Report 3, Section 1

Waterton Mgmt. Area

Office Memorandum • UNITED STATES GOVERNMENT

TO : Regional Director, BSFW, Region 1 DATE: August 15, 1961

FROM : Regional Supervisor, Branch of Fishery Management Services, BSFW, Region 1

SUBJECT: Glacier National Park Fishery Management Review Report No. 3: A Review of Fishery Data Obtained from Waters of Many Glacier Sub-district (A) of the Hudson Bay (East Slope) District of Glacier National Park

INTRODUCTION

This report will review all of the known data on fish and fishing for each body of water in each of the three management areas in the Many Glacier Sub-district; namely, I. Waterton; II. Belly River; and III. Many Glaciers. A summary of these data will indicate which lakes and streams should be developed for fishing, and which waters should be kept closed to fishing and preserved in their natural state. Where a fishery problem is indicated, remedial suggestions are presented.

The write-up for each management area in this series of reports will adhere basically to the following general outline:

1) General description of the area in terms of human occupation and accessibility of waters.

2) Reproduction of a map of the management area.

3) Table of all waters within the management area.

4) The main body of the report presents detailed descriptions of individual waters and detailed description of fish and fishing in each.

5) A summary table of all fishable and non-fishable waters in the area.

6) Summary of recommendations.

Explanation of Materials Presented in Outline of Waters.

Intermittent streams or ponds that are known to go dry are not listed in the outline or in the discussions.

An attempt has been made to estimate the comparative size of each stream, lake, and pond, and to give some idea of the possible fishing characteristics of each body of water.

A REVIEW OF THE FISHES AND FISHING IN THE WATERS OF MANY GLACIER SUB-DISTRICT (A) OF GLACIER NATIONAL PARK

SECTION I - THE WATERTON MANAGEMENT AREA

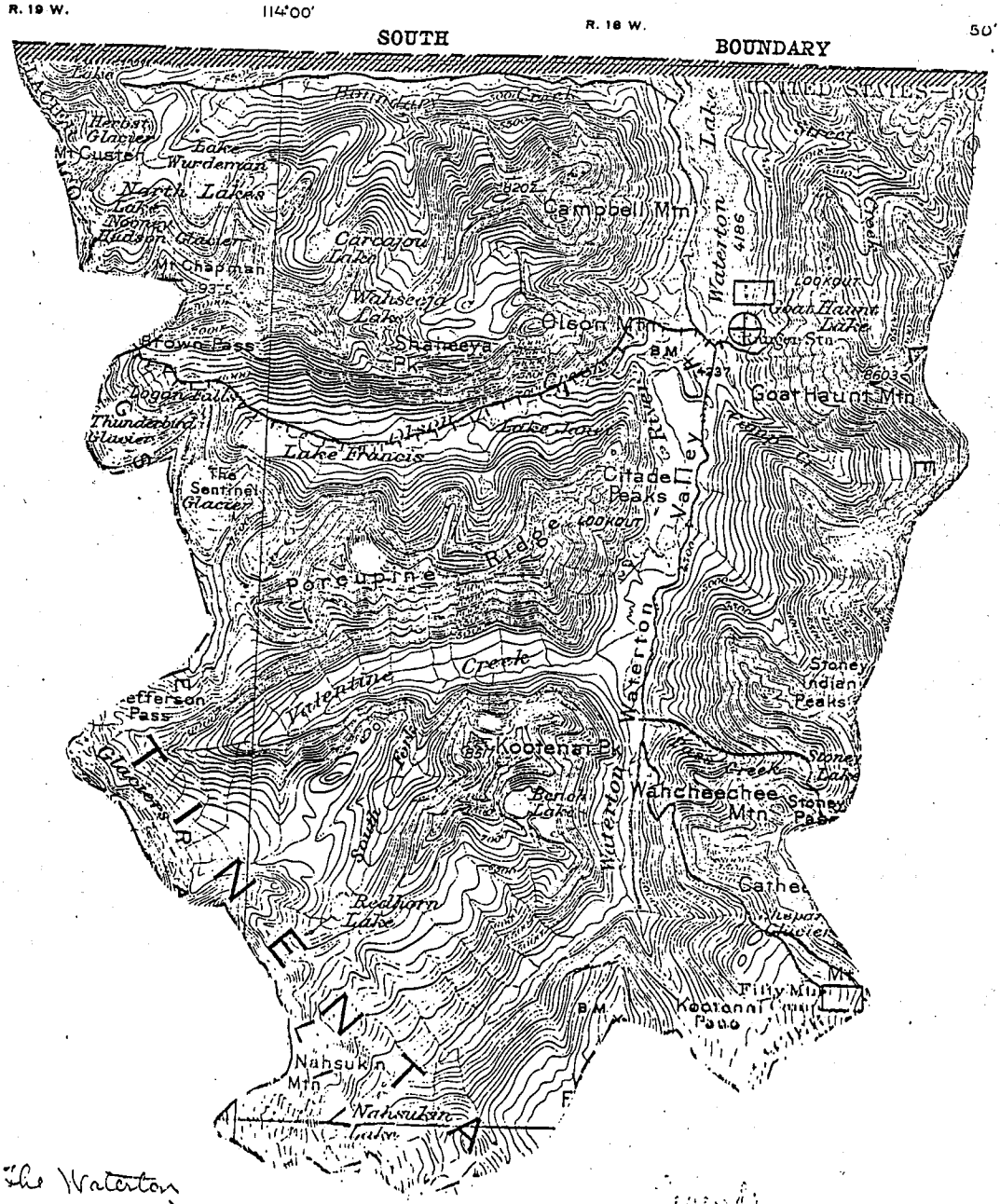
General Description: The Waterton Area contains all of the waters of the Waterton River Drainage (Fig. 1 and Table 1) within the United States. The greater part of Waterton Lake and River, and their tributaries, occur in Canada where they are under the administration of The Canadian National Park Service. In Canada these waters are readily accessible by road and they are well developed for recreational purposes. The Canadian area is known as Waterton Lakes Park. In contrast to the Canadian waters of the drainage, the Waterton Management Area is one of the most primitive and least fished areas of Glacier National Park. Most of the fishing in this area is done by Canadians. A brief summary of the fish and fishing in Waterton Lakes Park in Canada is attached to this report as Appendix I.

Accessibility: At present there are no roads in this area. Most of the visitors arrive at the Waterton Ranger Station by passenger launch from Waterton Village (Waterton Park) Alberta, Canada. During the peak of the tourist season this launch makes three round trips per day.

The mileage and directions to the following lakes and streams stem from the Waterton Ranger Station which is centrally located. (See Fig. 1). The few log cabins at the ranger station represent the only human habitations or "settlement" in the area which covers 60,324 acres of rugged mountainous country for the most part. For example, Mt. Chapman is 9,375 feet high. The area is also accessible to hikers by good trails from the Kintla Lake and the Bowman Lake drainage system via Boulder and Brown Pass respectively, down Olson Creek to the Ranger Station; or from the Belly River Area via a trail alongside Glenn's Lake and Mokowanis River in the Belly River Area over Stoney Indian Pass and Pass Creek to the Waterton river; or it is also accessible from the McDonald Lake Area via the McDonald and Mineral Creek trail over Kootenai Pass to the headwaters of the Waterton River.

The area is also accessible by trails from Canada which are used primarily by Canadians. Most heavily used is the ten-mile trail along the western shore of Waterton Lake from Waterton Park village in Alberta to Waterton Ranger Station in Glacier National Park. The other trail rises from Bungalow Camp on Cameron Lake in Waterton Park and winds over the mountains and the National Boundary into the headwaters of Boundary Creek in Glacier National Park. It parallels Boundary Creek downstream for approximately five miles to Waterton Lake where it joins the Waterton Lake Trail mentioned above.

Historical Background: According to all of the early references to fish and fishing in this area, it is very apparent that, before the turn of the century, none of the streams or lakes of the Waterton Management Area contained fish of any description except Waterton Lake and the lower mile or so of its various tributaries. All of the streams entering Waterton Lake have falls not far above their mouths which have been impassable barriers for centuries. These falls have prevented fish from moving any farther upstream. Consequently, it is generally believed that there were no native wild fish endemic to these upland waters, and that all of the trout being caught today from these upland lakes and streams are descendents of fish stocks placed in these waters by the hand of man since Glacier National Park was established. Fishery management surveys are needed to support or deny this hypothesis.



