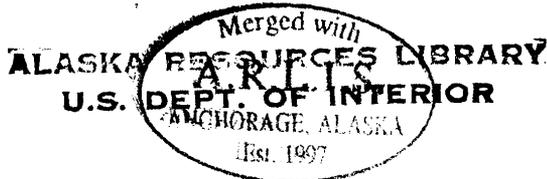


Volume 8



1966-1967

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STATE OF ALASKA  
Walter J. Hickel, Governor

ANNUAL REPORT OF PROGRESS, 1966 - 1967  
FEDERAL AID IN FISH RESTORATION PROJECT F-5-R-8  
SPORT FISH INVESTIGATIONS OF ALASKA

ALASKA DEPARTMENT OF FISH AND GAME  
Urban C. Nelson, Commissioner  
Wallace H. Noerenberg, Deputy Commissioner

Alex H. McRea, Director  
[Alaska Department of Fish and Game] Sport Fish Division

Louis S. Bandirola, Coordinator

## INTRODUCTION

This report of progress consists of findings and work accomplished under the State of Alaska Federal Aid In Fish Restoration Project F-5-R-8, "Sport Fish Investigations of Alaska."

The project during this report period is composed of 20 separate studies. Some are specific to certain areas, species or fisheries, while others deal with a common need for information. Each job has been developed to meet the needs of various aspects of the State's recreational fishery resource. Seven jobs are designed to pursue the cataloging and inventory of the numerous State waters. These are divided into logical utilization areas and are jobs of a continuing nature. It will be many years before an index of the potential recreational fishing waters is completed. Six jobs are directed toward specific sport fish studies. These include special efforts toward the anadromous Dolly Varden of Southeastern Alaska, silver salmon in Resurrection Bay, king salmon stocks on the lower Kenai Peninsula, king and other salmon stocks in Upper Cook Inlet, and Arctic grayling and sheefish in Interior Alaska. Special reports have been prepared on specific phases of the Dolly Varden life history and appear in the Department's special "Research Report" series.

The Statewide access evaluation remains one of the most important jobs conducted under this Federal Aid Program. It provides the Department with a tool to recommend withdrawal of suitable access sites on potential recreational fisheries throughout the State.

The remaining jobs include creel census efforts on specific fisheries in high use areas of the State, an egg-take program directed toward locating suitable indigenous stocks, perfecting advanced techniques in taking, handling and rearing species that are not normally associated with standard fish cultural practices, and continuation of the evaluation of the Fire Lake System.

The material contained in this report is often fragmentary in nature. The findings, evaluations and interpretations contained herein are subject to re-evaluation as the work progresses and additional data are collected.

## RESEARCH PROJECT SEGMENT

STATE: ALASKA Name: Sport Fish Investigations of Alaska.  
Project No: F-5-R-8 Title: Inventory and Cataloging of the Sport Fish and Sport Fish Waters in the Interior of Alaska.  
Job No: 15-A

Period Covered: July 1, 1966 to June 30, 1967.

## ABSTRACT

This report continues and expands studies begun by McKirdy (1962) and continued by Metsker (1963), Heckart (1964 and 1965), and Heckart and Roguski (1966).

During the reporting period Birch Lake and Little Harding Lake were chemically rehabilitated under an independent State program. Birch Lake was restocked with fingerling rainbow trout.

Investigations into the feasibility of introducing Arctic grayling to waters with low winter dissolved oxygen were continued.

Three lakes and 4 streams were surveyed, and 20 waters were test netted for fish population data. Dissolved oxygen data were obtained on 19 waters to assess their potential for fisheries management.

Annual assessment of stocked lakes was continued to determine the adequacy of the present stocking program.

Creel census data from the Unalakleet River military sport fishing camp are presented and discussed.

A volumetric survey of Bear Lake was conducted for pre-rehabilitation information.

## RECOMMENDATIONS

It is recommended that:

1. Inventory and cataloging of Interior Alaskan waters be continued with increased emphasis on newly accessible waters as present road systems are extended,
2. Initial lake and stream inventory be conducted in the Nome area of the Seward Peninsula, the Taylor Highway, the Fairbanks-Anchorage Highway under construction, and in the Kobuk River-Walker Lake area.
3. Annual test netting of stocked waters be continued to provide current information on population trends, age and growth relationships, and success of present stocking policies.
4. Investigations be continued on experimental Arctic grayling introductions to further assess survival, winter oxygen requirements, and growth rates; and that additional, more readily accessible, waters be included in the study.
5. Undesirable fish populations in Bear, Quartz, Medicine and Deadman Lakes be eradicated and the lakes be restocked with acceptable sport fish species.
6. Suitable sites for grayling and lake trout egg takes be located in areas free of intensive angler use.

