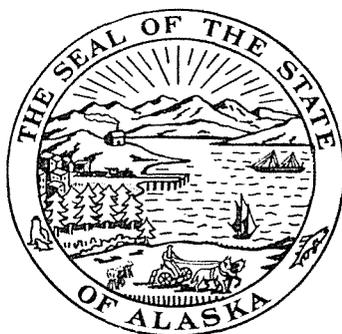


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STATE OF ALASKA

William A. Egan, Governor



ANNUAL REPORT OF PROGRESS, 1969 - 1970

FEDERAL AID IN FISH RESTORATION PROJECT F-9-2

SPORT FISH INVESTIGATIONS OF ALASKA

ALASKA DEPARTMENT OF FISH AND GAME

Wallace H. Noerenberg, Commissioner

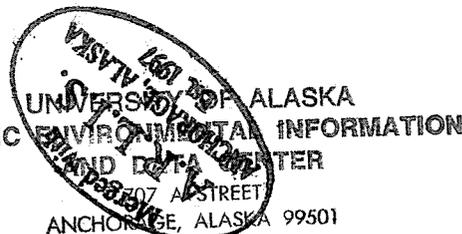
Alaska DIVISION OF SPORT FISH

Rupert E. Andrews, Director

Howard E. Metsker, Coordinator

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INTRODUCTION

This report of progress consists of Job Segment Reports from the State of Alaska, Federal Aid In Fish Restoration, Project F-9-2, "Sport Fish Investigations of Alaska".

The studies reported herein are investigations evaluating the sport fish resources of the state. Recreational and other impacts on the fishery resources necessitates a continuous endeavor of ascertaining facts and knowledge of the fisheries. The 24 jobs reported on are of a continuing nature. The investigations are composed of 11 projects involved with the inventory and cataloging of the sport fish waters of the state, sport fishery creel censuses, and access. Fish species that received special investigational effort include: Dolly Varden, anadromous fish, grayling, sheefish, whitefish, pike, char, and salmon. The information gathered from the combined studies provides necessary background data for a better understanding of management problems and constitutes a basis for necessary future investigations.

The subject matter contained in these reports is incomplete, and the findings and interpretations subject to re-evaluation as work progresses.

RESEARCH PROJECT SEGMENT

State: Alaska

Project No.: F-9-2 *Name:* Sport Fish Investigations of Alaska.

Job No.: 15-A *Title:* Inventory and Cataloging of the Sport
Fish and Sport Fish Waters in Interior
Alaska.

Period Covered: July 1, 1969 to June 30, 1970.

ABSTRACT

A large segment of this report is a result of the efforts of Rex Thomas, who carried out the lake surveys and test-netting operations and assisted in the stocking program. Rex was subsequently lost, along with Peter Winslow, while performing investigations on the Beaufort Sea.

Surveys were conducted on ten lakes and nine streams in the Interior. Primary emphasis was placed on those waters located in the Broad Pass area, the new Anchorage-Fairbanks Highway and the Denali Highway.

Dissolved oxygen determinations were made on 41 lakes, 16 of which were previously stocked.

Fish were stocked in 11 lakes and ponds as part of a continuing management program.

Test netting was carried out on 20 lakes to determine age and growth, species composition and relationships, and success of fish stocking practices. Special emphasis was placed on Harding Lake.

A limited creel census was performed on Birch and Little Harding lakes.

The burbot, Lota lota, population of Harding Lake was sampled to determine the population structure and angling potential.

RECOMMENDATIONS

1. Continue inventory and cataloging of interior Alaskan waters with emphasis on newly accessible waters as present road systems are extended.
2. Conduct surveys on waters now utilized by fly-in anglers, especially Ptarmigan, Beaver, and California lakes on the north slope of the Wrangell Mountains and Healy, George, Robinson, and Sand lakes located off the Alaska Highway.
3. Perform initial surveys on waters adjacent to the Taylor and Alaska highways from the Canadian Border to the Tok area.
4. Continue the annual test netting of stocked lakes to provide information on population dynamics, age and growth, interspecies relationships, and fish stocking practices.

5. The access staff should survey trail systems to provide permanent access to the off-road lakes.
6. Build barriers to fish movement in the outlets of Little Harding and Deadman lakes.
7. Make an evaluation of survival and growth of silver salmon, Oncorhynchus kisutch, planted in Harding Lake, as well as survival, growth, and reproductive success of the lake trout, Salvelinus namaycush, plants in this lake.

OBJECTIVES

1. To assess the environmental characteristics and fish species composition of the waters of the job area and, where practicable, obtain estimates of existing or potential angler use and sport fish harvest.
2. To investigate remote area waters; determine fish species composition, quality of angling, accessibility, and value in distributing angler effort over a wider area to offer desired protection of individual fish stocks.
3. To evaluate present stocking practice and assess fish survival, growth, and interspecies relationships.
4. To evaluate application of fishery restoration measures and availability of sport fish egg sources.
5. To evaluate the success of adult, fry, and fingerling transplants in establishing a lake trout fishery in Harding Lake.
6. To assist as required in the investigations of public access to the area's fishing waters.
7. To evaluate multiple-use, water development projects (public and private) and their effects on the area's streams and lakes for the proper protection of the sport fish resources.