Legend The Waterton Management Area (I) of Glacier National Park Montana

REVIEW OF THE INDIVIDUAL WATERS OF THE WATERTON LAKE DRAINAGE SYSTEM (EXCLUSIVE OF THE WATERTON RIVER)

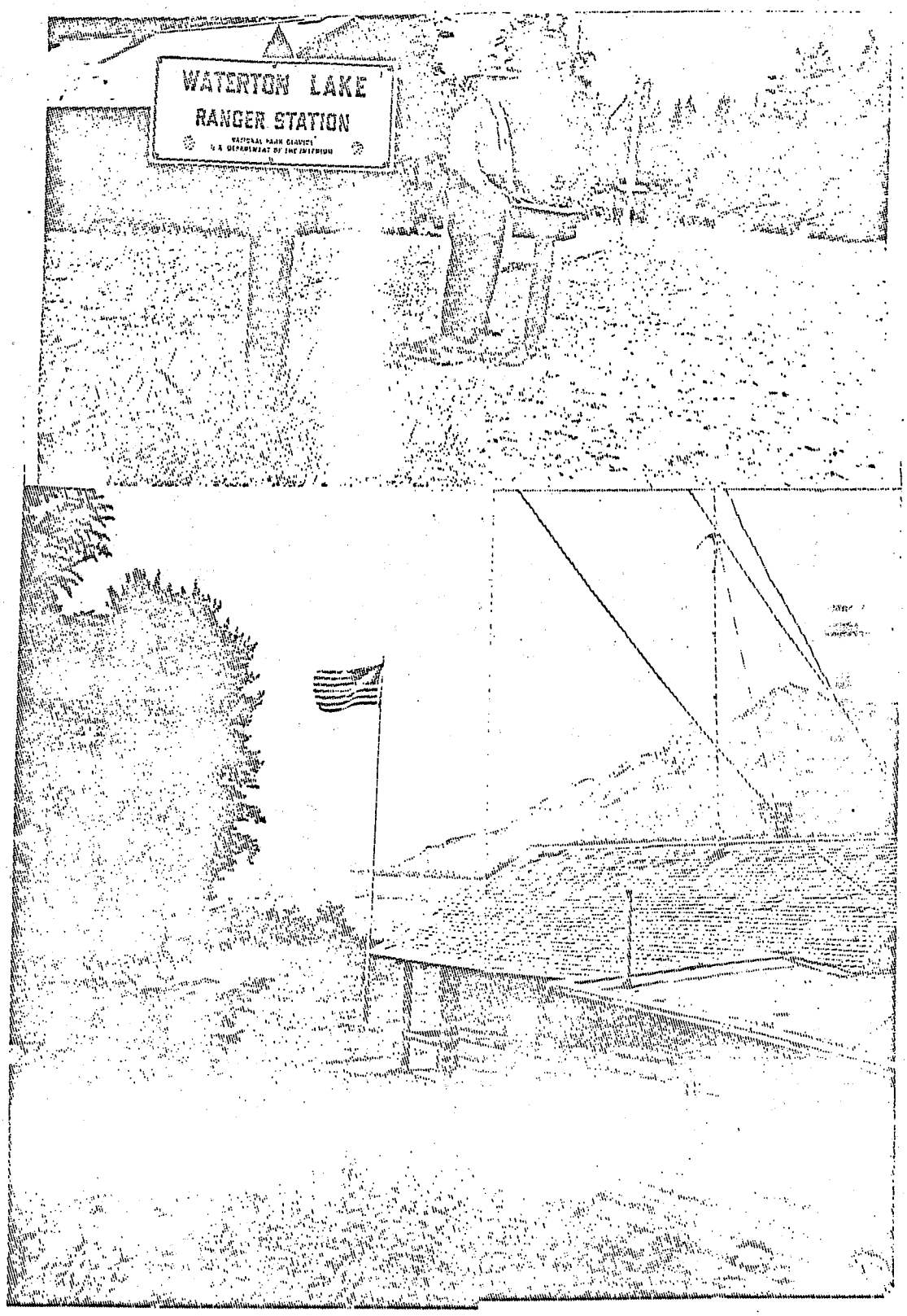
Detailed descriptions of the various waters in the Waterton Lake portion of the Waterton management area are presented below in a counter clockwise order around the Lake.

A. Waterton Lake: From the narrows at the village to its southernmost tip, Waterton Lake is 7 miles long by 5/8 miles wide with about 2,800 surface acres at 4,193 foot elevation. Elrod (1912:9) sounded a 317 foot depth. Eastern Brooks, Rainbows, Cutthroats, Mackinaws, Northern Pike, Ling and Mountain Whitefish are taken from this large lake mostly by Canadian anglers. The lower 3 miles (about 1,000 surface acres) of the lake lie within the Waterton area of Glacier National Park. To date we have received no creel census from Waterton Lake. Ranger Robert M. Paul estimated that approximately 155 man-days of fishing may have occurred by Americans in this part of the lake in 1960. This was broken down to 15 trolling in the lake; 30 fished from boat dock; 20 off the mouth of Boundary Creek, and 90 off the mouth of Waterton River. This is a very small fishery for such a large body of water, and therefore presents no problem. Such fishery management activities as occur on Waterton Lake are conducted entirely by the Canadians.

Elrod (1912:7-9) shows a photograph and gives a brief description of Waterton Lake as it existed some fifty years ago. Brooks (1921) states; "Waterton Lake is known to have whitefish (penos); Mackinaw (lake trout); Black-spotted Trout (Cutthroat); Rainbow Trout and other varieties of native fish." Schultz (1941:40) indicates the following species were planted in this lake: cutthroat and rainbow trout (Salmo clarki and S. gairdneri); and lake trout (Salvelinus namaycush). In addition the following were found present and believed to be endemic to the lake; eastern brook (Salvelinus fontinalis); lake whitefish (Coregonus clupeaformis); mountain whitefish (Prosopium williamsoni); long-nosed sucker (Catostomus catostomus); white sucker (Catostomus commersoni); streamline chub (Hybopsis dissimilis); ling (Lota lota maculosa); spoonhead sculpin (Cottus ricei). In addition the northern pike (Esox lucius) is now listed in the Canadian fish and game regulations as being present in Waterton Lake.

According to Schultz (1941:5) Dr. Elliott Coues was probably the only naturalist, interested in fishes, who actually visited the northwestern border of the park in the vicinity of "Chief Mountain Lake", (Waterton Lake) before the turn of the century. In 1874 Dr. Coues collected the lake or streamline chub, mountain whitefish, lake trout, cutthroat trout, northern pike, and long-nosed suckers among others from Waterton Lake and vicinity as reported by Jordan (1878a:779-799).

FIGURE Ia - Views of Waterton Ranger Station.



Top View : Ranger Bob Paul at Creel Census Box in July 1960.
Bottom View: Looking North on Waterton Lake toward Canada.

The only other reference we know of to Waterton Lake is Elrod (1912:7-9) who shows a photograph of the lake from the ranger station and gives the following brief description of the lake as he found it some fifty years ago:

> "Waterton Lake is at the northern end of the park, half in the United States and half in Canada. This lake has been given different names. On the first maps of the district it is called Chief Mountain Lake; on some of the later maps it is called Kootenai Lake, which is also the name given by some of the residents.
>
> "This lake is easily approachable by road from the Canadian end. From Lake McDonald it is reached by trail, the distance being about 33 miles. It is 10 or 12 miles long and has an average width of perhaps half a mile. Its altitude is 4,166 feet. Soundings were made on this lake on August 17, 1910. The temperature of the air at the same time was 62.5°F. Sounding was made 200 feet east of the rocky ledge on the west shore, about 2 miles from the upper end. The depth was 210 feet. Another sounding, made approximately the same distance from the upper end and about halfway across, gave a depth of 317 feet. These were the only two soundings made on this lake. The temperature of the water at 8:30 p.m. of August 9, 1911, was 52°F., the air temperature being then 47°F. Most of the water from Waterton Lake is received from Little Kootenai Creek."

Park Service records indicate 49,000 cutthroat fry were planted in Waterton Lake in 1940.

A1. Cameron Lake: About one-half mile of the shoreline of the southern tip of Cameron Lake lies within the borders of Waterton Area of Glacier National Park. We have no interest in this isolated bit of water from a fishery management standpoint as it is inaccessible from the U. S. side. In Canada, Cameron Lake is about 1-3/4 miles long by 1/2 mile wide, with about 500 surface acres at 5,445 elevation, and is easily accessible by hard-top road from Waterton Park village. The fishing season for Cameron Lake and Creek is open from June 1 to September 1 and there is a fairly intense fishery for Eastern Brook (warmly referred to as "Speckled Trout" by the Canadians) in the entire Cameron Creek drainage. Brooks (1921) states that Cameron Lake was stocked with rainbow trout and supports no other variety. As there is no fishing in these waters by Americans there is no problem at present.

Park Service records indicate the following fish were stocked in Cameron Lake:

1921	34,000	Rb	1924	18,000	Rb
1922	14,000	Rb	1927	8,000	EB
1922	6,000	RB			

A2. Boundary Creek: According to Brooks (1921) there is an impassable falls (over 40 feet high) about one mile above its outlet; this stream and all of its tributaries have torrential flows; and there are not many fish in the drainage; mostly migratory species from Waterton Lake, like whitefish (referred to locally as "penos"); grayling, and cutthroats (referred to locally as "native" trout). Schultz (1941:40) lists eastern brooks as present and cutthroats as having been introduced into Boundary Creek. Kinnie (1960) states the stream is 3-1/4 miles by trail from the Ranger Station and has poor Eastern Brook fishing. Ranger Paul knew of only 12 anglers who fished the stream in 1960. As there appear to be very few, if any, fish present with very little fishing pressure or public demand for improved fishing it is recommended that it be left as a "barren" stream with the recommendation that a survey be made of the whole Boundary Creek Drainage at some future period to ascertain just what kind of water and aquatic life this creek and its north lakes contain.

Park Service records show that cutthroat eggs and fry were stocked in Boundary Creek from 1935 through 1940. We have no evidence that any of these fish stocks survived to reproduce successfully.

1922	142,500	Ct eggs
1935	20,000	Ct fry (1")
1936	18,000	Ct "
1939	20,880	Ct "
1940	10,120	Ct "

The North Lakes of Boundary Creek

Name	Surface Acres	Miles Shoreline	Elev.	Fish	Fishing
Lake Nooney	80	1.6	5,950	Unknown	None
Lake Wurdeman	120	1.9	5,750	"	"
Unnamed Lake	35	0.7	6,510	"	"
Carcajou Lake	50	1.5	5,950	"	"
Wahseya Lake	25	0.5	6,950	"	"

The above five lakes, known collectively as the "North Lakes", are practically inaccessible to anglers, and the National Park Service has no record of having planted any fish in these lakes. Although park records show golden trout were planted in Lake Wurdeman, they actually died enroute according to Kinnie (1960). Brooks (1921) recommended stocking Nooney, Wurdeman, Valentine Creek, and the lakes at the head of Little Kootenai Creek (Nasukin Lakes) with black-spotted trout.