7. Evaluation of survival, growth and reproductive success of lake trout transplanted into Harding Lake be continued and experimental stocking of fingerling lake trout be initiated.
8. A pre-impoundment study of the Chena River fish populations be initiated.
9. A study of the incidence and degree of parasitism in Lost Lake salmonids be undertaken.

#### OBJECTIVES

1. To assess the environmental characteristics and fish species composition of the fishery 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 policies and programs 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 eyed egg lake trout transplants in establishing a fishery for this species in Harding Lake.
6. To determine the suitability of lakes of various water quality and ecological characteristics for introduction of Arctic grayling and to expand the number of waters in which this species may provide a sport fishery.
7. To assist as required in the investigations of public access status to the area's fishing waters.
8. To evaluate multiple water use development projects, both public and private, and their effects on the area's streams and lakes, for the proper protection of the sport fish resources.

#### TECHNIQUES USED

Variable mesh, 125-foot gill nets with mesh sizes ranging from 1/2 to 2-1/2 inches square measure were used to sample fish populations both in stocked lakes and in waters with undetermined fish populations. Species composition, abundance, growth rates and general condition of fish were evaluated for future stocking and other management recommendations.

Winter dissolved oxygen levels of lakes were determined by standard methods. Water samples were also collected for extensive chemical analysis by the Alaska Water Laboratory.

Lakes and streams were physically surveyed and surface areas, depths, temperatures and pertinent biological information were recorded.

Information relating to land uses, access to waters, and future needs was forwarded to Department access biologists for action. Assistance was given to the access staff in performing their investigations.

#### FINDINGS

##### Fish Stocking Evaluations

Results of annual test gillnetting of lakes stocked with lake trout, Salvelinus namaycush, rainbow trout, Salmo gairdneri, or silver salmon, Oncorhynchus kisutch, under a current management program as well as waters test netted for basic population data are depicted in Table 1.

In the majority of stocked lakes, growth and population density of rainbow trout and silver salmon remained essentially the same as in previous years and are considered to be satisfactory.

TABLE 1 - Test Netting 1966, Interior Alaska.

<u>Name</u>	<u>Date</u>	<u>Number</u>	<u>Species</u>	<u>Length Range</u>	<u>Mean Length</u>	<u>Frequency*</u>	<u>Percent Composition</u>
Independent Lake #6	6-30-66	1	Gr	8.5	8.5	0.05	100.0
Jan Lake**	7-25-66	27	Rb	7.5-13.5	9.45	1.50	44.3
		34	SS	6.3-8.3	7.32	1.89	55.7
Lisa Lake**	7-26-66	16	Rb	9.8-19.8	13.72	0.50	13.9
		99	SS	5.5-10.9	7.28	3.09	86.1
81 Mile Pit**	7-26-66	13	Rb	5.6-10.5	8.10	0.54	100.0
Craig Lake**	7-27-66	13	Rb	6.5-14.0	10.26	0.41	76.5
		4	SS	6.0-8.3	6.70	0.13	23.5
Donna Lake**	7-28-66	19	Rb	7.3-16.0	10.92	0.56	100.0
Little Donna Lake**	7-28-66	4	Rb	9.0-16.3	13.31	0.13	100.0
Bollio Lake**	7-28-66	2	Rb	6.5-7.0	6.75	0.05	4.0
		47	SS	4.2-12.5	7.20	1.07	96.0
Mark Lake**	7-28-66	5	Rb	10.8-14.5	11.60	0.23	8.4
		53	SS	4.0-10.0	7.34	2.41	89.7
		1	Sc	2.5	2.40	0.05	1.9
Lost Lake** (near Birch Lake)	7-29-66	1	Rb	10.2	10.20	0.01	2.1
		4	SS	6.8-10.8	8.20	0.04	8.3
		25	Su	12.3-14.7	13.40	0.26	52.1
		1	NP	26.0	26.0	0.01	2.1
		17	Ch	3.5-4.5	-----	0.18	35.4
Two Mile Pit**	7-30-66	2	SS	11.6-12.5	12.05	0.04	16.7
		10	Ch	3.5-4.5	-----	0.21	83.3

TABLE 1 (cont.) - Test Netting 1966, Interior Alaska.

