ALASKA DEPARTMENT OF FISH AND GAME
SPORT FISH DIVISION

FISH POPULATION CONTROL A,
PRE-CHEMICAL RESTORATION PLAN

GENERAL

Region II Lake or Stream Centennial Lake Clearance obtained from D.E.C.

Federal Clearance (date) None State Clearance (date) Sept. 16, 1974 Land Managing Agency State of Alaska

1. Physical Characteristics: a,b. Borough Kenai t 2N r 11W s 17,20 Lat 60°15' Long 151°13' U.S. Map Call Out # K-B-4

Surf: acres 25 (when surveyed) Max. depth 20 Avg. depth 7.7 Acre feet 192 Established B.M. location

Describe method used in establishing information for contour map Aerial photograph and recording fathometer

Lake was previously reclaimed in (year) No Toxicant used - Result -

c. Outlet Intermittant on southeast side of lake

d. Inlet (number, miles, flow & description) Dry prior to rehabilitation

e. Estimated duration of toxicity 60-90 days

f. Shoreline and lake bottom description (springs, seeps, bogs, swamp, shallow areas, aquatic vegetation) Lake has no known springs but has aquatic vegetation on NW and E sides

2. Fishery Characteristics: a. Target fish Threespine sticklebacks Population composition Threespine stickleback and stocked silver salmon

c. Sample method used Gill nets and visual observation d. Most recent survey date October 2, 1973

3. Status of Existing Fishery: Fish growth and or survival and collection means (creel census, net, etc.) Annual fall gill net sampling showed a SS catch/hour of 0.78 with a mean length of 264.8 m

4. Restoration Plan: a. Toxicant Pro-nox fish Percent or weight (active ingredient) 5% rotenone Form to be applied Liquid

Application rate (active ingredient) 1.1 ppm c. Method of application Boat pumps time 18 month Sept. 1974

d. Quantity required 70 gal (10% error) (gal. or lbs.) Acre feet to be treated 192 (lake or stream) Lake

e. Number of sub-area treatments and description of sites No sub-areas

f. Areas to be treated with caution None

g. Precautions to be taken in downstream areas (if none are needed, state why). None - outlet area dry

h. Chemical rehabilitation benefits Improved growth and survival of stocked fish i. Monitoring Periodic test fish samples

5. Water-Physical Chemistry Properties: a. ph 6.9 Methyl orange alkalinity 8 Total alkalinity 8 b. TDS dissolved solids 26 conductivity Date(s) August 29, 1974 6. Estimated Project Cost: Lbs or gallons/ 0.37 acre feet @ $5.50 cents per lb. or gal. = $ 2.03 Toxicant requirements 70 gal @ $ 5.50 /gal = $ 385 lbs @ $ lb. = $ Man days 9

Wage $ 500 Per diem $ 10 Travel 45 Barrier dam (if required) type None $

M & O cost: List None $ Other cost (items) None

$ Total estimated cost $ 940

7. Planned initial fish stocking:

DATE	SPECIES	INCHES	POUNDS	NUMBER
Early July	SS	400/lb		14,400

8. Public Considerations: a. Is water to be used locally for domestic, industrial or irrigation purposes? No

b. Public access assured (how) State land c. If the affected waters contain any rare or endangered species, describe the measures to be undertaken for their protection None

d. Procedure for salvage and disposal of fish killed Donate to observing public

e. Cooperating agencies (attitude and support) No cooperating agencies

f. General attitude of the public to the project Anglers favorable toward project

g. Remarks

CENTENNIAL LAKE REHABILITATION

Treatment date: September 18, 1974

Area: 25 acres

Volume: 192 acre-feet

Rotenone concentration: 70 gallons of 5% emulsified rotenone
70/192 = 0.365 gallons/acre-feet at 1.1 ppm
which includes 10% error (1.0 ppm)

ALASKA DEPARTMENT OF FISH AND GAME
SPORT FISH DIVISION
FISH POPULATION CONTROL B.
POST-TREATMENT EVALUATION, CHEMICAL RESTORATION