According to Park Service records, Lake Wurdeman was stocked with 21,000 golden trout eggs in 1928 and 44,800 golden trout eggs in 1929. To date

there is no evidence of any survival of or reproduction from these stocks of fish.

There are likewise no available records of any fishing or fish caught from any of the waters. They are all close to the 6,000-foot elevation and would be expected to be very cold waters. They are among the few primitive lakes in the Park that have never been disturbed by human hands, and probably should be left in their natural condition for future scientific study.

Unnamed lakes near Waterton Lake.

A3 - A small lake, of about 2 surface acres and 0.1 miles of shoreline at 7,000-foot elevation on Campbell Mountain, is a shallow, cold, and barren lake whose outlet (1-1/2 miles long) of intermittent flow drops precipitously into Waterton Lake. An inaccessible, barren lake and stream with no fishing potential.

A4 - Two small unnamed lakes below Shaheeya Peak have, a) 20 surface acres, 0.7 miles of shoreline at 6,250 feet, and b) 5 acres, 0.2 miles and 6,200-foot elevations respectively. Both lakes lie in the one square mile meadow of a cirque whose outlet (3 miles long) has an intermittent flow and precipitous drop before emptying into the southern end of Waterton Lake. Another inaccessible, barren stream and lake with no indicated fishery potential.

A-5 - Street Creek (about 4 miles long) has its headwaters in Goat Haunt Lake and empties into the Northeast shore of Waterton Lake. Brooks (1921) states "fish from Waterton Lake go up this stream for a short distance during spawning time". No other records on fish or fishing are available. Ranger Paul believed no anglers fished it in 1960.

Table 1 - An Outline of the Waters of the Waterton Management Area.

Legend:

STREAMS:-
A- Total Length in Miles
B- Est. of Fishable Miles
C- Est. average width in feet

LAKES:-
A- Est. Surface Acres
B- Est. Miles of Shoreline
C- Est. Maximum Depth

FISHING DATA:-
A- Est. No. Man-days in 1960
B- Est. Quality Index
C- Sport Species Present

	LAKES A	LAKES B	LAKES C	Elevation	STREAMS A	STREAMS B	STREAMS C	FISHING Data A	FISHING Data B	FISHING Data C	Comments
WATERTON LAKE DRAINAGE											
A. Waterton Lake (in U.S.)	1000	8.0	350	4200				310	?	EB Rb Ct LT NP Li MWh LWh	census and survey
1. Cameron Lake (in U.S.) and Creek	15	0.5	-	5450	(In Canada)			0	?	EB	" " "
2. Boundary Cr.				5000	5	3	30	25	P	EB	" " "
a. Lake Mooney	80	1.6		5950				0		none	Inaccessible
b. Lake Wurdeman.	120	1.9		5750				0		"	"
c. Unnamed Lake	35	0.7		6500				0		"	"
d. Carcajou Lake	50	1.5		5950				0		"	"
e. Wahsega Lake	25	0.5		6950				0		"	"
3. Campbell Mt. Lake and Creek	2	0.1		7000	1.5	0	-5	0		"	too small, too i
4. Shakeega Lakes (2) & Creek	5 20	0.2 0.7		6200 6250	3.	0	-5	0 0		"	" Inaccessible
5. Street Creek				5000	4.	0	10	0		"	too steep
a. Goat Haunt Lake	25	0.8		6250						"	Inaccessible
WATERTON RIVER DRAINAGE											
B. Waterton River (Little Kootenai Creek)				4500	11.	8.	100	80	P	Rb EB LT	Census and Survey
1. Oleon Creek				5000	7.	3.	30	5	?(P)	"	" " "
a. Lake Janet	50	1.5	10	4950				5	?(P)	"	" " "
b. Lake Francis	80	1.6	75	5250				90	Ex	Rb EB Ct	" " "
c. Unnamed Lakes (3) and Creek	20 3 3	0.7 0.1 0.1		6800 6800 6000	1.5 1.2	0 0	-5 -5	0 0		none "	too small, too co " " "
d. Unnamed Creek											
e. Unnamed Lake and Creek	15	0.5		5150	1.5	0	-5	0		"	" " "
2. Kootenai Lakes (6) with	60 30	2.0 0.8		4500 4350	1.0 1.0	0 0	-5 -5	80 40	F F	EB EB	Census and survey " " "
4 unnamed tribs.	15 10 5 5	0.5 0.3 0.1 0.1		"	1.0 1.0 1.0	0 0 0	-5 -5 -5	0 0 0		? none none	" " " too small too small
3. Valentine Creek				4800	7.	4.	25	0	?	?	census and survey
a. Unnamed Tributaries (16)				5000	16.	0.	-5	0		none	too small, toost
b. South Fork				5500	4	2	10	0		?	Inaccessible
aa. Redhorn Lake	45	1.3		6150				0		none	"
bb. Unnamed Ponds (2)	2 5	0.1 0.2		6250 5550				0 0		"	too small " "
4. Unnamed Trib. (from Kootenai Pk)				6000	1	0	-5	0		"	" " ; too st
5. Bench Lake and Creek				6250	1.5	0	6	0		"	" " " "
a. Bench Lake	40	1.0		6450				0		"	Inaccessible
b. Unnamed Pond	4	0.2		6350				0		"	"
6.* (West Fork)				4600	*(4)	*(3)	20	0	?	?	
a. Unnamed Tributaries (9)				4900	9	0	-5	0		none	too small, stee
b. Unnamed Lakes (2)	5 5	0.2 0.2		5250 5750				0		"	" "
c. Nahsukin Lake	40	1.0		5350				0		"	Inaccessible
d. Unnamed Lakes (2)	10 20	0.3 0.7		6050				0 0		"	"
7. Unnamed Trib. (Kootenai Pass)				6000	3.	0.5	8	0		"	too steep
8. " " (Wahchiechee Mt.)				6000	1.5	0	-5	0		"	" "
9. Pass Creek				5500	2.	0	-5	0		"	" "
a. Stoney Indian Lake	12	0.5		6650				0	?	?	survey
10. Unnamed Tribs. (2)				5000	3.5	0	-5	0		none	too steep
11. Camp Creek				5000	3.	0.5	8	0		"	" "

* Name forged as matter of convenience - figures in ( ) included in Waterton River - WMM

REVIEW OF THE INDIVIDUAL WATERS OF THE WATERTON RIVER DRAINAGE SYSTEM
(EXCLUSIVE OF WATERTON LAKE)

Detailed descriptions of the various waters in the Waterton River portion of the Waterton Management Area are presented below in their order from the mouth - up the left bank and down the right bank of the river.

B. Waterton River: The Waterton River has its headwaters in Nahsukin Lakes about 11 miles south of Waterton Lake. Just above its confluence with Olson Creek, which enters on the right bank about 3/4 of a mile above the Lake, the river falls about 200 feet in one mile. In this general area Brooks (1921) states there is an impassable falls (over 40 feet high) which prevents any further upstream migration of fish from Waterton Lake. Above this area the stream flows through a fairly flat valley which drops only 400 feet in 8 miles. This is designated as Waterton Valley on most maps. For convenience in this report we would like to consider the upper four miles of the Waterton River that enter from the Southwest above the forks at the end of the trail as the "West Fork" of the River. This fork drains the Nahsukin Lakes.

Brooks (1921) states, "Little Kootenai Creek (now known as Waterton River) and its unnamed lakes: Eastern brooks were stocked by Canadians several years ago, and to the best of my knowledge there are no other varities present in these waters." Schultz (1941:40) indicates rainbow and eastern brooks were present in Kootenai Creek. Kinne (1960:31) states: "A trail, which starts at the Waterton Ranger Station, follows up the Waterton River for about 8 miles. The fishing is fair to good from the Ranger Station to the Kootenai Lakes. It is generally good to excellent from the Kootenai Lakes to about 1/2 mile upstream from the end of the Waterton River Trail for Cutthroat and Eastern Brook".

The following creel census was recorded from Kootenai or Waterton River in 1960.

Waterton River

	Census Date	Home State	No. in Party	Hours Fished	No Fish	Species	Size Distribution of the Catch 4-6	7-9	10-12	13-15	16-18	19"	Total Catch	Comments
	6/8/60	Calif	1	1	0	LT					2		2	Lures.
	7/6/60	Man.	4	8	4								0	Tried everything
	7/11/60	Alta.	1	3	0	Rb			5	5			10	
	7/17/60	Alta	4	2	4								0	Lures
	7/23/60	Mont	1	1	0	Rb		1		1			4	all fish were caught below the falls.
						FB		1						
						DV					(20") 1			
Totals	5 days		11	15	8 (73%)	Rb		1	5	6			12	Ave length of fish = 13"
						FB		1				1	1	Ave. Hrs per AD = 1.4
						DV							1	Ave Catch per Hr = 1.6
						LT					2		2	Ave Catch per Day = 2.2
							—	2	5	6	2	1	16	Quality Index = 28.6 (Poor)

Although these data are very meager, they indicate that 80% of the anglers were probably Canadians and that most of these anglers must have been fishing below the falls. The 20-inch Dolly Varden reported caught on July 23 was probably a Mackinaw or lake charr that had moved in from the lake. Eight, or 75% of the 11 anglers reporting caught no fish. This could indicate very slow fishing were it not for the fact that none of these anglers tried very hard. The average number of hours fished per day was only 1.4, the average catch per angler-hour was 1.6 fish averaging 13 inches long - both of which were good. However, the quality index (13 x 2.2 or 28.6) was poor.