<u>Name</u>	<u>Date</u>	<u>Number</u>	<u>Species</u>	<u>Length Range</u>	<u>Mean Length</u>	<u>Frequency*</u>	<u>Percent Composition</u>
Cooling Pond**	7-30-66	0					
Rapids Lake**	8-9-66	16	Rb	6.0-17.0	10.40	0.89	100.0
Lower Tolovana River	8-9-66	3	Sf	24.5-31.0	27.8	0.08	11.1
		12	NP	6.3-32.0	24.8	0.34	44.4
		7	Wf	7.3-11.0	9.2	0.20	25.9
		5	Ci	5.2-6.1	5.7	0.14	18.6
Minto Lakes	8-10-66	25	NP	15.4-26.9	21.3	0.56	17.0
		13	Wf	6.3-22.2	9.2	0.29	8.8
		109	Ci	3.2-16.2	6.2	2.47	74.2
Lower Goldstream Creek	8-10-66	14	NP	15.1-42.0	22.3	0.66	70.0
		6	Wf	6.2-9.6	7.9	0.28	30.0
Lower Tatalina River	8-12-66	13	NP	15.5-31.0	24.2	0.32	65.0
		5	Wf	5.7-9.2	7.4	0.12	25.0
		2	Ci	4.2-8.1	6.1	0.05	10.0
Upper Chatanika River	9-9-66	3	Gr	8.5-11.2	9.8	0.13	25.0
		9	Wf	7.2-12.1	9.6	0.40	75.0
Harding Lake**	9-13-66	6	LT	17.0-25.0	20.62	0.03	12.8
		16	NP	12.5-24.2	18.30	0.08	34.0
		23	Ci	7.3-8.5	7.90	0.12	48.9
		2	Bu	18.9-22.0	20.45	0.01	4.3

TABLE 1 (cont.) - Test Netting 1966, Interior Alaska.

<u>Name</u>	<u>Date</u>	<u>Number</u>	<u>Species</u>	<u>Length Range</u>	<u>Mean Length</u>	<u>Frequency*</u>	<u>Percent Composition</u>
Lower Chatanika River	9-28 to 10-2-66	1	Sf	29.0	29.0	0.002	0.8
		87	NP	14.8-41.0	28.1	0.18	72.5
		15	Wf	4.7-10.8	8.2	0.03	12.5
		10	Bu	15.5-18.2	16.5	0.02	8.4
		7	Gr	8.4-12.4	10.4	0.01	5.8

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

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

Bu - Burbot	Lt - Lake Trout	Sf - Sheefish
Ch - Chub	NP - Northern Pike	SS - Silver Salmon
Ci - Cisco	Rb - Rainbow	Su - Sucker
Gr - Grayling	Sc - Sculpin	Wf - Whitefish

No trout were captured in the Ft. Wainwright cooling pond and a water temperature of 82° was recorded here in late July. Only 2 mature silver salmon and 10 chubs, Hybopsis sp., were captured in Two Mile Pit. The owner of land adjacent to the pit stated an intention of connecting this pit to a nearby pit believed to be infested with suckers, chubs, whitefish and northern pike. It is recommended that no fish be stocked in Two Mile Pit or in the cooling pond until such time as these problems can be resolved.

Lost Lake has become infested with longnose suckers, Catostomus catostomus, chubs, and northern pike, Esox lucius, probably through deficiencies in the outlet barrier.

To assess the extent of this infestation, Lost Lake was further gill netted for a total of 42 net days in addition to the test netting depicted in Table 1. During this period an additional 12 rainbow trout, 116 silver salmon, 211 suckers, and 370 chubs were captured. It is evident that rough fish are rapidly taking over the lake and will require control measures in the near future. It is recommended that no fish be stocked in Lost Lake in 1967 and the lake be rehabilitated in 1968, following correction of inadequacies in the outlet barrier.

Lake trout, captured from Harding Lake in 1966 in an effort to assess the status of this fish introduction, came from both the 1963 and the 1965 transplants. All trout captured were in excellent condition and all were mature fish in breeding condition. However, no evidence of reproductive success of this species in Harding Lake has yet been obtained.

Use of electro-fishing gear in addition to gill nets may enable us to capture immature lake trout in 1967. Annual stocking of 50 to 70 thousand fingerling lake trout for several years should be initiated to hasten establishment of a fishable lake trout population in this easily accessible 2,500-acre lake.

#### Lake and Stream Surveys

Table 2 lists waters surveyed in 1966.

Blair Lake was surveyed in conjunction with assessment of military ice demolition tests in February, 1966.

Blair Lake is located on a military reservation 33 miles south-southeast of Fairbanks, in an area commonly known as the Tanana Flats. The lake lies at an elevation of 843 feet and has no significant inlets or outlets. It has a surface area of 542 acres, a maximum depth of 52 feet and a volume of 13,000 acre-feet. Limited test gillnetting disclosed a fish population consisting entirely of northern pike.

A military recreation camp has been proposed for the lake but is presently not in operation. The lake is accessible only by aircraft in the summer and there is a well developed landing strip adjacent to the lake. Winter access can be gained by tracked vehicles as well as aircraft.

All remaining lakes and stream surveyed in 1966 are located in the Minto Flats environ, approximately 35 to 45 miles west of Fairbanks (Figure 1). North and South Minto Lakes have surface areas of 2,160 and 1,400 acres respectively.

