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STATE OF ALASKA

William A. Egan, Governor

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FEDERAL AID IN FISH RESTORATION PROJECT F-5-R-7

SPORT FISH INVESTIGATIONS OF ALASKA

ALASKA DEPARTMENT OF FISH AND GAME
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The eggs had been obtained by Fishery Biologist Fred Williams from Lake Susitna during October and were eyed in the Fire Lake Hatchery at Eagle River.

Shipment from the hatchery to Fairbanks was via commercial airliner. Styrofoam egg baskets cooled with ice protected the eggs during shipment.

Prior to the stocking, Harding Lake was investigated to locate favorable substrate for the alevins to burrow into and to assure that dissolved-oxygen concentrations would be adequate.

The eggs were placed in covered wire hatching baskets suspended just above the substrate. The baskets were designed to protect the eggs from predation while allowing the newly hatched alevins to escape and continue their development in the lake substrate.

The baskets were placed at 2 locations with depths of 7 and 26 feet as a check on any differential hatching rate or success which might be attributed to variations in depth. No appreciable differences were noted when the egg baskets were lifted for periodic checks. A final check one month after planting showed approximately 15 percent of the eggs unhatched with no viable eggs present. It is therefore estimated that approximately 75 thousand eggs were successfully hatched in this operation.

Grayling Introductions

There are many lakes north of the Alaskan Range unsuitable for fish introductions due to winter oxygen depletion. A great number of these, although unsuitable for trout, still retain one or two ppm oxygen and may be adequate for Arctic grayling.

An experimental series of grayling introductions was made in the spring of 1965 with a two-fold purpose; first, to enhance the area's fishery, if possible, by establishing new populations in these waters of low oxygen retention; second, to determine the winter oxygen requirements of Arctic grayling through follow-up investigations. It is hoped that guidelines for Interior Alaska grayling introductions can ultimately be formulated.

Four lakes, Lost, Hartman, 31 Mile, and ARR #4, were stocked in the area of Fairbanks and Delta Junction. These are all known to retain little oxygen during the late winter months, but are easily accessible and can be investigated throughout the winter.

The "Independent Lakes" group, located southeast of Delta Junction between the Johnson and Little Gerstle Rivers, was also selected for stocking and future investigations. The eight lakes in this group, range in size from one to eight acres. They are well suited to this project due to their close proximity, accessibility, size, and varying oxygen levels. The nearest lake is approximately one-half mile from the Alaskan Highway, and the farthest is three and one-half miles. The area can be easily traveled by foot in the summer and with relative ease on snowshoes in the winter.

The eight lakes were stocked with Arctic grayling fingerlings in June of 1965. The lakes nearest the highway were stocked by back packing the fish in water-filled plastic bags inflated with oxygen, and the four more inaccessible ones were aerial stocked with the aid of a military H-21 helicopter.

This particular lake complex appears to be a potentially fine fishing area. If the fish plants prove successful, a foot trail constructed through this lake group would undoubtedly bring many anglers into these lakes.

Numbers stocked into individual lakes are depicted in Table 3. Table 4 presents results of dissolved-oxygen determinations in the 12 lakes stocked with grayling.

TABLE 3 - Grayling Stocking 1965.

Lake	No. Stocked	Tank Temp. °F.	Sur. Temp. °F.
A.R.R. Pit #4	3,500	43	60
31 Mile Pit	2,000	44	59
Hartman Lake	20,000	45	60
Lost Lake (Quartz)	25,000	60	61
Independent Lakes			
#1	2,000	59	63
#2	2,000	60	61
#3	2,000	60	62
#4	2,000	60	61
#5	3,000		
#7	3,000		
#8	3,000		
#9	3,000		