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ST. PAUL 1, MINNESOTA

THE AMERICAN FISHERIES SOCIETY

Organized 1870

OFFICE OF THE EDITOR

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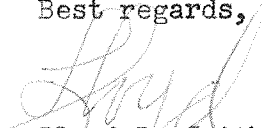
Mr. William Harris
855 Ellair Place
Grosse Point Park 30, Michigan

Dear Mr. Harris:

Enclosed herewith are the fish lists for Huron Mountain. I have included everything but you should put a questions note on the muski. Trinomials have been suggested only where their omission might lead to confusion. Also enclosed are your negatives of Mountain Lake.

You once suggested carrying part of my original report in amended form in your compilation or in a new Book of Huron Mountain. I am just a little hazy about this. Perhaps at your convenience you could refresh my memory.

Best regards,



Lloyd L. Smith
Editor

LLS:pjk

I - introduced species

[illegible]

THE SPECIES AND DISTRIBUTION OF FISHES IN THE HURON
MOUNTAIN CLUB WATERS EXCLUSIVE OF LAKE SUPERIOR

N - native species

I - introduced species

	Mountain Lake	Ann Lake	Canyon Lake	Trout Lake	Ives Lake	Howe Lake	Rush Lake	Pine Lake	Mountain Stream	Pine River	Salmon Trout River
Finescale Dace - <u>Chrosomus neogaeus</u>	-	-	-	-	-	N	-	-	-	-	N
Northern Redbelly Dace - <u>Chrosomus eos</u>	-	-	-	-	-	N	-	-	-	-	N
Western Golden Shiner - <u>Notemigonus crysoleucus auratus</u>	-	-	-	-	-	-	-	-	-	N	N
River Emerald Shiner - <u>Notropis atherinoides atherinoides</u>	-	-	-	-	-	-	-	-	-	-	N
Northern Common Shiner - <u>Notropis cornutus frontalis</u>	-	-	-	-	-	-	N	-	-	N	N
Northern Spottail Shiner - <u>Notropis hudsonius hudsonius</u>	-	-	-	-	-	-	-	-	-	N	N
Blackchin Shiner - <u>Notropis heterodon</u>	-	-	-	-	-	-	-	-	-	-	N
Northern Mimic Shiner - <u>Notropis volucellus volucellus</u>	-	-	-	-	-	-	N	N	-	N	N
Northern Blacknose Shiner - <u>Notropis heterolepis</u>	-	-	-	-	-	-	-	-	-	-	-
<u>heterolepis</u>	-	-	-	-	-	-	N	-	-	N	N
Fathead Minnow - <u>Pimephales promelas</u>	-	-	-	-	-	N	-	-	-	-	-
Bluntnose Minnow - <u>Pimephales notatus</u>	N	-	-	N	-	N	N	N	N	N	N
North American Catfish Family - <u>Ictaluridae</u>											
Northern Brown Bullhead - <u>Ictalurus nebulosus nebulosus</u>	-	-	-	-	-	-	-	-	-	N	-
Mudminnow Family - <u>Umbridae</u>											
Central Mudminnow - <u>Umbra limi</u>	-	-	-	-	-	-	-	-	-	N	N
Pike Family - <u>Esocidae</u>											
Northern Pike - <u>Esox lucius</u>	-	-	-	-	-	-	N	N	-	N	N
Great Lakes Muskellunge - <u>Esox masquinongy masquinongy</u>	-	-	-	-	-	-	-	-	-	N	-
Cod Family - <u>Gadidae</u>											
American Burbot - <u>Lota lota lacustris</u>	-	-	-	-	-	-	N	-	-	N	N
Troutperch Family - <u>Percopsidae</u>											
Troutperch - <u>Percopsis omiscomaycus</u>	-	-	-	-	-	-	-	-	-	N	N
Perch Family - <u>Percidae</u>											
Yellow Perch - <u>Perca flavescens</u>	N	N	-	-	N	-	N	N	-	N	N
Yellow Walleye - <u>Stizostedion vitreum vitreum</u>	-	-	-	-	-	-	-	N	-	N	-
Blackside Darter - <u>Hadropterus maculatus</u>	-	-	-	-	-	-	-	N	-	-	-
Northern Logperch - <u>Percina caprodes semifasciata</u>	-	-	-	-	-	-	N	N	N	N	N
Central Johnny Darter - <u>Etheostoma nigrum nigrum</u>	-	-	-	-	-	-	N	N	-	N	N
Iowa Darter - <u>Etheostoma exile</u>	-	-	-	-	-	-	N	N	N	-	N