These lakes are quite shallow, with midsummer depths in both lakes of approximately 9 feet. Lake levels are subject to considerable seasonal fluctuation and are drawn down approximately 3 to 4 feet during the fall and winter. The lakes are very fertile and have an excellent summer population of northern pike, lake whitefish, Coregonus clupeaformis, and cisco, Coregonus sardinella. The lakes have no overwintering capacity, however, and by mid-March are totally devoid of oxygen with very little water left unfrozen. In mid-March of 1967, not more than one foot of water remained below the heavy ice cover. It appears that these lakes serve as spawning or rearing areas for the various fish species, but the fish must migrate out of the lakes in the fall or early winter, possibly to overwinter in the Tanana or Yukon Rivers.

The lower portions of the Chatanika, Tolovana and Tatalina rivers and Goldstream Creek are quite similar in nature and have practically identical fish species compositions. These rivers have one of the best northern pike populations in the Interior and are becoming increasingly popular with sportsmen. Test angling and gillnetting, principally at the confluences of the rivers, produced several pike over 20 pounds, and pike from 10 to 15 pounds

TABLE 2 - Lakes and Streams Surveyed 1966-1967, Interior Alaska.

<u>Name</u>	<u>Location</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Quadrangle</u>
<u>Lakes:</u>				
Big Minto Lake	Minto Flats Area	64° 55'	149° 50'	Fairbanks D-4
Small Minto Lake	Minto Flats Area	64° 53'	149° 50'	Fairbanks D-4
Blair Lake	Tanana Flats	64° 20'	147° 20'	Fairbanks B-1
<u>Streams:</u>				
Lower Chatanika River	Minto Flats Area	65° 03'	149° 10'	Livengood A-5
Lower Goldstream Creek	Minto Flats Area	64° 58'	149° 40'	Fairbanks D-4
Lower Tatalina River	Minto Flats Area	65° 04'	149° 15'	Livengood A-5
Lower Tolovana River	Minto Flats Area	65° 05'	149° 20'	Livengood A-5