Region II Project Number - Project Name - Submitted by S. Logan Date 1/5/76

Lake or Stream Centennial Lake Location: T. 5N R. 9W S. 10,15 Map Reference K-B-4 Lat. 60°15' Long. 151°13'

Borough Kenai Chemical Treatment (date) Sept. 18, 1974

1. Surface area at treatment 25 (acres) Water Volume 192 (acre-feet) Tributaries:

Name	Flow	Total Length	Length Treated
None			
		TOTAL	

Outlet(s):

Name	Flow	Total Length	Length Treated
Unnamed	Dry at treatment time	-	-
		TOTAL	

2. Stream(s) treated None total miles Main streams:

Name	Flow	Total Length	Length Treated

Tributaries:

Name	Flow	Total Length	Length Treated
None			
		TOTAL	

3. Toxicant used (lake) 5% emulsified rotenone (tributary) -

4. Methods used in distributing the toxicant: Boat pumps

5. Cost of Project:
(items) Rotenone $ 385
(items) Salary $ 500
(items) Per Diem & Travel $ 55
(items) Total $ 940

6. Condition of water on date of treatment:

Depth (feet) or flow (cfs)	Temperature (°F)	pH	Dissolved Oxygen Content
0	59	7.0	-
6	58	7.0	11.0
12	58	7.0	-
18	58	7.0	-

Total Dissolved Solids 26 Conductivity

7. Species and estimated observed numbers of fish eradicated:

Lake (Stream)		Inlet (Tributaries)	
Silver Salmon	Few	-	-
Threespine Stickleback	Abundant	-	-

8. Period of Toxicity Two-three months estimated

9. Method of determination of effectiveness: Test fish and shoreline survey

10. Detoxification: Non-chemical (natural) Natural Outlet Control Structure Operation Date None

Chemical Application dates Amount applied Cost of chemical $

Results

11. Public reaction to project (after treatment) Favorable

12. Comments on angler use (after treatment) Use increased substantially

13. Additional remarks:

ALASKA DEPARTMENT OF FISH AND GAME
SPORT FISH DIVISION

FISH POPULATION CONTROL A,
PRE-CHEMICAL RESTORATION PLAN

GENERAL

Region II Lake or Stream Centennial Lake Clearance obtained from D.E.C.

Federal Clearance (date) none State Clearance (date) July 22, 1983 Land Managing Agency State of Alaska

1. Physical Characteristics: a,b. Borough Kenai t 2N r 11W s 17,20 at 60°15' Long 151°13' U.S. Map Call Out # K-B-4

Surf: acres 25 (when surveyed) Max. depth 20 Avg. depth 7.7 Acre feet 192 Established B.M. location

Describe method used in establishing information for contour map Aerial photograph and recording fathometer

Lake was previously reclaimed in (year) 74 Toxicant used rotenone Result

c. Outlet Intermittent on southeast side of lake

d. Inlet (number, miles, flow & description) Dry prior to rehabilitation

e. Estimated duration of toxicity 60-90 days

f. Shoreline and lake bottom description (springs, seeps, bogs, swamp, shallow areas, aquatic vegetation) Lake has no known springs but has aquatic vegetation on NW and E sides

2. Fishery Characteristics: a. Target fish threespine stickleback Population composition threespine stickleback and stocked silver salmon

c. Sample method used gill nets and visual observation. Most recent survey date Sept. 15, 1983

3. Status of Existing Fishery: Fish growth and or survival and collection means (creel census, net, etc.) Annual fall gill net sampling showed a SS catch/hr. of .34 with a mean length of 275.0 mm

4. Restoration Plan: a. Toxicant Chem-fish synergizer Percent or weight (active ingredient) 5% rotenone Form to be applied liquid

Application rate (active ingredient) 2.6 ppm c. Method of application boat pumps time 28 month Sept, 1983

d. Quantity required 150 gal. (gal. or lbs.) Acre feet to be treated 192 (lake or stream) lake

e. Number of sub-area treatments and description of sites no sub-areas

f. Areas to be treated with caution none

g. Precautions to be taken in downstream areas (if none are needed, state why). none - no outlets

h. Chemical rehabilitation benefits Improved growth and survival of stocked fish i. Monitoring periodic test fish samples