Ranger Paul estimated 40 anglers may have fished the Waterton River in 1960.

No remedial action seems to be called for at the present time on the Waterton River, but more creel census and a management study of these waters are needed badly.

Park Service Records indicate the following fish have been stocked in Waterton River:

1920	45,000	Rb	1935	49,000	Ct
1922	24,000	EB	1936	63,000	Ct
1924	8,400	EB	1936	1,370	EB
1925	6,000	EB	1939	2,500	Ct
1927	19,000	EB	1940	16,560	Ct
1928	14,400	EB	1941	4,465	EB
1929	8,000	EB	1943	16,350	Ct

Hazzard 1934 recommended 16,350 Ct and 1,350 EB annually.

B1 - Olson Creek: Olson Creek Valley is about 7 miles long and contains Lakes Janet and Francis. Elrod (1912:9-11) published photographs and gave very helpful and pleasing descriptions of Olson Creek, Lake Janet, and Lake Francis as they appeared some fifty years ago. On Olson Creek he states, "Just before Little Kootenai Creek enters the lake it receives the waters of Olson Creek, which comes in from the west. The trail leads up this creek and over Brown Pass to the lakes and streams of the western slope, which drain into the Flathead River. The trail by Olson Creek and over Brown Pass traverses one of the picturesque portions of the park, and will doubtless be visited by many tourists. This will be especially true of those coming in from the Canadian side".

Brooks (1921) states there is an impassable falls (over 40 ft. high) below Lake Janet and about 2 miles upstream from the Creek's confluence with the Waterton River, and not much spawning area below the falls area for migratory salmonids from Waterton Lake. He states further that Janet and Francis Lakes were stocked with rainbow trout in 1920 and 1921 as no other species were known to exist in these waters. The stream is accessible along its entire length by a trail.

Park Service records show that 13,000 Rb were stocked in Olson Creek in 1922.

No creel census or other information is available on fish or fishing in Olson Creek. Ranger Paul knew of only 2 anglers who fished the creek in 1960. It is thereby assumed that practically no fishing takes place in the creek, and that no remedial measures are called for in the water at this writing.

B1-a. - Lake Janet: Lake Janet covers about 50 surface acres and has about 1.5 miles of shoreline at 4,950-foot elevation. Elrod (1912:9) states:

> "On Olson Creek, 3-1/2 miles above Waterton Lake, is a small lake that is unnamed. It is in a beautiful location, in the very heart of magnificent mountains. The altitude is about 5,000 feet. The shore is open and easily accessible.
>
> "This lake is fed by streams, heading in the snowbanks of near-by mountains. It is without fish. On Olson Creek, between this lake and Waterton Lake, are numerous falls, up which fish are not able to ascend. The lake is not deep, being only 5 feet at the upper end and 10 feet at the lower. It is situated in a mountain pocket, and has been made by a mass of glacier boulders. This mass extends for a mile or more down the creek, forming a series of falls and cascades, over which the water dashes with great noise.
>
> "The temperature of this lake at 5:00 p.m. on August 11, 1911, was 52°F. in the center and 54°F. near the shore. The air temperature at the same time was 59°F. This and other temperature here given were taken about 6 inches below the surface.
>
> "From observations made by the use of the surface net and the dredge and from the character of the shore line it would seem apparent that fish could do well in this lake. While it may freeze over, and doubtless does freeze over in winter, it would surely not freeze to the bottom, and fish should live during the winter as in any other lake.
>
> "There is in it a considerable abundance and variety of microscopic life. One species of water snail is found in considerable abundance. The larvae of numbers of insects were abundant. The streams which supply the water doubtless carry into it considerable quantities of insect life.
>
> "As the northern shore of the lake is open, it is a favorite camping site. Should the lake be stocked with fish, it would make the region doubly interesting to tourists. Furthermore, the fish could easily ascend the streams to a distance of several miles."

Schultz (1941:40) lists rainbow trout as having been planted in Lake Janet but records no other species present. Kinne (1960:31) says:

> "About 3 miles and a climb of 800 feet from the Ranger Station on the Boulder Pass Trail. It is brushy on the south side of the lake, mostly open on the north. The best fishing is near the lower end, where there are many boulders in the lake."

Park Service records indicate the following fish have been stocked in Lake Janet:

1921	38,000	Rb
1924	18,000	Rb
1926	42,000	Rb

We have received no creel census from Lake Janet, and Ranger Paul knew of no anglers who had fished the lake in 1960. The paucity of data from this lake seems to indicate a very poor fishery - if, in fact, any exists. This lake needs a management study to determine if it would be worthwhile to stock it in the future. In the meantime any creel census data that could be obtained would be very helpful toward indicating what we should do about this beautiful little lake.

B1-b. - Lake Francis: Lake Francis has about 80 surface acres; estimated maximum depth of 75 feet and 1.6 miles of shoreline at 5,250-foot elevation. It is about 6 miles, and a climb of 1,100 feet above the Ranger Station. The north shore is easy to fish. The south shore is difficult to fish because of high banks. There are no barriers to fish between Lake Francis and Janet according to Elrod (1912:11) who states:

> "This lake is some 5 or 6 miles from Waterton Lake, and lies at the foot of tremendous cliffs, in a charming spot, close to the trail. Its altitude is about 5,250 feet. It is fed by two streams. One comes from the Glacier above, falls over the cliffs, 1,100 feet high, by seven streams, and presents a most charming picture. The other brings the water from the eastern slope of the Continental Divide at Brown Pass, several miles farther up the trail. This lake is connected with the lake last described by Olson Creek. Fish placed in either lake could easily pass, in a short time, to the other.
>
> "Soundings show the lake to be 75 feet deep in the middle, with a depth of 30 feet at the upper end. Apparently it is shaped like a big bowl. It is oval, perhaps a mile in length and not quite as wide. Its surface area is probably a little more than that of lake last described. Its temperature at 2:00 p.m. on August 12, 1911, was 53°F., the air temperature at the same time being 67°F. The lake contains considerable quantities of microscopic life, and is a fine haven for fish in winter. Without doubt they would do well if the lake were stocked. Moreover, they could ascend the inlet of the lake that brings the water from Brown Pass.
>
> "The same remarks that were made concerning insect life for the lake last described will apply for this lake. It would seem to me to be highly desirable to have fish placed in either or both of these beautiful bodies of water. If placed in one they would soon be in the other."

Brooks (1921) was quoted under Olson Creek. Schultz (1941:40) found only rainbow trout in Lake Francis and states they had been introduced there. Kinne (1960:30-31) states:

> "About 6 miles and a climb of 1,100 feet from the Waterton Ranger Station, on the Boulder Pass Trail. The north shore is easy to fish because of high banks; the south shore is not. Generally good to excellent large rainbow fishing."

Park Service Records indicate that 18,000 Rb were stocked in Lake Francis in 1921

The following creel census data were collected from Lake Francis in 1959 and 1960:

Lake Francis

	Census Dates	Home State	No. in Party	Hours Fishd	No Fish	Species	Size Distribution of the Catch 4-6	7-9	10-12	13-15	16-18	19?	Total Catch	Comments
	8/4/59	Mont	2	2	1	Ct		1					1	
	8/5/59	Alta	2	10	0	Rb		2	2				4	Lures and Spoons
	7/31/60	Alta	2	12	0	Rb				10	10		20	
	8/7/60	"	2	12	0	EB(?)			14		6		20	Lure + flatfish
	8/8/60	"	6	48	0	Rb		2	10	20	10		42	flatfish
	8/10/60	"	2	16	0	Rb			2	6	2		10	worms
	9/3/60	"	4	25	3	Ct(?)				1	3		4	Lures
Totals	7days		20	125	4 (20%)	Rb		4	14	36	22		76 82	Ave L. of fish = 13.9" Hrs per Day = 6.0
						Ct(?)		1		1	3		5	Ave Catch per hr = 0.81 per Day = 4.8
						EB(?)			14		6		20	
								5	28	37	31		101 109	Quality Index = 66.7 (Excellent)

From the above census data, meager as it is, it would appear that 90% of the anglers are Canadians, and that they catch large rainbows primarily. The fishery is supported by the natural reproduction of the designated trout species, all of which originated from stocked fish. Four, or 20% of the twenty anglers censused, caught no fish which is fairly low. The average number of hours fished per day was 6.0 which is very high but possible when considering the fair abundance (4.8 fish per man day) of large fish (they averaged 13.9" long). The quality index 13.9 x 4.8 or 66.7 is considered excellent fishing. Ranger Bob Paul estimated 45 man-days as the probable magnitude of the fishing effort on Lake Francis in 1960. From the creel census data collected we have doubled that figure in Table 2. We have no evidence of the introduction of eastern brooks or cutthroats into the Olson Creek drainage and we are therefore dubious of their presence as indicated.

If the above assumptions are correct, it appears that what this lake needs most at present is more fishing pressure. A basic fishery management survey would help to establish just what species of fish are actually present; in what proportions; and the approximate rate of recruitment of younger year classes of trout and charr.

Bl-c - Unnamed Creek and 3 lakes: At the foot of a glacier at the western end of Porcupine Ridge is a 20-acre lake of about 3 acres at 6,550 elevation and a third of about 6 acres at 6,450 elevation. The outlet creek is about 1-1/2 miles long and drops down the mountain side to enter the right bank of Olson Creek about 1/2 mile below Lake Francis.

Bl-d - Unnamed Creek: Drops precipitously for 1-1/4 miles from a glacier on the east of Porcupine Ridge to enter the right bank of Olson Creek.

Bl-e - Unnamed Creek and one Lake: This creek is 1-1/2 miles long and has a 15-acre lake about 1/2 way down the mountain (est. elev. 5,150.)