TECHNIQUES USED

Graduated mesh monofilament gill nets, 125' x 6', with five mesh sizes ranging from 1/2" - 2 1/2" bar measure were used to sample fish populations. Test angling was also conducted.

Age determination methods included the use of scale and otolith characteristics. Scales were either mounted between glass slides or impressed upon cellulose acetate. The small scales were read most effectively between slides. All scales were aged using the Bausch and Lomb microprojector. Otoliths were polished on the convex surface and boiled 10 - 15 minutes in a supersaturated solution of salt. The hyaline rings were distinguishable under a 16 power dissecting scope when placed on a black background and using reflected light. Cedarwood oil or xylene were used as clearing agents.

Lakes and streams were physically surveyed and pertinent data was recorded on cards now on file in the Fairbanks office.

FINDINGS

Lake and Stream Surveys

Preliminary and subsequent surveys were conducted on ten lakes and nine streams. Four lakes and two streams adjacent to the new Anchorage-Fairbanks Highway in Broad Pass, four lakes and seven streams adjacent

to the Denali Highway, one lake adjacent to Highway 3 near Nenana, one lake adjacent to the Richardson Highway, and one fly-in lake near Tolovana were investigated.

Table 1 shows locations of waters surveyed; Figure 1 depicts the Broad Pass lake and stream system.

TABLE 1 Lakes and Streams Surveyed in Interior Alaska, 1969-1970.

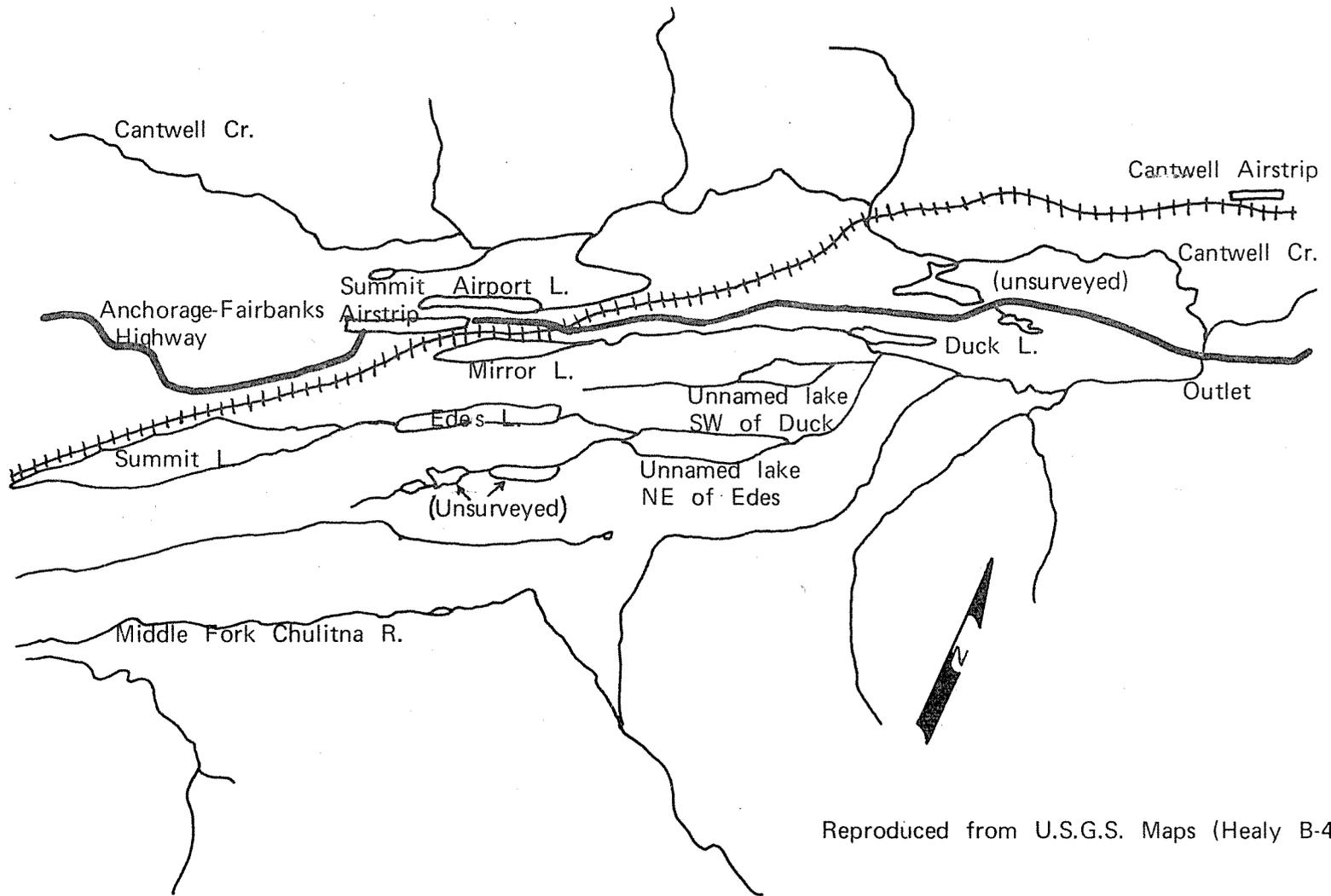
<u>Name</u>	<u>Location</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Quadrangle</u>
LAKES:				
Canyon Creek	Richardson Hwy.	64°18'N	146°31'W	Big Delta B-6
Deadman	Tolovana	64°51'N	149°58'W	Fairbanks D-6
Duck	Broad Pass	63°22'N	149°01'W	Healy B-5
Edes	Broad Pass	63°19'N	149°05'W	Healy B-5
Mirror	Broad Pass	63°02'N	149°06'W	Healy B-5
Nenana Pond	Route 3	64°32'N	149°07'W	Fairbanks C-5
Stixkwan	Denali Hwy.	63°16'N	148°09'W	Healy B-3
Summit	Broad Pass	63°18'N	149°09'W	Healy B-5
Unnamed (SW of Duck Lake)	Broad Pass	63°21'N	149°02'W	Healy B-5
Unnamed (NE of Edes Lake)	Broad Pass	63°20'N	149°02'W	Healy B-5
STREAMS:				
Brushkana	Denali Hwy.	63°17'N	148°04'W	Healy B-3
Cantwell	Broad Pass	63°23'N	148°57'W	Healy B-4
Canyon	Denali Hwy.	63°15'N	147°48'W	Healy B-2
Carlo	Denali Hwy.	63°34'N	148°49'W	Healy C-4
Fish	Denali Hwy.	63°23'N	148°47'W	Healy B-4
Jack River	Denali Hwy.	63°25'N	148°53'W	Healy B-4
Seattle	Denali Hwy.	63°19'N	148°15'W	Healy B-3
Slime	Denali Hwy.	63°30'N	148°49'W	Healy C-4
Unnamed Creek (Broad Pass Lakes Outlet)	Broad Pass	63°22'N	148°58'W	Healy B-4