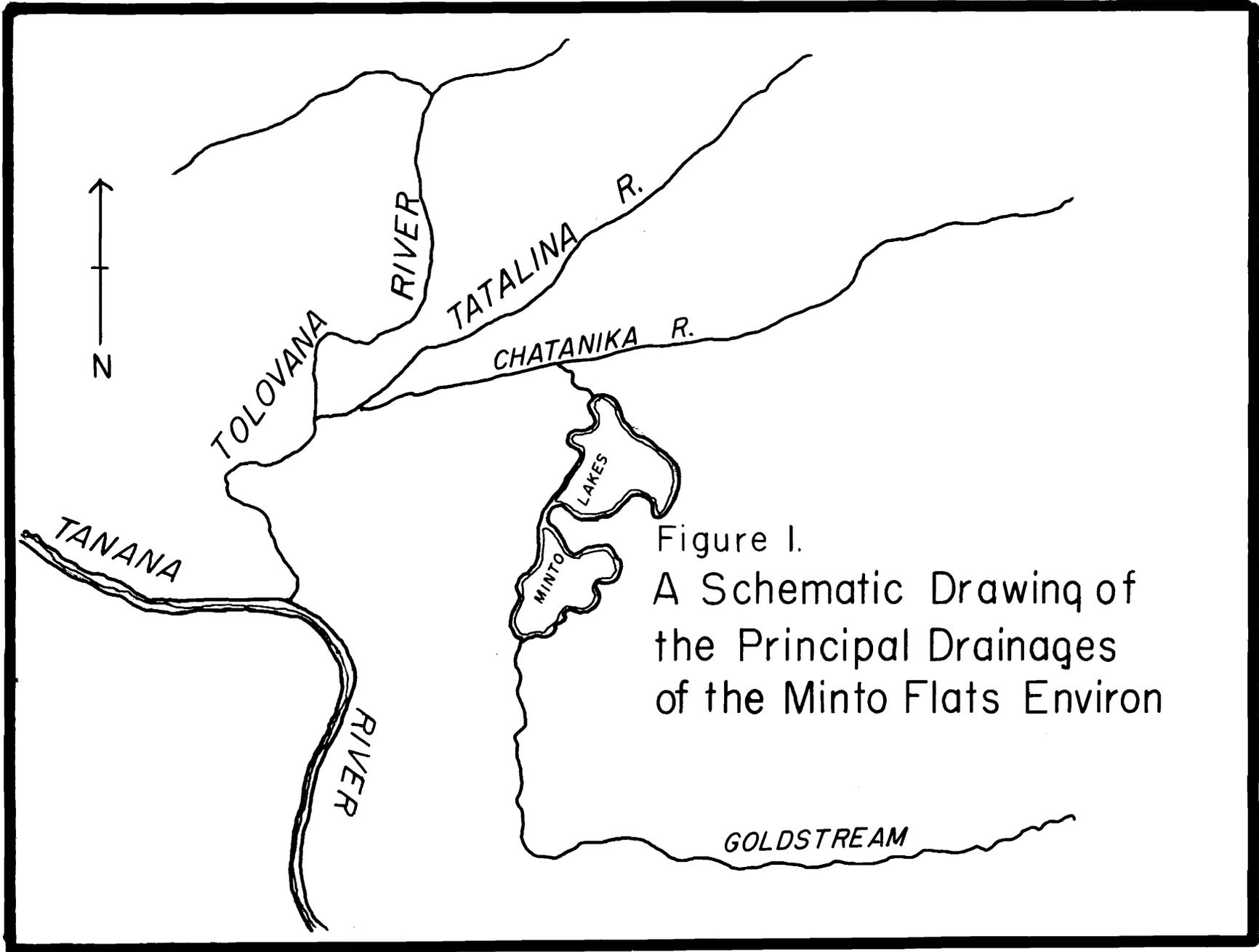


Figure 1.  
A Schematic Drawing of  
the Principal Drainages  
of the Minto Flats Environ

were quite commonly encountered. Sheefish, Stenodus leucichthys, are also available in these rivers, chiefly during the spring and fall migrations, but the size of the sheefish population is unknown.

The Minto Flats area may be reached by a 25-40 minute float plane trip from Fairbanks or by riverboat via the Tanana River - a 4 to 6-hour trip from Nenana.

#### Lake Rehabilitations

During 1966, 803-acre Birch Lake (Figure 2) and 54-acre Little Harding Lake were chemically rehabilitated under a State management program. Birch Lake was restocked with fingerling rainbow trout.

On July 20 and 21, Birch Lake was treated with powdered derris root and emulsified rotenone at a concentration of 1.7 ppm. The rotenone was purchased by Eielson Air Force Base, which maintains a recreation camp on the lake.

Prior to treatment, the lake was drawn down to minimum volume and all inlets were screened to prevent escape or survival of resident fish. A rotenone drip station was set up on the principal inlet and the smaller inlets were treated by back-pack pumping of rotenone.

To test thermocline penetration of the toxicant, northern pike were placed in live cars at several locations and depths. These live cars were examined in situ by a team of Department SCUBA divers during the treatment.

Fish destroyed included northern pike, lake whitefish, least cisco, burbot, Lota lota, and sculpin, Cottus cognatus.

Following treatment, 71 days of netting with both variable and constant mesh gill nets revealed no live fish remaining in the lake.

On September 19, 4 live cages containing 18 fingerling rainbow trout each were placed at various locations and depths in the lake. Examination of the cages 48 hours later disclosed only 3 dead fish with the remaining 69 alive and active. After 15 days, 54 of the test fish were still alive.

The lake was restocked on October 4 and 7 with 193,500 fingerling rainbow trout weighing 163 to 203 per pound.

Little Harding Lake was rehabilitated on September 7 with rotenone at a concentration of 1.5 ppm. Following treatment, the lake was netted for 20 net days with variable mesh gill nets and no live fish were captured.

Northern pike up to a maximum length of 17 inches were the only fish found destroyed following treatment. The lake is scheduled for stocking with silver salmon in 1967.