It is estimated that the total area of these lakes would not exceed 40 surface acres or the combined shorelines exceed one mile. These lakes are all too small, too remote, probably too cold and shallow to provide any fishing. They all have precipitous outlets. They should be explored, however, by air or by foot, if and when a future fishery management study can ever be set in motion - to evaluate their contribution of water and aquatic life to the Olson Creek Drainage System.

page 2

Date	Home	Man Hours	No.	Species	4-6	7-9	10-12	13-15	16-18	19+	Comments – Bait used	Ave.	Species Distribution of Catch	[illegible]
1959											[illegible] ✓			1959
[illegible]	[illegible]	5	20	2	EB		3	5	2		[illegible]		10	
7/22	"	3	23	0	EB		7		1		[illegible]?		[illegible]	
	"	11	77	8	2 EB	2		17	3		"excellent fishing place"		20	
7/25	"	3	56	0	EB			43					43	
7/27	"	13	91	4	EB			37					37	
9/9	Alta	5	40	0	EB		1	20	6		worms		29	
9/16	Mont	2	10	0	EB		5	2	2		fishing [illegible]		9	
9/19	"	6	36	2	Rb(?)		4	12	2		[illegible] fishing worms		18 Rbw	
9/20	"	8	64	0	Ct(?)		7	10	6		worms lures		23 Ctw	
9/21	Alta	2	15	0	EB		4	8	4				16	
9/2[illegible]	"	2	6	0	Rb(?)			5	8			[illegible]	13 Rbw	[illegible]
[illegible] Census Days	Mont 16 Alta 37	70	453	16 (4%)	2 EB	2	20	137	18	2			177	Ave. of [illegible]
					CT		7	10	6				23	
					Rb		4	17	10					Quality Index 36.7
						2	31	164	34	2		11.1"	31	
1960											[illegible] ✓			1960
6/24	Alta	2	10	0	EB			4		3	Good Condition! Lures		12	
6/25	"	2	8	2	–			water too high!			flies & lures		0	
7/2	"	4	28	3	"				1		Lake still too high " " "		1	
7/[illegible]	"	3	18	0	"			6	6		Very Good Fishing! Lures & worms		12	
7/[illegible]	"	2	3	2	–						lures		0	
	"	1	2	1	–						flies		0	
	"	3	20	0	"			5	9	3	lures – [illegible]		17	
	"	1	3	1	–						lures		0	
7/21	"	8	48	3	"			20	3		worms		23	
7/2[illegible]	"	2	12	1	"			4			[illegible] flies		4	
	"	3	9	3	–						All kinds of lures		0	
8/1	"	2	12	1	Rb(?) (EB)				2				2	
8/3	"	3	18	0	Rb(?) (EB)			8			flatfish		8	
8/[illegible]	"	4	16	0	EB			14	9		flies		23	
8/8	Mont	2	6	1	"		3				spoons		3	
8/11	Alta	3	3	1	"			3			[illegible]		3	
8/11	"	11	60	6	"	5	10	14	3		flies & lures		32	
	Mont	1	1	0	"			4			[illegible]		4	
8/20	"	2	8	0	"		5	9		1	flies & lures		15	
	Alta	2	8	2	–						" " "		0	
[illegible]	Mont	4	24	0	"			20			flies & worms		20 (from [illegible])	
9/9	Alta	2	10	0	"		2	4			worms		6 [illegible]	
16 Census Days	Mont 4 Alta 53	67	327	27 (8%)	EB	5	20	120	33	7		11.3	185	155 [illegible]

Ave Catch/AD = [illegible] Quality Index = [illegible]

B-2 - The Kootenai Lakes: The six Kootenai Lakes, ranging in size from 5 to 60 surface acres (combined total about 125 acres), lie in the lower part of the Waterton Valley at an altitude of approximately 4,350 feet. They are easily accessible by a good trail that follows the right bank of the Waterton River from the Ranger Station to Stoney Indian Pass or to Fifty Mountain Camp. Practically all of the fishing takes place in the two largest lakes usually referred to as Kootenai Lake #1 (60 acres) and #2 (30 acres) which are located on the main stem of the Waterton River.

Brooks 91921) states:

> "Little Kootenai Creek and its unnamed lake were stocked with Brook trout by Canadians several years ago, and to my knowledge there are no other varieties in these waters."

Schultz and his students (1941:40) found only eastern brook charrs present in Lake #1. Kinne (1960:31) states:

> "This is a group of two lakes on the Waterton River, located 2-1/2 miles and climb of 200 feet from the Ranger Station on the Waterton Valley Trail. These lakes are brushy early in the season, when the water is high. Generally good to excellent, large Eastern Brook fishing."

Excellent creel census results were obtained from Kootenai Lake in 1959 and in 1960 (See attached Table 2, Page 2). Ranger Paul estimated about 80 man-days of fishing took place on these lakes in 1960. From the creel census collected in 1960 (by estimating one zero day for each one reported) we arrive at a possible estimate of 160. This is not a significant difference for our particular purpose and we propose to use 120 angler-days as a probable indication of the actual total fishing pressure for the season.

The creel census shows, 1) that 80% of the anglers who fish the Kootenai Lake come from Alberta and the remaining 20% from Montana; 2) that over 90% of the anglers who fished caught fish. It is believed that all the fish caught were eastern brook charrs which are the result of natural reproduction although they were introduced into the watershed forty years ago. It is possible that some rainbows or cutthroats may be present, but it is doubtful - and will remain so pending further evidence to the contrary. The brooks caught ranged from 6 to 18 inches long, and averaged 11.2 inches long which is a good average size for brooks. Flies and worms seemed to take the most fish. A total of 137 anglers interviewed had fished 780 hours (averaging 5.7 hours per angler day) to capture 416 fish for an average catch of 0.53 fish per hour or 3 fish per man-day which is "slow" fishing. The quality index of 33 indicates a "fair" quality of fishing. The slowness is somewhat compensated for by the good average size of the fish caught.

The Park Service has no records of any fish ever having been stocked in the Kootenai Lakes. However, both eastern brooks and cutthroats were stocked in the Waterton River (which flows through one of the lakes) in 1941 and 1943. These plants should have supplemented existing stocks of eastern brooks in Kootenai Lakes. Nothing is known of the fate of the cutthroats stocked in 1943, except that some of them survived in Valentine Creek.

Unless the present fishing pressure increases significantly, no immediate remedial measures appear necessary. It is urgent that the present voluntary creel census be continued to permit an annual evaluation of this - the major fishery (in point of magnitude) in this area - second only to the fishery on Waterton Lake. A fishery management survey should be made of these lakes to determine their physical and biological features and fishery potential. If fishing intensity increases, or the quality of fishing gets poor in the immediate future, supplementary stocking with rainbow fingerling should be considered - probably by air.

B-3 - Valentine Creek: Valentine Creek is about 7 miles long with its tributaries and headwaters rising mainly from glaciers. The major tributary is the South Fork which is 4 miles long and drains Redhorn Lake. Seventeen tributaries (B3-a) from one to three miles long are shown on the map to be contributing cold glacial water to Valentine Creek. We have no creel census or record of anyone fishing in this valley. According to Kinne (1960:31) this stream can only be reached by a difficult hike cross-country from the Waterton Valley trail to the Valentine Creek Canyon mouth - where with some luck an old, very poor trail can be found going up Valentine Creek. Years ago this stream was considered to have some of the best cutthroat fishing in the Park. Due to the drop in the number of hikers during World War II and the subsequent disuse of the Valentine Creek Trail, few people fish it now. There is no particular reason to believe that the quality of the fishing has changed.

Park Service Records show that 2,400 and 3,220 cutthroat fry were stocked in Valentine Creek in 1935 and 1940 respectively.

This stream should be surveyed as a possible source of eggs of the native strain of cutthroat that have become acclimated to east-side waters which are needed badly for restocking other east-side waters. There is no fishery here at present - and probably will not be in the future unless a good trail is built to it. If it does have a good population of native strain cutthroats, and no other exotic species, perhaps it should be preserved as a source of supply to build up east-side streams with a possible native wild strain of trout as requested by the present superintendent.

B-3-a - South Fork (described above).

B-3-b - aa - Redhorn Lake: Redhorn Lake of about 45 surface acres, 1.3 miles of shoreline and elevation 6,650 feet is too high, too remote, and too cold for fishing. No fish have ever been stocked and nothing is known of its aquatic life. This and the two lakes mentioned below are barren lakes and should be left in their natural condition for future scientific studies.

B-3-b - bb - Two Unnamed Ponds: One is a mere pond of an acre or so and drains into Redhorn Lake. The other is located in a cirque near the junction of the South Fork and Valentine Creeks. It has no outlet and covers perhaps 5 surface acres.

B-4 - Unnamed Tributary of Waterton River about 1 mile long, is a series of falls.

B-5 - Bench Lake Creek is a 1-1/8 mile-long series of falls to Waterton River.

B-5-a - Bench Lake: About 40 surface acres and 1.0 miles of shoreline at 6,450 foot elevation is a barren lake in which no fish have ever been stocked and none are known to exist. It should be left in its natural condition for future studies.

B-5-b - An unnamed pond of about 4 surface acres at 6,350 elevation is of no importance as a fish lake.

B-6 - The West Fork of Watertnn River is about 4 miles long; no trail; of low gradient (100 feet in lower 3 miles); has nine small unnamed tributaries from 1/2 to 1-1/2 miles long of unknown status as far as fish are cnncerned. Nothing is known of the fish populations of this fork of the river.

B-6-a - Unnamed Tributaries (9) mentioned above.

B-6-b - Two Unnamed Lakes below Nahuskin of 5 acres each at 5,250 elevation.