Canyon Creek Lake:

This lake is located 200 yards north of the Richardson Highway at Mile 304 and has an area of 2.5 acres. It is reported to have a summer fishery of northern pike, Esox lucius. The maximum depth is 3.5 feet; therefore, it has no overwintering capacity. Indications are that the lake serves as a spawning area for pike. Canyon Creek, originating 2/3 mile northwest, flows through the lake and enters the Tanana River two miles to the southeast.

Deadman Lake:

Situated four miles west of Tolovana, it is a 512-acre lake accessible either by sled road or float plane. The fishing history is unknown, but test netting revealed northern pike and humpback whitefish, Coregonus lavaretus pidschian, populations. The lake lies in a valley 3 - 4 miles wide with 700' - 1,500' hills to the



Reproduced from U.S.G.S. Maps (Healy B-4&5)

FIGURE 1 BROAD PASS LAKE AND STREAM SYSTEM BETWEEN HEALY AND SUMMIT.

southeast and northwest, respectively. The water is clear; the maximum depth of the lake is unknown.

Duck Lake:

This is a 35-acre lake located 1/4-mile south of the future Anchorage-Fairbanks Highway in Broad Pass. The maximum depth is five feet; the water is clear. The fishing history is unknown; however, a grayling, Thymallus arcticus, fishery is in existence. An extensive network of streams connects Duck Lake with other lakes of the pass.

Edes Lake:

Located 2/3-mile southeast of Summit in Broad Pass, this lake is a 115-acre body of water utilized by Summit and Cantwell residents for its grayling fishery. The maximum depth is approximately eight feet and the water is clear. A 1/4-mile stream draining Summit Lake, which is 25 feet higher, flows into Edes. The waters of Edes Lake drain through the stream and lake system and eventually enter the Nenana River. A test net set for 22.5 hours captured seven grayling and five whitefish, Coregonus sp. (see Table 4).

Mirror Lake:

Situated immediately east of the Summit airstrip, this lake contains 80 acres and has a depth of 35 feet. The water is clear and it has populations of lake trout, grayling, burbot, whitefish, and slimy sculpin, Cottus cognatus. Summit Lake drains into the lake via a two-mile stream and in turn Mirror Lake flows into Duck Lake two miles to the northeast.

Nenana Pond:

A seven-acre gravel pit, this pit lies 1/2-mile west of the F.A.A. station, 1.1 miles south of Nenana on Route 3. The maximum depth is 15 feet. The resident species are unknown; but the pond appears to have potential for rehabilitation. In the past, the pond has been used for ice skating and picnicking.

Stixkwan Lake:

A shallow, 180-acre lake, this lake is located three miles south of the Denali Highway at Mile 105.9. The maximum depth is seven feet, and the water is clear. Emergent vegetation is reportedly seasonally continuous. The fishing history is unknown; however, a grayling population is present. The lake is accessible by a Bureau of Land Management trail. The Stixkwan Creek connects the lake to the Nenana River four miles north.