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MOUNTAIN CLUB WATERS EXCLUSIVE OF LAKE SUPERIOR

N - native species

I - introduced species

Mountain Lake
Ann Lake
Canyon Lake
Trout Lake
Ives Lake
Howe Lake
Rush Lake
Pine Lake
Mountain Stream
Pine River
Salmon Trout River

Sunfish Family - Centrarchidae

Northern Smallmouth Bass - <u>Micropterus dolomieu dolomieu</u>	I	I	-	-	-	-	N	N	N	N	N
Pumpkinseed - <u>Lepomis gibbosus</u>	I	-	-	-	-	-	-	-	-	N	N
Common Bluegill - <u>Lepomis macrochirus macrochirus</u>	-	I	-	-	-	-	-	-	-	-	-
Northern Rock Bass - <u>Ambloplites rupestris rupestris</u>	I	I	-	-	-	-	N	N	N	N	N

Sculpin Family - Cottidae

Northern Mottled Sculpin - <u>Cottus bairdii bairdii</u>	N	-	-	-	-	-	N	N	-	N	N
Great Lakes Mottled Sculpin - <u>Cottus bairdii kumlieni</u>	-	-	-	-	-	-	-	-	-	N	N
Eastern Slimy Sculpin - <u>Cottus cognatus gracilis</u>	N	-	-	-	-	-	N	-	-	N	N

Stickleback Family - Gasterosteidae

Brook Stickleback - <u>Eucalia inconstans</u>	N	-	-	N	-	N	-	-	-	N	N
Ninespin Stickleback - <u>Pungitius pungitius</u>	-	-	-	-	-	-	-	N	-	N	N

(Hoyd Smith 1935)

N. native species;

I. introduced species

	N, native species;	I, introduced species
Lamprey Family - <u>Petromyzontidae</u>		
Silverly Lamprey-- <u>Ichthyomyzon unicuspis</u>		
Northern Brook Lamprey-- <u>Ichthyomyzon fossor</u>		
Sea lamprey-- <u>Petromyzon marinus</u>		
① > American Brook Lamprey-- <u>Entosphenus lamottenii</u>		
② > Alewife --- <u>Pomolobus pseudoharengus</u>		
Brown Trout-- <u>Salmo trutta fario</u>		
Coast rainbow Trout-- <u>Salmo gairdnerii</u> <u>irideus</u>		
Brook Trout-- <u>Salvelinus fontinalis</u>		
Lake Trout-- <u>Salvelinus namaycush</u>		
Rush Lake Trout-- <u>Salvelinus namaycush huronicus</u>		
Whitefish Family - <u>Coregonidae</u>		
Rush Lake Cisco-- <u>Coregonus artedii huronicus</u>		
Anne Lake Cisco-- <u>Coregonus artedii annensis</u>		
Pine Lake Cisco-- <u>Coregonus artedii russeli</u>		
Nipigon Cisco-- <u>Coregonus artedii clemensi</u>		
Lake Superior		
Great Lakes Cisco-- <u>Coregonus artedii arcturus</u>		
Ives Lake Cisco-- <u>Coregonus hubbsi</u>		
Smelt Family - <u>Osmeridae</u>		
American Smelt-- <u>Osmerus mordax</u>		
Sucker Family - <u>Catostomidae</u>		
Common White Sucker-- <u>Catostomus commersonnii</u> <u>commersonnii</u>		
Eastern Longnose or Red Side Sucker-- <u>Catostomus catostomus</u> <u>catostomus</u>		
Minnow Family - <u>Cyprinidae</u>		
Northern Creek Chub-- <u>Semotilus atromaculatus</u> <u>atromaculatus</u>		
Northern Pearl Dace-- <u>Semotilus margarita nachtriebi</u>		
Lake Northern Chub-- <u>Hybopsis plumbea</u> <u>plumbea</u>		
Great Lakes Longnose Dace-- <u>Rhinichthys cataractae</u> <u>cataractae</u>		
Western		
Blacknose Dace-- <u>Rhinichthys atratulus meleagris</u>		