#### Grayling Introductions

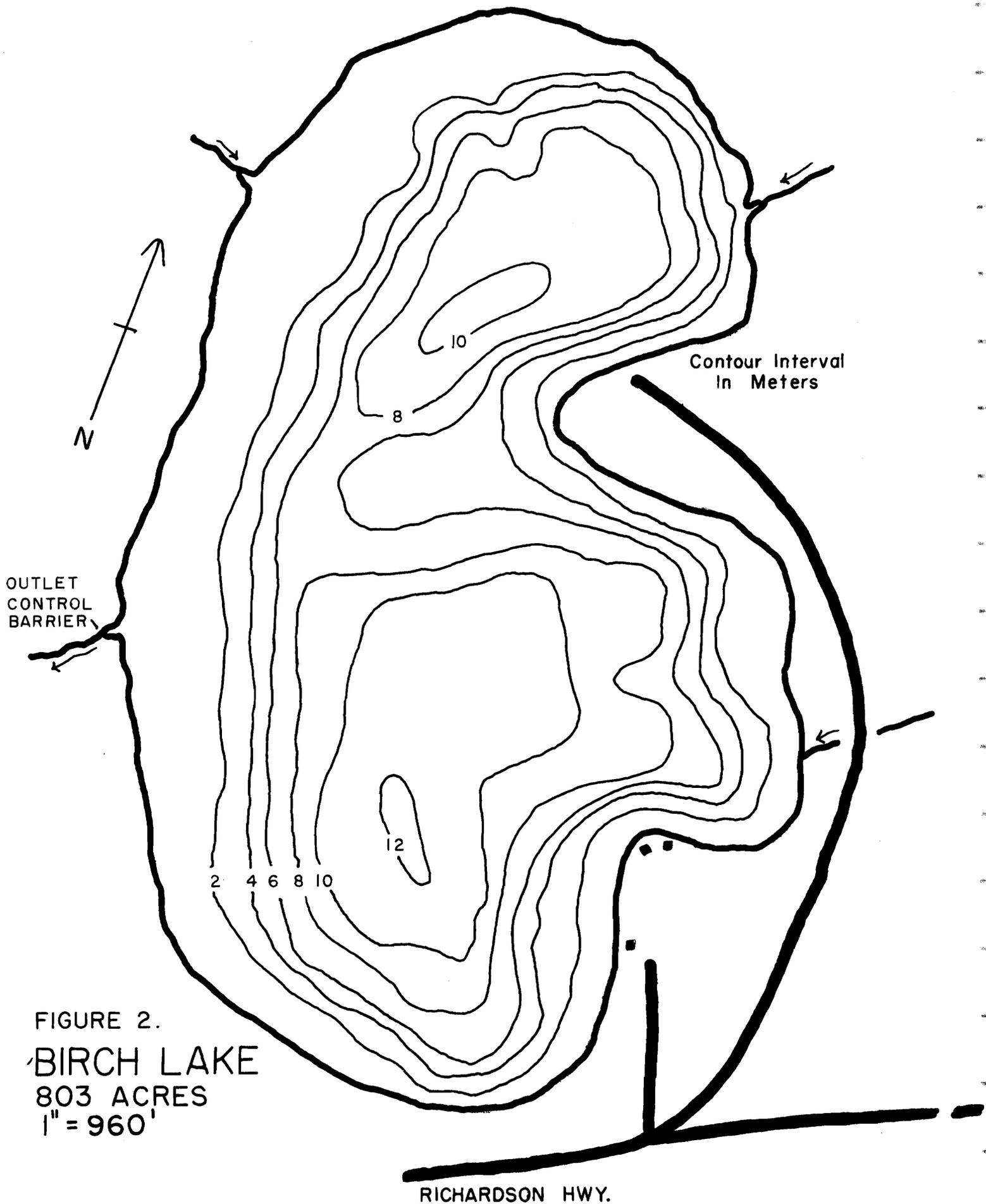
In the spring of 1965 grayling fry, Thymallus arcticus, were experimentally introduced into a number of small lakes in the Interior previously without known fish populations.

These lakes experience varying degrees of winter oxygen depletion. Information was sought on the winter oxygen requirements of grayling to establish, if possible, guidelines for introduction of this species to many lakes not suitable to other sport fish.

During the winter of 1965-1966 these lakes were periodically tested for dissolved oxygen concentration, and the lakes were subsequently gillnetted during the 1966 summer season to assess survival and growth of the grayling.

Table 3 depicts data from these procedures. Several of the lakes were not tested for dissolved oxygen after early February, and it is quite likely that dissolved oxygen levels in these lakes may have dropped lower than indicated.

Net sampling of all lakes was by 125-foot variable mesh gill nets with mesh size ranging from 1/2 inch to 2-1/2 inches square measure.



OUTLET  
CONTROL  
BARRIER

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RICHARDSON HWY.

FIGURE 2.  
BIRCH LAKE  
803 ACRES  
1" = 960'

TABLE 3 - Grayling Survival in Lakes with Low Dissolved Oxygen, 1966.

<u>Name</u>	<u>Lowest Measured D.O.</u>	<u>Date</u>	<u>Fish Captured</u>	<u>Size Range</u>	<u>Mean Length</u>	<u>Date Captured</u>
ARR Pit #4	0.0 ppm	1-19-66	15 chubs	4" (approx.)		6-24-66
Hartman Lake	0.0 ppm	4-26-66	0			
Independent Lakes						
#1	0.0 ppm	1-26-66	0			
#2	1.0 ppm	4-27-66	102 grayling	6.2"-6.8"	6.6"	6-28-66
#3	0.0 ppm	4-27-66	1 grayling	7.7"	7.7"	6-29-66
#4	0.5 ppm	4-27-66	0			
#7	0.3 ppm	2-2-66	3 grayling	8.5"-9.5"	8.8"	7-1-66
#8	4.0 ppm	2-2-66	2 grayling	9.5"-9.8"	9.6"	8-18-66
#9	8.0 ppm	2-2-66	4 grayling	8.3"-9.3"	8.6"	8-17-66
Lost Lake (near Quartz)	1.0 ppm	2-2-66	0			
31 Mile Pit	0.0 ppm	4-25-66	5 grayling	7.3"-8.2"	7.7"	6-24-66

Lost Lake and Hartman Lake were sampled with 2 nets for 24 hours; Independent Lake #9 was sampled with one net for only one-half hour to avoid decimating the large number of grayling seen rising on the lake. All other waters were netted for 24 hours with one net.