Summit Lake:

Situated at the apex of Broad Pass, the lake lies equidistant to the tributaries of the Susitna and Yukon rivers drainages. It is accessible from the future Anchorage-Fairbanks Highway at a point 10.1 miles southwest of Cantwell Junction. A clear-water lake, it has a surface area of 400 acres and a maximum depth of 34 feet. Populations of lake trout, grayling, burbot, humpback whitefish, round whitefish, C. prosopium cylindraceum, and sculpin are present.

A test net set for 40.5 hours produced 71 whitefish and 4 lake trout. It is reported that 5 - 8 pound

lake trout are commonly taken. Summit Lake is the headwaters of the Broad Pass lake and stream system.

Unnamed Lake Southwest of Duck Lake:

Located 1/2-mile south of the highway and five miles southwest of Cantwell, this is an 80-acre lake. The maximum depth is 14 feet, and the water is clear. Test netting over a 58-hour period yielded ten grayling. The fishing history is unknown.

Unnamed Lake Northeast of Edes Lake:

This lake contains 120 surface acres and is located two miles east of the Summit airstrip. The maximum depth is 17 feet, and the water is clear. A grayling population is present. In 41 net-hours, 18 grayling were captured.

Brushkana Creek:

A tributary of the Nenana River, this creek crosses the Denali Highway at Mile 104.5. The flow in early July was estimated to be 270 cfs. The width was 80 feet and had a depth of eight inches. The water had a slight green tinge; pools were abundant. This stream is well known for its fine grayling fishing. At a point three miles upstream from the bridge, 20 grayling, ranging in fork length from 30.5 - 35.5 cm, were caught.

Canyon Creek:

A small, clear stream, this creek crosses the Denali Highway at Mile 94.7. It has an average width of eight feet and an average depth of one foot. Water discharge in early July was 25 cfs. Pools were small but frequent, as the waters flowed through boulders of various sizes. The angling is said to be good for small grayling. This creek drains a myriad of small lakes and potholes, eventually emptying into the Nenana River.

Carlo Creek:

Lying opposite Mt. McKinley National Park, this stream crosses the Denali Highway at Mile 148.4 and enters the Nenana River 1/4 mile west of the roadway. It is a beautiful, clear, turbulent stream. On July 3, at a point immediately below the highway, it averaged 30 feet in width and 11 inches in depth. Carlo Creek Lodge is immediately adjacent to the highway. Fishing is reputedly good in the spring and fall, as the grayling school in the mouth of the creek. The creek flow was approximately 90 cfs.

Fish Creek:

This creek is a tributary of the Jack and Nenana rivers and crosses the Denali Highway at Mile 128.1. In early July the water was green and transparent. The stream, at a point below the highway bridge, was 20 feet across and had a depth of 2.5 feet. The flow was approximately 150 cfs. Mud-bottomed pools were abundant and evenly spaced. Fishing is said to be excellent for small grayling. In 45 minutes, ten grayling ranging from 14.2 - 26.5 cm in fork length were caught by angling.

Seattle Creek:

This is a small brook that drains the north slope of the Alaska Range near the Monahan Flats and empties into the Nenana River. The creek crosses the Denali Highway at Mile 110.9. At the time of survey, the creek was 12 feet wide and averaged 4 inches in depth. The flow rate was estimated to be 16 cfs. Angling is excellent and the aesthetic value high. Test fishing below the bridge produced ten grayling of 24.2 - 31.0 cm fork length.

Slime Creek:

This is a stream with little summer angling potential. The Denali Highway crosses it at Mile 142.5. On July 3, it was 11 feet wide and 3.5 inches deep at this point. The discharge was approximated to be 15 cfs. Pools were small and riffles abundant. The bottom was gravel and vegetation was lacking. No grayling were observed or caught, although fishing is reported to be fair in the fall. The headwaters are adjacent to those of Carlo Creek.

Unnamed Creek (Broad Pass Lakes Outlet):

This stream drains the Broad Pass Lake system into Cantwell Creek, as illustrated in Figure 1. It runs through a culvert on the Anchorage-Fairbanks Highway 2.5 miles south of Cantwell Junction. At this location in early July, it had an average width of 18 feet, a depth of 6 inches, and a flow of 18 cfs. A high algal content was observed. The pools were large and had mixed gravel-mud bottoms. The fishing history is unknown; no grayling were seen or caught. This creek has little aesthetic value.

Winter Dissolved Oxygen

Dissolved oxygen determinations were made on 41 lakes and ponds. Samples were taken from 16 waters previously stocked, including 13 lakes planted with silver salmon and rainbow trout, Salmo gairdneri; and three lakes planted with sheefish, Stenodus leucichthys nelma, sheefish X Arctic cisco, Coregonus autumnalis, hybrids, and sheefish X humpback whitefish hybrids, as reported under the sheefish investigation segment (Report No. 17-B). Also analyzed were 17 new waters and 8 waters previously investigated were sampled. Table 2 shows the results of these efforts.