5. Water-Physical Chemistry Properties: a. ph Methyl orange alkalinity Total alkalinity b. TDS dissolved solids

Date(s) 6. Estimated Project Cost: ~~lbs~~ or gallons/ .86 acre feet @ $12.03 cents per ~~xx~~ or gal. = $10.35 Toxicant requirements 165 gal @ $12.03/gal = $ 1,984.95 lbs @ $ lb. = $ Man days 5

Wage $ 636 Per diem $ 125 Travel $100 Barrier dam (if required) type $

M & O cost: List $ Other cost (items)

$ Total estimated cost $ 2,845.95

7. Planned initial fish stocking:

DATE	SPECIES	INCHES	POUNDS	NUMBER
84	RB	unknown		

8. Public Considerations: a. Is water to be used locally for domestic, industrial or irrigation purposes? no

b. Public access assured (how) State land c. If the affected waters contain any rare or endangered species, describe the measures to be undertaken for their protection none

d. Procedure for salvage and disposal of fish killed Donate to observing public

e. Cooperating agencies (attitude and support) no cooperating agencies

f. General attitude of the public to the project Anglers favorable toward project.

g. Remarks

1983 LAKE REHABILITATION

JOHNSON LAKE

860 ACRE-FEET @ 2.0 PPM = 0.66 GALS / ACRE-FOOT

860 AF x 0.66 = 567 GAL / 55 = 10.3 (11 BARRELS)

Used 605 gallons = $\frac{.70 \text{ gallons/acre ft}}{.33 \text{ gal/acre ft}}$ = 2.1 ppm

.33 gal/acre ft = 1 ppm

CENTENNIAL LAKE

192 ACRE-FEET @ 2.0 PPM = 0.66 GALS / ACRE-FOOT

192 AF x 0.66 = 127 GAL / 55 = 2.3 (3 BARRELS)

Used 165 gallons = $\frac{.86 \text{ gallons/acre ft}}{.33}$ = 2.6 ppm

X = 50

Y = X

ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
PERMIT TO APPLY PESTICIDES

Permit No. 74-75 Date of Issue: 9/16/74

The Department of Environmental Conservation under authority of AS 46.03 and 18 AAC 90.010 issues a Permit to Apply Pesticides to the

Alaska Department of Fish & Game
Division of Sport Fish
333 Raspberry Road
Anchorage, Alaska 99502

for the purpose of applying rotenone to

Centennial Lake

which is located

At approximately Mile 5 of the Tustamena Lake Road near Soldotna

The treatment will consist of the addition of Pro-Noxfish to the system to obtain an initial concentration of 1.0 ppm (of Pro-Noxfish) in order to eradicate fish such as stickleback prior to stocking with species of fish deemed more desirable by the Department of Fish and Game.

In addition to general safety precautions given on the labels the following restrictions are stipulated:

Empty rotenone drums will be thoroughly rinsed and these rinses added to the treated system.

The permit expires on December 31, 1974 or upon completion of the above described project, whichever comes first, and may be revoked in accordance with 18 AAC 90.010.

Max S Brewer

Commissioner
Department of Environmental Conservation

Centennial Lake

actual # small squares each area:

0-2.5' = 893
2.5'-5' = 1252 > 2000
5'-7.5' = 1485
7.5'-10' = 620 > 2000
10'-12.5' = 687
12.5'-15' = 682 > 1300
15'-17.5' = 659 > 700
17.5'-20' = 28

small squares per depth area:

surface = 6306 = 1,065,714 sq' = 24.46 acres > = 56.83 ac ft
2.5'→ = 5413 = 914 797 = 21.00
5'→ = 4161 = 703209 = 16.14 > = 46.43
7.5'→ = 2676 = 452 244 = 10.38 > = 33.15
10'→ = 2056 = 347,964 = 7.98 > = 22.95
12.5'→ = 1369 = 231 361 = 5.31 > = 16.61
15'→ = 687 = 161 103 = 3.70 > = 11.26
17.5'→ = 28 = 4732 = 0.11 > = 4.76

191.99 ac ft