John D. Smith

I. introduced species

[illegible]

Ward S. H. 1954

THE SPECIES AND DISTRIBUTION OF FISHES IN THE HURON
MOUNTAIN CUB WATERS EXCLUSIVE OF LAKE SUPERIOR (continued)

N, native species; I, introduced species

Common Bluegill-- <u>Lepomis macrochirus</u>	<u>Macrochirus</u>	I	Mountain Lake
Northern Rock Bass-- <u>Ambloplites rupestris</u>	<u>Rupestris</u>	I I	Ann Lake
Sculpin Family - <u>Cottidae</u>			Canyon Lake
Northern Mottled Sculpin-- <u>Cottus bairdii</u>	<u>bairdii</u>		Trout Lake
Great Lakes Mottled Sculpin-- <u>Cottus bairdii humleri</u>			Ives Lake
Eastern Slimy Sculpin-- <u>Cottus cognatus gracilis</u>			Howe Lake
Stickleback Family - <u>Gasterosteidae</u>			Rush Lake
Brook Stickleback-- <u>Eucalia inconstans</u>			Pine Lake
Minespine Stickleback-- <u>Pungitius pungitius</u>			Mountain Stream
			Pine River
			Salmon Trout River

5/31/66

FISHERY-MANAGEMENT RECONNAISSANCE FOR
HURON MOUNTAIN CLUB,
1959

Submitted by

Lloyd L. Smith, Jr.

June, 1959

TABLE OF CONTENTS

	Page
INTRODUCTION	1
PRESENT CONDITION OF SALMON TROUT RIVER	2
OBJECTIVES OF FUTURE WORK PROGRAMS ON THE SALMON TROUT RIVER	4
PRESENT NEED AND WORK RECOMMENDED FOR 1959 SEASON	5
Section 14 (Meadows)	5
Section 13	6
Section 12	9
Section 1	10
GENERAL CONDUCT OF WORK	10
GENERAL RECOMMENDATIONS	11
Creel Census	11
Fish Planting	12
Salmon Trout River	12
Hove Lake	12
Trout Lake	13
Pine Lake	13
Maintenance Fund for Salmon Trout River	13
Forestry Practices	14
Future Inspection	14

INTRODUCTION

At the request of Mr. Charles H. Hedges, acting on behalf of the Fish Committee of the Huron Mountain Club, a review of Club fishery-management policy and a maintenance survey of the Salmon Trout River were made on May 16-17, 1959. Special consideration was given to the problem of replacement of the Lower Dam and maintenance of the river channel in Sections 14, 13, 12, and 1.

The present survey was the fourth conducted since 1938, when an extensive investigation of the fishery resources of the entire property was made under the auspices of the Charles Henry Hedges Memorial Fellowship. At that time a detailed study of the Salmon Trout River was made to prepare a program which would maintain and improve fishing in that stream. During the course of the study a destructive flood greatly increased the need for river maintenance and aggravated a trend toward greater erosion and river deterioration. In 1940 recommendations for control of serious problems and in 1941^{1/} a complete program for river development were presented. At that time 14 imperative projects, 91 essential projects, and 140 desirable developments were recommended. The work program carried on in 1940 and 1941 succeeded only in completing the imperative parts of the program, especially in the Old Meadows above the Lower Dam and in Section 13 below the dam.

^{1/} Smith, Lloyd L., Jr. (1941) A fisheries management program for the waters of the Huron Mountain Club.

In 1948 a second reconnaissance was made.^{2/} Failure to carry out the original program in its entirety permitted substantial deterioration of the river from its condition in 1940. Extensive plans were presented in 1948 and were aimed at stopping further deterioration and rehabilitating the stream channel. A total of 82 essential and 99 desirable projects was recommended. In 1949 and 1950 approximately 60 percent of the recommended work was completed.

A third survey of river conditions was made in 1954.^{2/} In Sections 13 and 14, where previously proposed work had been completed, the river showed marked improvement and there was promise of further development by action of high water without bank erosion. Section 12 showed slight improvement, but there was further major deterioration in Section 1, which had more sand in the channel and fewer pools.

Twenty-six specific projects vital to river maintenance were recommended. In 1953 most of the previously recommended maintenance work was completed.