Fish Stocking

During the reporting period, 11 lakes and ponds in the Interior were stocked with silver salmon or rainbow trout as part of the continuing management program. Table 3 summarizes these introductions.

Fish Stocking Evaluations

During the months of May, June, and July, 20 lakes were test gill netted. Of the lakes netted, 14 were previously stocked with either rainbow trout, silver salmon, or sheefish. The remaining six lakes were initially surveyed.

Harding Lake was extensively netted for lake trout with negative results. Nets were fished for a total of 205 net-hours with results as indicated in Table 4. The majority of the sets were in water less than 12 feet deep; however, three sets of 23-hour average duration were placed in 30 - 40 feet of water.

TABLE 2 Lakes Tested for Dissolved Oxygen, Interior Alaska, 1969-1970.

<u>Name</u>	<u>Date</u>	<u>Sample Depth (feet)</u>	<u>ppm Oxygen</u>	<u>Ice Depth (Inches)</u>	<u>Snow Depth (Inches)</u>
Bolio - 10 MI. SW OF DELTA JCT.	2/5/70	5	9.0	40	5
		8	6.5		
	3/5/70	3	9.5	39	0
		10	7.0		
Canyon Creek (Rich. Hwy.)	2/5/70	No free water		30	5
Chena - SLOUGH? FROM PILE DRIVER SL.	2/18/70	3	1.0	25	14
Craig - TANANA & JOHANSA R. 2.8 MI. W.	3/5/70	3	7.5	22	10
		15	6.5		
Donna ?	3/4/70	3	10.5	37	0
		10	11.5		
Dot L.	3/2/70	3	0.0	37	8
East 19-Mile Pit (Route 3)	1/26/70	2	0.5	23	4
	3/12/70	3	0.0	26	6
East Twin 40 MI. E. OF BIZESHIMI MTS.	2/11/70	Sur.	11.0	27	6
		Sur.	9.0	42	3
		42	0.0		
	3/17/70	4	9.0	48	3-12
Eight-Mile 9 MI. NW OF HEALY	3/13/70	4	8.0	48	0
Four-Mile* INTO CHENA R.	2/27/70	Sur.	6.0	23	11
		3	6.0		
		7	4.5		
		10	2.5		
		13	1.5		
George 30 MI. SE OF DELTA JCT.	3/6/70	4.5	12.5	47	0
Harding	3/14/70	4.5	8.0	47	0
		32	7.0		
		62	7.0		
Island ? 3 in area	2/24/70	3	5.5	33	9
Jan 21 MI. NW OF TANACROSS	3/4/70	3	5.0	25	12
		10	6.0		
		19	5.0		
Lisa NE. JOHANSA-TANANA CONFLUENCE	3/4/70	4	10.5	40	2
		13	8.5		

TABLE 2 (Cont) Lakes Tested for Dissolved Oxygen, Interior Alaska, 1969-1970.

<u>Name</u>	<u>Date</u>	<u>Sample Depth (feet)</u>	<u>ppm Oxygen</u>	<u>Ice Depth (Inches)</u>	<u>Snow Depth (Inches)</u>
Little Donna ?	3/4/70	4 16	8.0 6.5	40	0
Little Salcha Gravel Pit ?	4/16/69	3 7	4.0 Trace	40	4
Lost (Near Quartz Lake) ^{4 MI. N. OF BIG DELTA}	2/6/70	3.5	1.0	40	5
Lost (Chisholm Lake) ^{28 MI. NW OF BIG DELTA}	2/14/70	Sur.	12.0	40	3
Mansfield ^{7 MI. N. OF TANACROSS}	3/3/70	Sur.	3.0	23	13
Mineral Lakes- ^{29 MI. S. OF TOK}					
Main lake	2/25/70	Sur.	0.0	30	6
West end		Sur.	8.5	30	6
Moosehead ^{41 MI. SE OF DELTA JCT.}	3/21/70	4	4.5	44	0
Nenana Pond ?	1/27/70	2 12	6.0 3.0	24	5
	3/11/70	3 14	4.0 3.0	31	6
North Unnamed Pit	1/26/70	3	5.5	31	1
(Clear A.F.S.)	3/12/70	No free water		30	7
Quartz ^{BIG DELTA}	2/6/70	Sur.	6.5	42	5
	2/14/70	Sur.	7.0	40	0
Sansing ?	3/11/70	Sur.	9.5	0	0
Seven-Mile ^{2 MI. AREA}	3/12/70	3 10	5.0 3.0	40	1/2
Sheefish Rearing Pond ?	3/11/70	Sur.	10.0	0	0
Silver Fox Pit ^{5 MI. S. OF HARDING LAKE}	4/15/69	6 10	9.0 9.0	52	0
Slate ?	3/13/70	Sur.	6.5	45	0
South Unnamed Pit	1/26/70	2	5.0	29	5
(Clear A.F.S.)	3/12/70	3	0.0	31	7
Tum Water ?	3/11/70	3	0.0	30	7
Unnamed Lake So. of Yarger	2/26/70	3	3.0	21	10

TABLE 2 (Cont) Lakes Tested for Dissolved Oxygen, Interior Alaska, 1969-1970.