B-6-c - Nahsukin Lake: About 40 acres and 1 mile of shoreline at 5,550 elevation is a barren lake which has never been studied or stocked - to be left for future scientific studies.

B-6-d - Two Unnamed Lakes above Nahsukin of 10 and 20 acres at 6,050 elevation are also barren lakes which have never been stocked or studied - to be left for future scientific studies.

B-7 - Unnamed Tributary or East Fork of Waterton River: 3 miles long from Kootenai Pass area. Waterton Valley trail ends at its forks and the headwaters may be reached by trail to Fifty Mountain Camp or over mountain trail to Ahern Pass. No fishing as streams are too steep.

B-8 - Unnamed Tributary: 1-1/2 miles long from Wahcheecha Mountain - too steep for fish.

B-9 - Pass Creek: 2 miles long from Stoney Indian Lake to Waterton River. It has a good trail along its entire course from Waterton Valley trail to Stoney Indian Pass - no fish - too steep.

B-9-a - Stoney Indian Lake: 12 surface acres and 0.5 miles of shoreline at 6,650 elevation. Kinne (1960) states; "8.5 miles and a climb of 2,500 feet from the Waterton Ranger Station. There are a few large cutthroat in this lake, but fishing is generally very poor." No census records are available for 1960. As this lake is accessible by trail, it should be looked into for future fishery potential.

B-10 - Unnamed Tributaries (2): From Stoney Indian Peaks empty into Waterton River below Kootenai Lake. First one is 2-1/2 miles long and second one is 1 mile long - no fish - too steep.

B-11 - Camp Creek is 3-1/2 miles long and empties into Waterton River just above its mouth in the lake. No references on fish or fishing are available and we assume that neither occur in this little creek.

Table 2 - Summary of Lakes and their use by Fishermen in the Waterton Area 1959-1960.

	Non-fishable Surface Acres	Fishable Surface Acres	Fishable Estimated Man-days	1960-1961
A. Large Lakes (over 500 surface acres)		1,000	310*	15
1. Waterton Lake (within G.N.P.)				155-200
B. Medium Lakes (50 to 500 surface acres)				
1. Carcajou	50			0 0
2. Francis		80	90	45 80
3. Janet		50	5	0 1
4. Kootenai #1		60	80	
5. Nooney	80			0 0
6. Wurdeman	120			0 0
	250	190	175	
C. Small Lakes (10 to 49 surface acres)				
1. Bench	40			0 0
2. Cameron	15			
3. Goat Haunt	25			0 0
4. Kootenai #2		30	40	
5. Kootenai #3	15			80 80
6. Kootenai #4	10			
7. Nahsukin	40			0 0
8. Redhorn	45			
9. Shaheeya #1	20			0 0
10. Stoney Indian Lake		12	5	0 0
11. Unnamed A-b-3	35			
12. Unnamed B-a-3	20			
13. Unnamed B-a-5	15			
14. Unnamed B-d-3#1	20			
15. Unnamed B-d-4 #2	10			
16. Wahseya	25			0 0
17 Nancy	335	42	45	
	10			0 0
D. Ponds and Potholes (less than 10 surface acres)				
11 listed in outline	43			
Totals . . . . .(30)	628	(6) 1,232	530	

*Includes fishing at Boundary Creek and Waterton River mouths.

Table 3 - Summary of Streams and their use by Fishermen in Waterton Area 1959-1960.

	Non-fishable Total Length	Fishable Total Length	Fishable Miles	Estimated Man-days		
						1960-1961
A. Large Streams or Rivers (estimated width of lower streambed over 100 feet; or over 25 mi. long).						
1. Waterton River		11	7	80	40	30
B. Medium Streams or Creeks (estimated width 15 to 100 feet; or over 5 miles long.)						
1. Boundary Creek		7	5	25	12	12
2. Olson Creek		7	5	5	2	1
3. Valentine Creek	7					
C. Small Streams or Brooks (estimated width less than 15 feet and length less than 5 miles).						
27 including Street, South Fork, Valentine Bench, Pass and Camp Creeks and 22 other unnamed tributaries.						
	42					

Total Miles	Total Mi. Fishable	A.D.
(28) 49	(3) 25 74	17 110

FISHERY MANAGEMENT RECOMMENDATIONS FOR THE WATERTON MANAGEMENT AREA

1) Fishable Waters under Joint Management with Canada:

a) Cameron Lake - Although the very tip of this lake is in Glacier Park it is inaccessible from the U. S. side, and therefore presents no management problem to date.

b) Waterton Lake - The lower half of Waterton Lake is in Glacier National Park. This is the largest and most accessible body of fishable water in the area, and receives the greatest fishing effort. At present the fishing pressure is very low, and no fishery problem exists to the best of our knowledge.

More creel census is needed from the Lake - none has been available as yet. It is suggested that the lower parts of Boundary Creek, Street Creek and Waterton River, Olson Creek and Camp Creek below their impassable falls be included in the Waterton Lake Creel census area as the fish caught in these waters will frequently be species that have moved in from the lake. Indications are that fishing is only "fair" on this water.

c) Coordinated Program Needed - As the above-named waters are shared by Canada and the United States, and as over 80% of the fishing effort in the entire management area is conducted by Canadian anglers, it is recommended that our fishery management biologists be authorized to contact the Canadian fishery management biologists to discuss and prepare a joint fishery management program for those bodies of water that occur in both Parks.

2) Fishable Waters Entirely Within Glacier National Park:

a) Streams - There is practically no sport fishery at present on any of the upland streams in the Waterton Management Area. What little fishing exists in these moving waters seems to be of poor quality. Most of the stream fishing in this area takes place at present below the falls area of the streams entering Waterton Lake. As good trails parallel Boundary, Olson and Waterton Creeks, making them readily accessible to anglers, the need for a fishery management survey of the fish and fishing of these streams is indicated to determine their fishery potentials and suggest remedial measures that might render them more enjoyable to the average visitor. Although stream fishing is generally poor, there seems to be no immediate demand for any stream management improvements at this writing.

However, one idea that might be worth developing in the unforeseeable future (which would be in line with Park Policy on fishing) is that

a suitable fish passage facility provided at the falls in the lower part of Waterton River would make that entire drainage available as a natural spawning and rearing habitat for migratory salmonids from Waterton Lake. This could result in a great natural improvement in fishing in both Waterton Lake and River.

b) Lakes - Suggestions are offered for the following lakes:

1. Kootenai Lakes - The two largest lakes in the group support the largest sport fishery in the area - next to Waterton Lake. Creel census indicates an average catch of three 11-inch eastern brooks per angler day which is considered "fair" fishing. As these lakes are easily accessible, the pressure will probably increase, and the fishing could be greatly improved by the supplementary stocking with about 25,000 rainbow fingerlings every other year by air drop. A fishery management survey should be made before stocking. Overnight camping facilities should be provided.

2. Lake Francis supports the third largest sport fishery in the area and creel census the past two years indicates an average catch of five 14-inch rainbow trout per angler day which is considered "excellent" trout fishing. The only remedial action indicated here is more fishermen and more creel census. There is a possible question of recruitment - as 95% of the reported fish caught were over 10 inches long. A fishery management survey is needed to ascertain if the present high quality of fishing can be sustained, or if we have only older-year-class fish present in the lake.

3. Janet Lake seems to have "poor" fishing at present and needs a fishery management survey to determine remedial action as the lake is easily accessible and should provide better fishing.

4. Stoney Indian Lake is a small lake along one of the principle park trails that joins the Waterton Valley Trail at Pass Creek. This small twelve-acre lake has "poor" fishing and should be subjected to a fishery management survey for remedial recommendations for future fishery potential for the benefit of hikers using the trail.

3) Non-fishable Waters Entirely Within Glacier National Park.

The remaining waters not listed above are at present inaccessible, or accessible only with difficulty; have never been stocked with exotic species; are in their primitive native state; and should be left undisturbed for future scientific reference and studies. We are especially interested in some of these waters as possibly containing some of the last remnants of a "pure" native cutthroat trout stock indigenous to the eastern slope that we may have in the Park. If studies of the North Lakes and other "barren" lakes in the area indicate no fish present, it is recommended that no fish be considered for introduction into them.

This is in line with Hazzard's first recommendation (1935:8) that:

> "Lakes and streams off the trails and to which no trails are contemplated should be kept in their original state (whether barren of fish life or naturally stocked) in order to retain such waters for scientific study. It may well be that the presence of such virgin waters will be of considerable practical value in furnishing a picture of plant and animal communities which are undisturbed by the presence of fish life. Waters which have never been planted from hatcheries will soon be few in this country so that naturally stocked streams and lakes (of which there are still some in Glacier Park) will be of value for study and comparison with other waters."

Research projects are needed to establish what aquatic organisms (and in what quantities) were endemic to these waters before trout were introduced into them as a yardstick for evaluating the "natural" productivity of these waters.