Independent Lake #3 and 31 Mile Pit showed very surprising results as grayling were found to have survived in oxygen concentrations too low to be measured with a Hach Model OX 2-P dissolved oxygen testing kit. No explanation of this phenomenon will be attempted, but the oxygen determinations are believed to be valid. The characteristic hydrogen sulfide odor of oxygen deficient water was very pronounced when the ice was opened for this sampling, and water samples to which the oxygen fixing reagents had been added showed no trace of color to permit titration or colorimetric determination.

Independent Lakes #2 and #7 were also found to overwinter grayling under very low oxygen concentrations, but other lakes with similar dissolved oxygen levels showed no survival. It seems quite likely that factors other than dissolved oxygen concentration also affect winter survival.

The lakes are all landlocked with no apparent possibility of fish entering from other sources. Scale samples from the grayling indicated that they were actually only one year old, despite the fork lengths of 6.2 to 9.8 inches.

This ability to overwinter under conditions of no measurable oxygen is not unique to grayling as 15 chubs were captured from Alaska Railroad Pit #4 after the pit had been found devoid of measurable oxygen during the winter.

This study will be continued with emphasis on grayling introductions to additional low winter oxygen waters and follow-up investigations of presently successful lakes to assess second winter oxygen levels and grayling survival.

#### Dissolved Oxygen Analysis

Table 4 presents results of dissolved oxygen testing during 1966 and 1967. With the exception of Birch Lake, all data is from winter, under-ice determinations.

A number of new waters were tested for the possibility of fish introduction and other management implications. Some currently managed waters were also sampled for further information and comparative data.

As a result of favorable dissolved oxygen determinations in 1966, and lake surveys conducted in 1965, North and South Twin Lakes, located on Ft. Greely, were experimentally stocked with rainbow trout. At present, access to these lakes is somewhat difficult, but the military has agreed to construct a trail to the lakes if the trout stocking proves successful.

#### Unalakleet Creel Census

In 1966, as in previous years, Eielson Air Force Base operated its summer recreational camp on the lower Unalakleet River.

Fewer Air Force personnel utilized the camp in 1966 than in 1964 or 1965, but the operation remained essentially the same. The men were flown to the camp by military aircraft and supplied with boats, motors and other necessary equipment for an average stay of 3 days.

Table 5 compares 1966 creel census data of this sport fishery with data from 1964 and 1965.

Although a new sport fishing regulation in 1966 restricted anglers to 6 salmon per day with a possession limit of 12, the mean salmon take per angler of 7.8 remained midway between the 4.6 salmon per angler of 1964 and the 11.6 salmon per angler of 1965. Thus the new regulation appears to be not overly restrictive.

Eielson Air Force Base has decided to close this recreational camp for 1967, giving a too high cost of operation as the major reason. It is doubtful that the camp will be re-opened in the near future as all recreational facilities will reportedly be removed from the site.

TABLE 4 - Lakes and Streams Tested for Dissolved Oxygen.

<u>Name</u>	<u>Date</u>	<u>Sample Depth</u>	<u>Ice Depth</u>	<u>Snow Depth</u>	<u>PPM Oxygen</u>
Airport Pond	4-25-66	5'	30"	0"	4.0
Ball Park Pond	4-25-66	5' 10'	37"	0"	9.0 0.0
Bear Lake Main Lake	1-19-67	2' 10'	18"	15"	7.25 2.25
Small Lake		2' 10'			7.50 6.50
Main Lake	3-3-67	3' 10'	30"	20"	2.75 1.25
Small Lake		3' 10' 17'			7.5 5.5 5.5
Big Minto Lake	3-14-67	5'	40"	12"	0.0
Birch Lake	7-17-66	5' 15' 20' 25' 30' 35' 40'			9.0 6.0 4.0 3.5 2.0 2.0 1.0
Bolio Lake	4-29-66	3' 10' 15'	24"	0"	7.5 5.0 2.5
Chatanika River	3-16-67	4' 8'	35"	18"	1.25 1.0
Dot Lake	2-8-67	3'	30"	24"	0.0
Goldstream Creek	3-16-67	4'	40"	12"	0.0
Lisa Lake	2-8-67	3' 6'	30"	20"	8.0 7.5
Little Lake	4-26-66	9'	30"	6"	3.0
Mark Lake	4-28-66	10'	24"	0	4.5
Miller Pond	4-25-66	4' 7' 8'	12"	2"	2.5 2.5 0.0
Moon Lake	2-9-67	4'	36"	24"	0.0
North Twin Lake	4-28-66	3' 34'	24"	0	7.5 4.5

TABLE 4 (Cont.) - Lakes and Streams Tested for Dissolved Oxygen.