<u>Name</u>	<u>Date</u>	<u>Sample Depth (feet)</u>	<u>ppm Oxygen</u>	<u>Ice Depth (Inches)</u>	<u>Snow Depth (Inches)</u>
West 19-Mile Pit (Route 3) ?	1/26/70	No free water			
West Craig ?	3/5/70	3	0.0	22	9
White Alice Pits (Clear A.F.S.) - South Pit	1/26/70	2	5.0	22	6
	3/12/70	3	3.5	26	8
		7	3.5		
North Pit	3/12/70	3	1.5	26	6
Yarger <small>5 mi. SE of QUART JCT.</small>	2/26/70	3	0.0	23	10
81-Mile Pit (Rich. Hwy)	2/5/70	5	2.0	38	5
		14	1.0		
1239.5-Mile** ?	4/15/69	5	0.6	27	8
		8	0.0		
	2/24/70	2.5	7.5	26	14
		10	2.5		
1242.5-Mile** ?	4/15/69	5	2.0	27	6
		8	Trace		
	2/24/70	2.5	6.5	26	14
		10	1.0		

*Experimentally stocked with sheefish.

**Experimentally stocked with sheefish hybrids.
(See stocking records, Table 3).

Creel Census

A partial creel census was conducted on Birch and Little Harding lakes. The information gathered during this creel census is summarized in Tables 5 and 6. Continuous information is lacking due to the loss of the biologist in charge and the inadequacy of the military creel data.

Interviews at Birch Lake in May and June, 1969, established that of 376 anglers, 84.3% were males and 15.7% were females; 92.2% were adults, and 7.8% were youths; 47.9% were military or dependents and 52.1% were local residents. No tourists were observed, partially because of the season.

In a one-month period from December 16, 1969 through January 15, 1970, an estimated 183 rainbow trout and 2 silver salmon were caught in Birch Lake. The fishery was sampled on one-fourth of the weekdays and one-half of the weekends and holidays. The rainbow trout average fork length was 36.7 cm and the

TABLE 3 Lake and Pond Stocking, Interior Alaska, 1969.

<u>Lake</u>	<u>Location</u>	<u>Date</u>	<u>Species*</u>	<u>Size** (Per Pound)</u>	<u>Number</u>
Birch	Richardson Hwy.	7/21	RT	412	98,900
		7/22	RT	456	99,500
		7/28	RT	543	162,800
		7/31	RT	445	50,000
Craig	Alaska Hwy.	7/31	RT	445	8,000
Donna	Alaska Hwy.	7/31	RT	445	10,000
Harding	Richardson Hwy.	7/2	SS	686	182,900
		7/8	SS	476	155,600
Jan	Alaska Hwy.	7/31	RT	445	20,000
Lisa	Alaska Hwy.	7/31	RT	445	20,000
Little Donna	Alaska Hwy.	7/31	RT	445	5,000
Little Harding	Richardson Hwy.	7/2	SS	686	34,200
Mark	Fort Greely	7/31	RT	445	5,000
Rapids	Black Rapids	7/31	RT	460	2,000
81-Mile Pit	Richardson Hwy.	7/31	RT	445	500

*SS - Silver salmon; RT - Rainbow trout.

**All fingerling size.

range was 26.5 - 42.5 cm. The two silver salmon observed were 29.0 and 29.5 cm in fork length. Indications are that the major portion of the fishery is comprised of the 1967 stock. Specimens ranging in fork length from 35.0 - 37.2 cm were aged at 2.5 years.

Nine silver salmon were sampled at Little Harding Lake in December. Fork length ranged from 20.0 - 23.0 cm with a mean length of 21.9 cm. Several specimens were dark red, suggesting that they were of a terminal year class. The presence of pike in the creel demonstrates that rehabilitation will be required to maintain this fishery. In addition, an effective fish barrier must be constructed.

Burbot Investigations

Test angling was conducted at Harding Lake to assess the burbot population structure and angling potential. During 130 sets fished from November 25 through December 9, 31 burbot or 0.24 fish per set were caught. Sets ranged from 22 - 72 hours, with a mean of 36 hours. The fish had an overall length of 42.0 - 77.1 cm and had a mean length of 56.1 cm. Lines were placed at 1.5' - 61' depths. Fish were caught throughout

TABLE 4 Lake Test Netting, Interior Alaska, 1969.