We also support and reiterate another recommendation by Hazzard (1935:2) when he wrote:

> "A great number of lakes, particularly on the east side of the Park were or at present are lacking in fish life because falls or other barriers to fish migration have prevented the natural movement of fish into these waters. The stocking of such waters with the fish best adapted in order to add to the pleasure and appreciation of visitors might be considered as necessary as the trails which

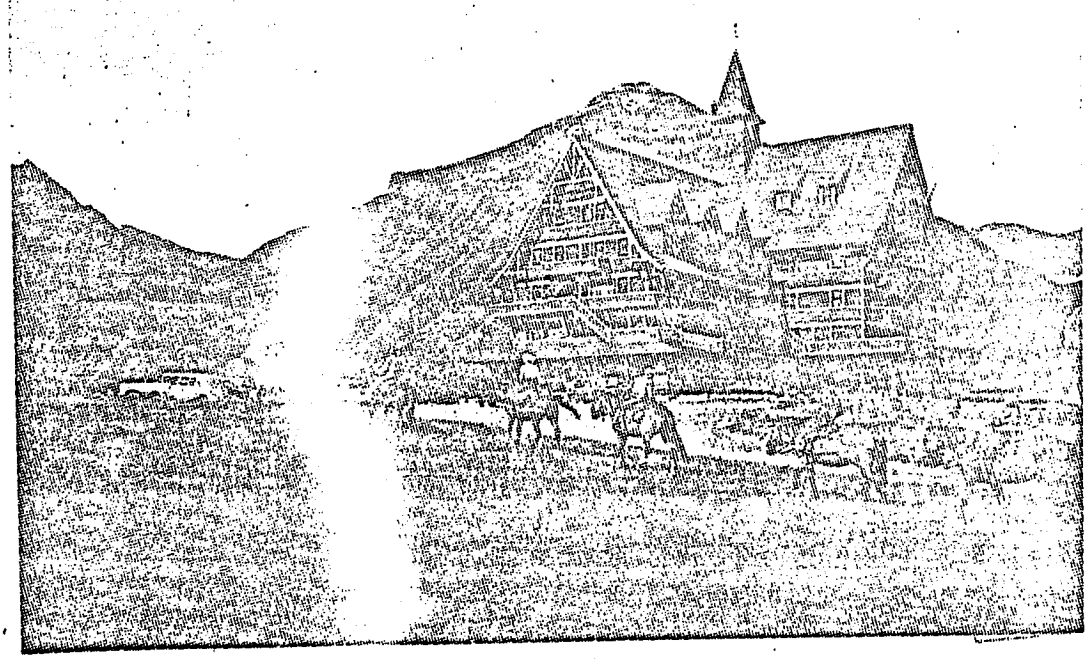
enable the visitors to reach them. A number of these, particularly in the Belly River and Waterton drainages are along rather heavily traveled trails and we believe should be planted at the earliest opportunity."

4) Dr. Hazzard's (1935) recommendations for stocking waters in the Waterton River Drainage are reproduced here for the record and for ready reference.

WATERTON RIVER DRAINAGE

Stream or Lake	Section to be stocked	Species	Size	Number	Frequency
Waterton L	U. S. portion	Cutthroat	1-1/2	36,000	Annual
Waterton R.	Waterton Lakes to Kootenai	Cutthroat	1-1/2	16,350	Annual
Waterton R.	From Kootenai lakes up two miles	E. Brook	3	1,350	Annual
Boundary Cr.	Lower 2 mi.	Cutthroat	1-1/2	6,670	Annual
Tributaries to Boundary Cr.	All too torrential	No stocking recommended			
Nooney L.		California Golden Trout	eyed eggs	25,000	Exper.plant
Wurdeman L.		California Golden Trout	eyed eggs	25,000	Exper.plant
Kootenai L #1	Natural spawning adequate				
Kootenai L.	Natural spawning adequate				
Camp Cr.	Gradient too steep for stocking				
Olsen Cr.	L. Francis to L. Janet	Impermanent	No Stocking		
Janet L.		Impermanent	No Stocking		
Francis L.	Natural spawning adequate				
Valentine Cr.	Lower 3 mi.	Cutthroat	1-1/2	2,800	Annual
Indian Pass L.	---	California Golden T.	1-1/2	8,000	Experimental

APPENDIX I - A REVIEW OF FISHERY DATA OBTAINED ON THE WATERS OF WATERTON LAKES NATIONAL PARK IN CANADA IN 1961.



PRINCE OF WALES HOTEL ON WATERTON LAKE

The following information and the attached map were obtained from the Canadian National Park Service headquarters at Waterton Park, Alberta during July of 1961:

"The Waterton Park Fish Hatchery is located 700 yards N.W. of the Registration Office on the #6 highway. Rearing Ponds operated in conjunction with the Hatchery are located 200 yards S.E. of Cameron Falls in Waterton Park Townsite. Visitors welcome, when staff is on duty, at both locations." The following bag limits are in effect:

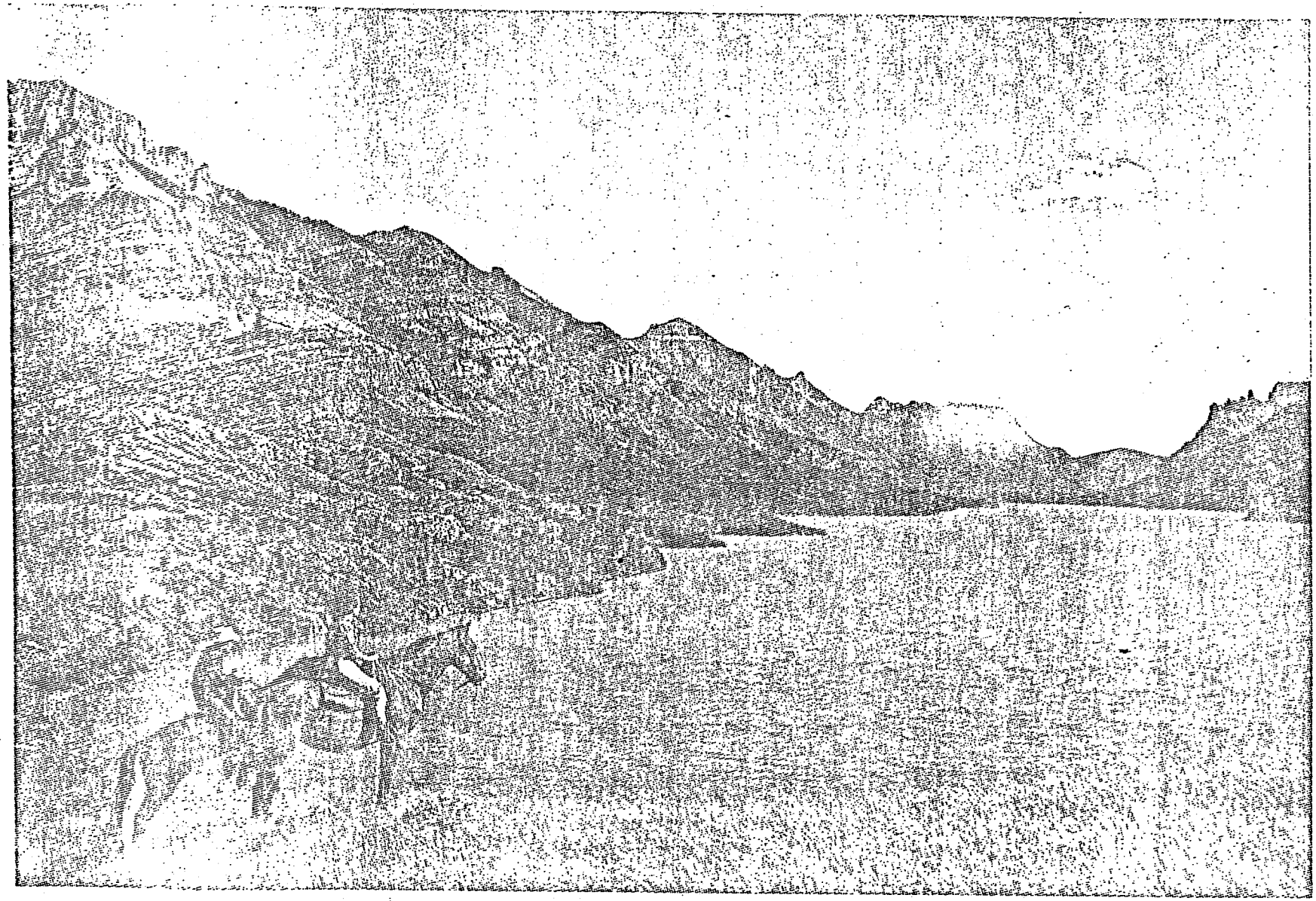
Cameron and Linnet Lakes - All species 5 per day.

Lake Trout and Northern Pike - 5 fish per day.

