MEMORANDUM State of Alaska

TO: George Van Wyhe, Regional Supervisor
Sport Fish Division
Fairbanks

DATE: December 20, 1974

FILE NO:

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FROM: Kenneth T. Alt, Fishery Biologist
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Department of Fish and Game, Fbks.

SUBJECT: Lakes Under Consideration For Experimental Stocking of Sheefish

Tok Area

The only lake under consideration in the Tok area for future experimental plants of sheefish is Four Mile Lake. This approximately 80 acre lake was stocked with 4,000 sheefish fry in June of 1968 and 80,000 fry in February of 1969. The 1968 plant has shown excellent growth and survival. Thus far only three of the 1969 plant have been captured vs. 47 of the 1968 plant. Silver salmon have also been stocked in the lake but stomach analysis of sheefish taken in 1972 and 1973 indicated that sheefish were not feeding on silver salmon and that indeed the silvers were competing with the sheefish. By 1974 the silvers were nearing the end of their life cycle and were too large to be eaten.

Sheefish averaged 56 cm by 1974 and apparently were ready to spawn.

Sport fishing was finally successful in Four Mile Lake in 1974 and I suspect it was because the silver salmon had reduced the abundant food supply.

The silver salmon will soon have completed their life cycle and I feel that numbers of sheefish will continue to be reduced as due to their fast growth they probably have a short life cycle.

I recommend stocking at least 50,000 sheefish fry in Four Mile Lake as soon as available or as soon as silver salmon have completed their life cycle.

Delta Area

The main lake in the Delta area considered for sheefish introduction is North Twin Lake (23 acres and 455 acre feet) located on Ft. Greely. Maximum depth of this lake is over 40 feet and dissolved oxygen levels are good. This lake has dead trees in water up to two feet deep and some submergent vegetation to depths of 18 feet. It was stocked with rainbows in 1966 but they did poorly in competition with longnose suckers. The lake was rehabilitated in 1973. Small numbers of grayling were placed into the lake in 1974 for an experiment. It is suspected that many of these will be cropped in 1975.

I would like to stock sheefish fry in 1976 in North Twin Lake but only after the ice leaves.

Other lakes for possible introductions in the Ft. Greely area are identified on the accompanying map and named Greely 1, 2 etc.

Lake #1 - Located off the old highway, is about 2 acres in size, and 10-15 feet deep.

Lake #2 - Is about 10 acres, 15-25 feet deep. Rainbow trout were stocked in 1974.

Lake #3 - Is only 15 feet deep and has much grass. Might not be suitable for sheefish.

Lake #4 - Is located off Twin Lake Trail one mile on 11 Mile Loop or 9/10 mile from Bolio Lake complex. It is 12-15 feet deep and 2 1/3 acres in size. D.O. in April is approximately 11 ppm. This lake has good potential.

Lake #5 - Is located 1.8 mile on 11 Mile Loop Road of Twin Lakes Trail from Bolio Lake. It is 2 acres in size with depths of 10-18 feet and a rocky bottom. An April 5 D.O. reading at 18 feet was 7 ppm.

Lake #6 - is located approximately 2.0 mile on 11 Mile Loop Road off Twin Lakes Trail. It is 1 1/2 acres in size and 11-17 feet deep. It is apparently a rich lake with Gammarus sp., Daphnia sp. and snails present. There are no fish present.

Lakes #7, 8, and 9 - Were rehabilitated and have now been stocked with fish. These will not be considered for sheefish introductions.

I will check the Greely lakes in early April of 1975 and also during the summer of 1975 to get an idea of relative richness of the lakes. I would like to use 3-4 of these lakes to experiment with stocking ratios and be able to relate stocking rate with growth and survival and catchability.

Lakes Near Donnely Dome

There are numerous lakes near the Donnely Dome area that are mainly small, shallow lakes with much vegetation. They might be used for summer rearing of sheefish as most go anoxic in the winter. Fish could be seined out in the fall. Growth attained from this rearing method could be compared with growth attained at the Clear rearing ponds. Some lakes in this area also have sufficient winter D.O. to support populations of longnose suckers. A number of these lakes will be surveyed in 1975. Lakes containing suckers will be stocked with fingerling sheefish. Growth of sheefish stocked in a lake containing rough fish will be compared with growth of sheefish stocked in a lake with no fish.

Some of the lakes are:

Donnely #1 - Richardson Highway. 1/4 mile east of road. It is at south end of a series of lakes. Size is 80 acres. It is less than 15 feet deep and mean depth is 3 feet.

Donnely #2 - is 150 yards north of lakes #1. The average depth is less than 4.5 feet. It is 120 acres in size.

Donnely #3 - is 500 yards north of lake #2. It is 4.5 acres in size, has 1/2 acre of vegetation. Average depth is 2 feet maximum depth less than 15 feet.

Donnely #4 - is located east of Donnely Dome. It is 15 acres in size, has 1/8 acre of vegetation. The average depth is 6 feet and bottom is rubble and mud.

Donnely #5 - is on the Richardson Highway north of road that traverses behind Donnely Dome, 300 yards from the road. It is 30 acres in size, has no vegetation and an average depth of 5 feet.

Donnely #6 - is on the south slope of Donnely Dome. It is 65 acres with 2 acres of vegetation. Average depth is 3 feet.