Name	Date	No.	Species	Length Range (mm)	Mean Length (mm)	Frequency**	% Comp.
Beaver ?	8/11	34	GR	133-387	297	1.56	41.46
		47	WF	197-394	318	1.88	57.32
		1	LT	780	780	0.04	1.22
	8/12	22	GR	168-368	286	1.52	36.67
		35	WF	190-375	315	2.41	58.33
		3	LT	330-470	420	0.21	5.00
	8/13	39	GR	159-356	239	1.24	39.00
		59	WF	178-384	277	1.87	59.00
2		LT	362-425	394	0.06	2.00	
Birch* ? 3 in AREA	5/21	62	RT	265-385	322	1.29	100.00
Bolio*	6/17	6	SS	125-288	227	0.33	100.00
Craig*	6/11	1	RT	300	300	0.14	50.00
		1	SS	295	295	0.14	50.00
Donna*	6/10	18	RT	350-415	371	0.92	100.00
Edes	7/3	7	GR	200-320	255	0.31	58.33
		5	WF	360-375	370	0.22	41.67
Four-Mile*	5/29	10	SF	215-245	228	0.16	100.00
Harding*	6/5	6	NP	440-705	562	0.13	100.00
	6/6	9	NP	390-715	530	0.18	100.00
	6/26	8	NP	371-611	480	0.07	61.54
		5	WF	152-175	164	0.05	38.46
Jan*	6/12	9	RT	295-372	329	0.46	81.82
		2	SS	140-170	155	0.11	18.18
Lisa*	6/12	4	SS	172-205	187	0.42	80.00
		1	RT	381	381	0.11	20.00
Little*	6/6	75	SS	195-220	206	1.79	97.40
		2	NP	422-460	441	0.05	2.60
Little Donna*	6/10	0					
	6/19	7	RT	435-510	468	0.39	100.00
Mark* NORTHWAY JCT.	6/17	1	SS	370	370	0.02	100.00
North Twin	6/18	15	S	unknown	unknown	0.75	100.00
Rapids*	6/20	1	RT	292	292	0.04	100.00
Stixkwan	6/7	3	GR	225-355	302	2.00	100.00

TABLE 4 (Cont) Lake Test Netting, Interior Alaska, 1969.

<u>Name</u>	<u>Date</u>	<u>No.</u>	<u>Species</u>	<u>Length Range (mm)</u>	<u>Mean Length (mm)</u>	<u>Frequency**</u>	<u>% Comp.</u>
South Twin*	6/18	25	S	unknown	unknown	1.19	96.15
		1	RT	480	480	0.05	3.85
Summit	7/3	71	WF	184-362	279	1.75	94.67
		4	LT	295-710	447	0.09	5.33
Unnamed NE of Edes	7/5	18	GR	230-350	304	0.44	100.00
Unnamed SW of Duck	7/6	10	GR	140-330	240	0.18	100.00
81-Mile Pit	6/21	6	RT	95-340	145	0.25	100.00

*Lake stocked with trout, silver salmon, or sheefish under present management program.

**Number of fish per hour in 125' variable-mesh gill net.

GR - Grayling; LT - Lake trout; NP - Northern pike; SF - Sheefish; S - Sucker; SS - Silver salmon; WF - Whitefish.

TABLE 5 Results of the Birch Lake Creel Census, 1969-1970.

<u>Month</u>	<u>No. of Days Censused</u>	<u>No. of Anglers</u>	<u>Hours Fished</u>	<u>Fish Caught</u>		<u>Fish/ Hour</u>
				<u>RT</u>	<u>SS</u>	
May	6	170	538	222		0.41
June	10	206	469	144		0.31
December	13	162	440	146	2	0.34
January	7	61	211	37		0.18
February	6	62	170	25	2	0.16
March	5	137	194	48	2	0.26
Total	47	798	2,022	622	6	0.31

*RT - Rainbow trout; SS - Silver salmon

TABLE 6 Results of Little Harding Lake Creel Census, Winter 1969-1970.

<u>Month</u>	<u>No. of Days Censused</u>	<u>No. of Anglers</u>	<u>Hours Fished</u>	<u>Fish Caught</u>		<u>Fish/ Hour</u>
				<u>SS</u>	<u>NP</u>	
November	1	3	4.5	13	0	2.89
December	17	18	32.0	33	1	1.06
January	6	0	0	0	0	0.00
February	2	13	17.0	0	0	0.00
March	4	26	35.0	10	1	0.31
Total	30	60	88.5	56	2	0.66

*SS - Silver salmon; NP - Northern pike.

TABLE 7 Length and Age of 25 Harding Lake Burbot, 1969.

<u>Age Class</u>	<u>Length Range (cm)</u>	<u>Mean Length (cm)</u>	<u>No. in Sample</u>	<u>% Comp.</u>
III	42.1	42.1	1	4.0
IV	42.0-50.3	46.1	4	16.0
V	48.6-66.3	56.0	8	32.0
VI	52.5-65.3	57.2	8	32.0
VII	59.3-62.7	61.0	2	8.0
VIII	---	---	---	---
IX	61.8	61.8	1	4.0
X	---	---	---	---
XI	---	---	---	---
XII	77.1	77.1	1	4.0

