew in the Uncha-Binta area for three to four months. In addition, it could prove difficult to maintain a barrier or trap during high spring run-off flows. Furthermore, it is uncertain as to what sort of impact these methods would have on coarse fish populations. Most coarse fish species are highly reproductive and anything less than total extermination might prove to be of questionable benefit to the rainbow fishery.

REFERENCE

BURNS, I. and Tredger, D. 1975. Uncha and Binta Lakes Survey Data,
Unpublished M.S. Fish and Wildlife Branch, Victoria, B.C.