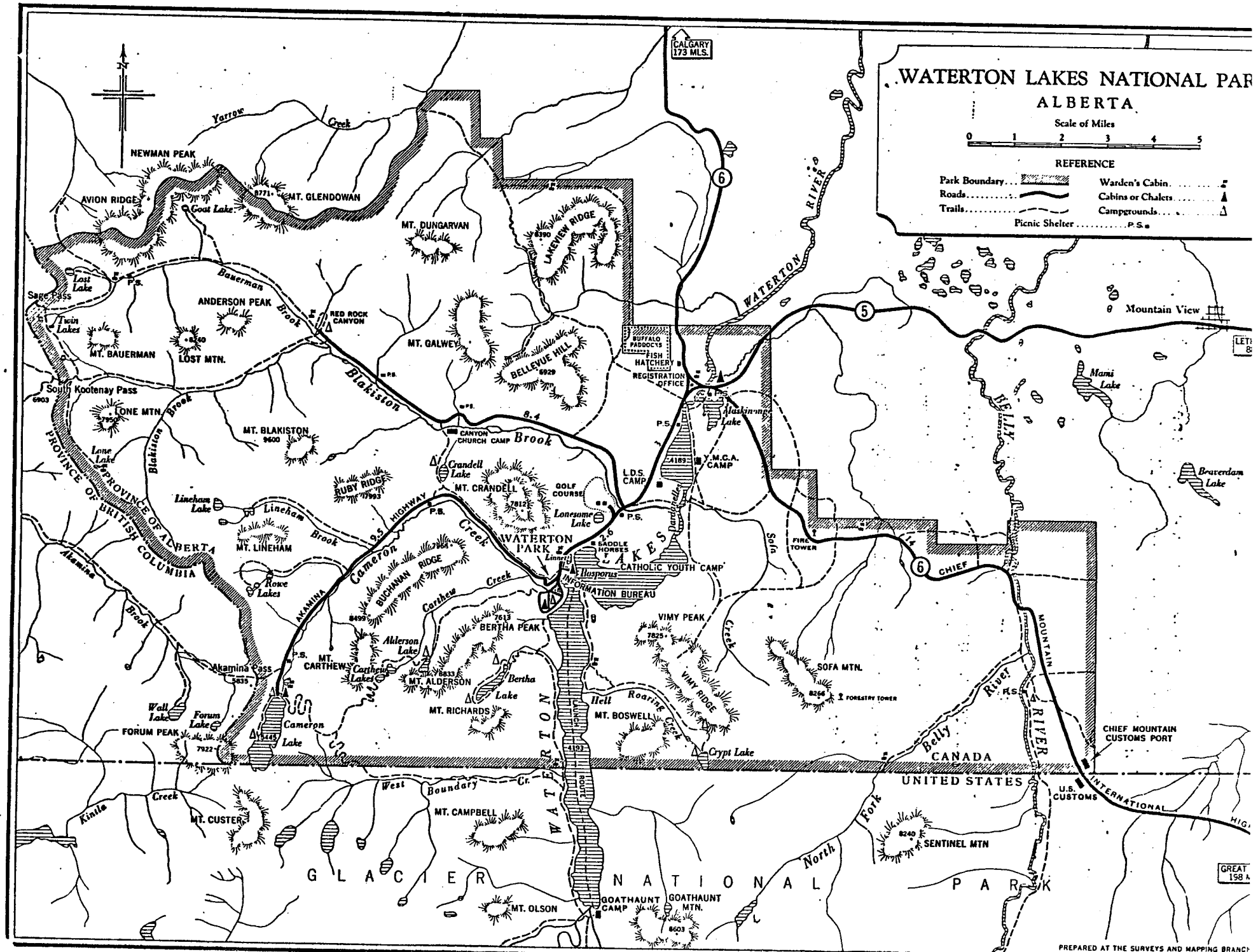
All other species and lakes - 10 fish per day.

Power boats permitted only on the Waterton Lakes Chain.

(s) Denotes picnic shelter at lake.



WATERTON LAKE FROM PRINCE OF WALES HOTEL


WATERTON LAKES NATIONAL PAR
ALBERTA
Scale of Miles
0 1 2 3 4 5
REFERENCE
Park Boundary
Roads
Trails
Picnic Shelter P.S.
Warden's Cabin
Cabins or Chalets
Campgrounds
CALGARY 173 MLS.
Yarrow Creek
NEWMAN PEAK
AVION RIDGE
Goat Lake
MT. GLENDOWAN
MT. DUNGARVAN
LAKEVIEW RIDGE
WATERTON RIVER
Mountain View
Last Lake
Sage Pass
Bauerman Brook
ANDERSON PEAK
RED ROCK CANYON
Twin Lakes
MT. BAUERMAN
LOST MTN.
MT. GALWEY
BELLEVUE HILL
BUFFALO PADDOCKS
FISH HATCHERY
REGISTRATION OFFICE
Mami Lake
South Kootenay Pass
LONE MTN.
Blakiston Brook
MT. BLAKISTON
Lone Lake
CANYON CHURCH CAMP
Brook
Crandell Lake
MT. CRANDELL
GOLF COURSE
L.D.S. CAMP
Y.M.C.A. CAMP
Maskinonge Lake
Beaverdam Lake
PROVINCE OF BRITISH COLUMBIA
PROVINCE OF ALBERTA
Lineham Lake
Lineham Brook
MT. LINEHAM
RUBY RIDGE
HIGHWAY 95
Lonesome Lake
WATERTON PARK
LAKES
SADDLE HORSES
CATHOLIC YOUTH CAMP
Bosporus
INFORMATION BUREAU
FIRE TOWER
CHIEF
Akamina
Rowe Lakes
Cameron Creek
BUCHANAN RIDGE
Carthew Creek
VIMY PEAK
BERTHA PEAK
Alderson Lake
MT. CARTHEW
Carthew Lakes
MT. ALDERSON
Bertha Lake
SOFA MTN.
FORESTRY TOWER
VIMY RIDGE
Akamina Pass
MT. RICHARDS
MT. BOSWELL
Hell Roaring Creek
Crypt Lake
Wall Lake
Forum Lake
FORUM PEAK
Cameron Lake
CHIEF MOUNTAIN CUSTOMS PORT
CANADA
UNITED STATES
U.S. CUSTOMS
INTERNATIONAL
Kintla Creek
West Boundary Cr.
MT. CUSTER
MT. CAMPBELL
WATERTON
ROUTE
SENTINEL MTN
North Fork
GLACIER NATIONAL PARK
MT. OLSON
GOATHAUNT CAMP
GOATHAUNT MTN.
PREPARED AT THE SURVEYS AND MAPPING BRANCH

LONESOME LAKE(4,380 feet) June 15 to September 30, - RAINBOW and EASTERN BROOK. Situated southwest of the Golf Course. Can be reached from the road leading to the Golf Course. This lake has restricted fishing, because it is used as an egg collection station and rearing pond. Fishing is prohibited on the west shore. Signs designating the closed area are posted. No boats allowed on the lake.

LINEHAM LAKES(7,000 feet) June 15 to September 30, - CUTTHROAT TROUT. Three lakes 10 to 20 acres; 2 small lakes. Lakes have not been sounded but appear to be of considerable depth. Source of Lineham Creek and reached from the Akamina (Cameron Lake) road by trail of about 4 miles. The last 2 miles are difficult as a steep cliff has to be climbed, making it hazardous for anyone not an experienced climber.

UPPER ROWE LAKES(7,100 feet) June 15 to September 30. Two lakes, of 8 and 20 acres respectively. The upper and larger of these two lakes is two shallow to support a population of fish. The lower lake has been stocked with Eastern Brook trout since 1952, and up to the present, they have survived the winters. These lakes are reached by hiking one mile beyond the turn-off to the Lower Rowe lake. On reaching the head of the valley, cross the creek on the South side and take the trail up the mountain, travelling in the opposite direction from which you came.

WATERTON LAKES(4,190 feet) May 15 to September 30, - RAINBOW, CUTTHROAT, LAKE AND EASTERN BROOK TROUT, ROCKY MOUNTAIN WHITEFISH. Three lakes easily accessible. Upper and middle lakes provide best angling, either trolling or fly casting from boat or shore. Upper lake area 3.7 square miles, length 7 miles, width one-half mile, average depth over 300 feet. Middle lake maximum depth 84 feet, area 1.8 square miles. Boats usually available.

MASKINONGE LAKE(4,185 feet) May 1st to October 31st., NORTHERN PIKE. ... approximately 200 acres.

FISHING INFORMATION BULLETIN
WATERTON LAKES NATIONAL PARK

ALDERSON LAKE(6.000 feet) June 15 to September 30 - CUTTHROAT TROUT. Five miles southwest of the townsite by trail, starting at Cameron Falls. Can be reached by saddle horse or on foot in less than 2 hours. Area approximately 50 acres, maximum depth 175 feet (s) Shoreline favourable for angling with fly.

BERTHA LAKE(5,000 feet) June 15 to September 30, - RAINBOW TROUT. Four miles southwest of the townsite over a picturesque though fairly steep trail. Length 1 mile depth 160 feet at the south end, and 45 feet at the north. The fish in this lake will challenge the skill of the best angler. Shoreline favourable for fly casting. Picnic shelters at both ends of lake.

CARTHEW LAKES(7,100 feet) June 15 to September 30, - CUTTHROAT TROUT. Three miles beyond Alderson Lake. Lower lake comprises 30 acres, maximum depth 37 feet. Upper lake similar, one-half mile farther along the trail and a little higher than the first lake. Both have shorelines suitable for fly casting. Also accessible by trail, 6 miles from Cameron Lake over Carthew Summit, passing Summit Lake along the way. After reaching the Carthew Summit, it is an easy hike down to the Waterton Townsite via Carthew and Alderson Lakes, down hill all the way. Eight miles from Lower Lake to townsite.

CAMERON LAKE(5,445 feet) June 1st to September 30th, - RAINBOW; and EASTERN BROOK TROUT. Ten miles from townsite by auto road. Area 400 acres, length 1½ miles, maximum depth 112 feet, mean depth 60 feet. Boats usually available. (s)

CRYPT LAKE(6,500 feet) June 15 to September 30, - CUTTHROAT TROUT. Southeast from the townsite at the head of the valley of Hell Roaring Creek in a small crater-like basin. Maximum depth 145 feet, average depth more than 100 feet. Five miles by trail from main Waterton Lake if the latter is crossed by boat, and roughly 7 miles from the town where it can be reached by swimming the horses across the Bosporus. Area 45 acres. Good angling with fly. (s)

The Waterton Park Fish Hatchery is located 700 yards N.W. of the Registration Office on the #6 highway. Rearing Ponds operated in conjunction with the Hatchery are located 200 yards S.E. of Cameron Falls in Waterton Park Townsite. Visitors are welcome, when staff are on duty, at both locations.

BAG LIMIT

Cameron and Linnet Lakes - All species 5 per day

Lake Trout and Northern Pike - 5 fish per day

All other species and lakes - 10 fish per day

Power boats permitted only on the Waterton Lakes chain.

(s) Denotes picnic shelter at lake.

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BE CAREFUL WITH FIRE

PLEASE HELP US KEEP THE PARK CLEAN AND FREE FROM LITTER