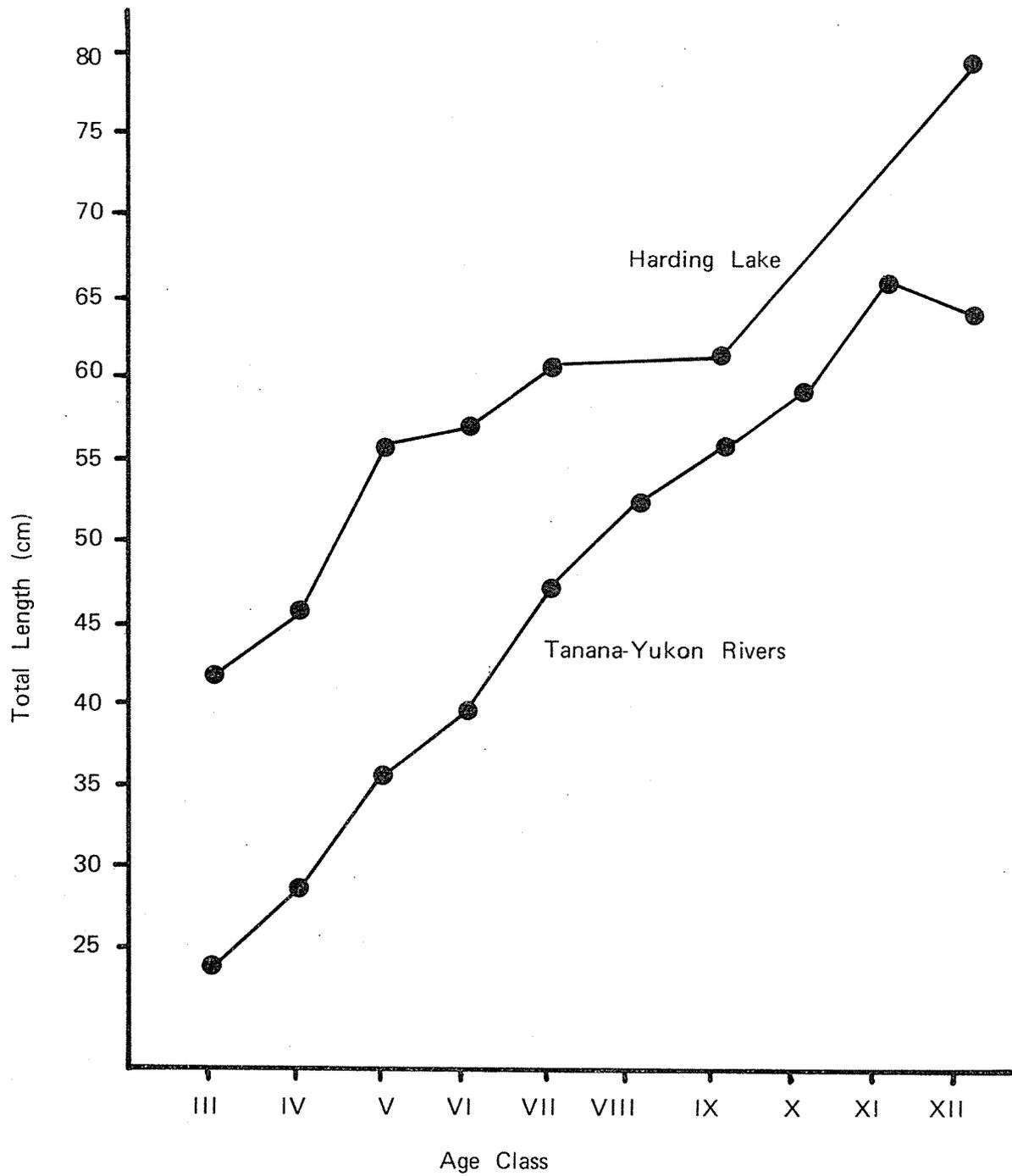


FIGURE 2 GROWTH COMPARISON OF HARDING LAKE AND TANANA-YUKON RIVER BURBOT POPULATIONS.

the entire range of depths; however, 61.3% were taken in less than 21 feet of water. The optimum depth was ten feet. Three types of bait were used: frozen whitefish, pike, and liver. Whitefish proved to be the most effective bait.

Age and length data from 25 specimens is summarized in Table 7.

In comparing this data with the Tanana-Yukon River data of Chen (1969), it is noted that the Harding Lake burbot have faster growth rates (Figure 2).

Indications are that a fair fishery does exist; however, the potential was far from reached this past winter, as only slight angling activity was observed. Factors such as the distance of the lake from town, thickness of ice and snow cover, and angler ability, affect the winter utilization of the fisheries.

LITERATURE CITED

Chen, Lo-Chai. 1969. The Biology and Taxonomy of the Burbot, Lota lota lepture, in Interior Alaska. Biological Papers of the University of Alaska. No. 11. 53 p.

Prepared by:

Thomas B. Namtvedt
Fishery Biologist

Approved by:

s/Howard E. Metsker
D-J Coordinator

Data Collected by:

Rex Thomas
Fishery Biologist

s/Rupert E. Andrews, Director
Division of Sport Fish

Thomas B. Namtvedt
Fishery Biologist

Date: April 1, 1970.