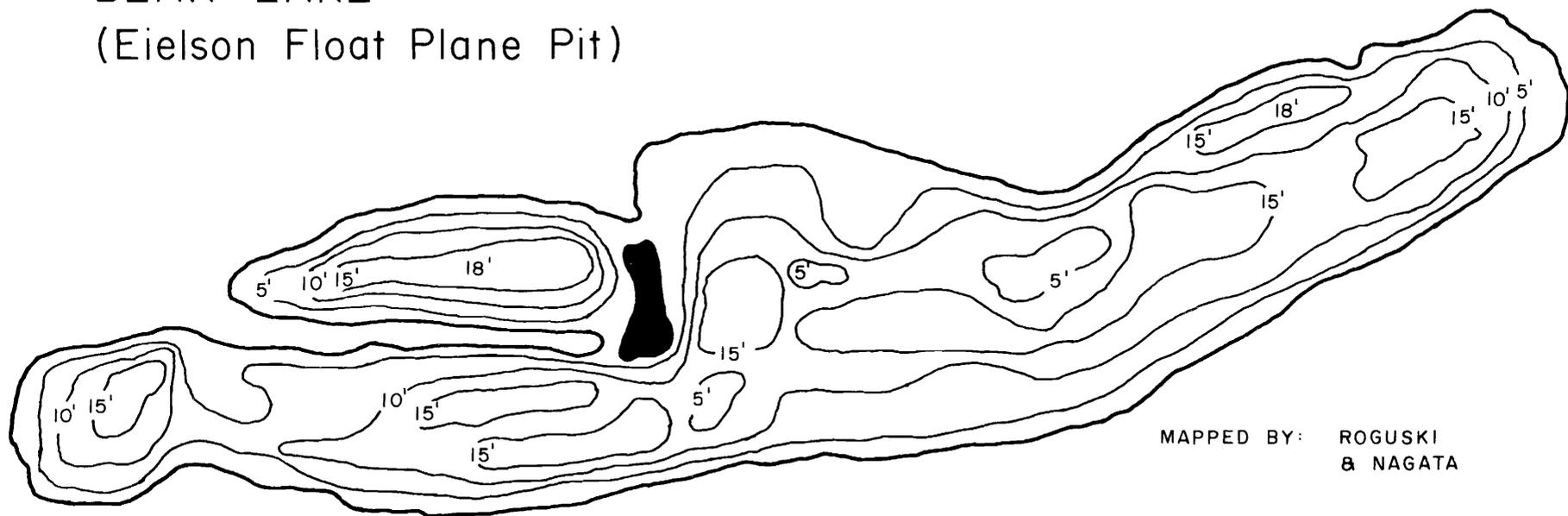
<u>Name</u>	<u>Date</u>	<u>Sample Depth</u>	<u>Ice Depth</u>	<u>Snow Depth</u>	<u>PPM Oxygen</u>
Quartz Lake	2-15-67	3'	30''	18''	7.5
		15'			7.0
		25'			6.0
Sargent's Pond	2-16-67	3'	32''	20''	8.0
		7'			3.0
South Twin Lake	4-28-66	3'	26''	0	3.5
		9'			2.0
Thompson Lake	2-15-67	3'	30''	12''	1.75

TABLE 5 - Eielson Unalakleet Fishing Camp Creel Census.

	<u>1964</u>	<u>1965</u>	<u>1966</u>
Total Anglers	150	142	101
Angler Days	446	428	307
Angler Hours	4,223	3,074	1,945
Total Salmon Catch	692	1,649	783
Total Fish Catch	1,895	2,403	1,767
King	39	84	28
Chum	85	699	436
Pink	364	695	284
Silver	204	171	35
Grayling	340	159	130
Dolly Varden	806	553	818
Whitefish	57	42	36
Salmon per Angler	4.6	11.6	7.8
Fish per Angler	12.6	16.9	17.5
Salmon per Angler Hour	.16	.54	.40
Fish per Angler Hour	.44	.78	.91

Figure 3.  
BEAR LAKE  
(Eielson Float Plane Pit)

245



MAPPED BY: ROGUSKI  
& NAGATA

SCALE  
0' 200' 400' 600' 800'  
46.2 ACRES 457.6 ACRE FT.

## Lake Mapping

Bear Lake (Eielson Float Plane Pit) was volumetrically surveyed during November of 1966. Depth soundings were made through the ice employing an electronic fathometer.

The lake has a surface area of 46 acres, a volume of 458 acre-feet and a maximum depth of 18 feet (Figure 3).

The lake presently contains a population of whitefish and suckers which entered from French Creek during high water periods. Barrier dikes to prevent recurrence in the future will be constructed by the military prior to commencement of any rehabilitation work.

Midwinter testing revealed excellent dissolved oxygen levels in the smaller portion of the lake with lower concentrations in the remainder of the lake. Final management recommendations will be deferred until results of late winter oxygen testing have been analyzed.

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