PRESENT CONDITION OF SALMON TROUT RIVER

During the course of the present survey the river was observed from the Middle Falls in Section 14 to the area below Sullivan Creek.

^{2/} Smith, Lloyd L., Jr. (1948) Reconnaissance of Huron Mountain Club fishing waters with revised management recommendations.

^{2/} Smith, Lloyd L., Jr. (1954) Salmon Trout River maintenance and improvement report.

rehabilitation from action of stream maintenance structures. Section 12 is much improved but additional work will permit a greater degree of recovery. The stream channel in Section 1 is well filled with sand, but there is evidence that natural clearance is underway. The river below the Harrison Pool is in approximately the same condition as it has been in past years, except that additional sand appears to have been deposited in some areas.

OBJECTIVES OF FUTURE WORK PROGRAMS ON THE SALMON TROUT RIVER

~~XX~~ The primary objective of future development work on the river is to continue and improve erosion control and to maintain existing structures. It is imperative that a continual program of maintenance be carried on to prevent destruction of work already completed and to handle new problems, such as windfalls, before they can start erosions or detrimental alterations in the stream channel. This maintenance program will require a minimum of 5 percent of the original cost of stream development annually. The cost of stream development during the past 15 years has been substantially greater than would have been required if recommended work had been completed on schedule and necessary maintenance carried on annually. When the stream has rehabilitated itself to the maximum degree which can be expected following bank and bottom stabilization, channel structures to provide additional fishing spots can be considered and designed according to specific needs.

~~XX~~

PRESENT NEED AND WORK RECOMMENDED FOR 1959 SEASON

Section 14 (Meadows)

In the Meadows there is no essential work except replacement or repair of the old dam. It is recommended, however, that small maples, elms, or birches be planted along the west and south banks of the stream where it runs through the old meadow. These trees should be placed 15 to 20 feet from the bank and back of the present alder cover. When the trees grow to a height that will shade the stream, the existing alders can be removed to facilitate fishing and access to the stream.

The existing lower dam should be reconstructed to maintain a head 4 inches higher than the present crest. The need for replacement of this structure is based on the following considerations:

- 1) Since the turn of the century, a head of water has been maintained in the Meadows. From the middle twenties until its failure in 1938, a high log dam just below the site of the present structure created head sufficiently high to flood the greater part of the Meadows and kill the tree cover in the area. Following the failure of this dam a number of problems arose on the banks that were occasioned primarily by lack of cover and increased rate of flow. The removal or loss of the present structure would again make problems of bank control more difficult and require additional planting to protect the new channel.
- 2) The dam acts as a trap to catch sand where it can be removed periodically. This trap protects the section below from material brought

in by Clear Creek.

3) The present deep pools in the Meadows provide a potentially good fishing zone and an overwintering area for fish from stretches above the meadow.

4) The existing structure is not water tight and permits the head to drop substantially during periods of low flow. Its general condition is poor and could deteriorate rapidly. It is therefore necessary to replace the structure with a new dam between the present site and the old high dam (Figure 1). A concrete dam with a stop-log section to permit control of head or complete drainage is the most desirable type of structure. It will be permanent and will require no maintenance. Such a dam could be built for \$12,000-15,000 with ready-mix concrete from Marquette. If Club labor and equipment were used, this cost could be reduced. If a concrete structure is not considered to be economically feasible, a log and rock weir with plank facing can be built. This type of construction will last for a number of years but will not permit any type of control.

The old high dam structure (Figure 2) should be completely removed at an early date to prevent its building up a head during extremely rapid run-off or becoming dislodged as its timbers rot out and floating downstream. Such displacement during high water would cause severe damage downstream.

Section 13

Work in this section is limited and consists of the following five operations (numbers refer to accompanying map):



Fig. 1. Old high dam and present low-head dam at Lower Dam site, Salmon Trout River -- view upstream from south bank.



Fig. 2. Old high-dam structure viewed downstream from north bank -- Salmon Trout River.

<u>Number</u>	<u>Type of Work</u>
1	Cut standing dead trees on west bank; boom cover bank; open channel on opposite side.
2	Tie back boom on west bank; new boom on opposite bank.
3	Two-log boom.
4	New log boom on west bank just above the Christy Pool.
5	Cut out trees and tie to bank.

Section 12

Work in Section 12 is required to control erosion and to deepen the channel, especially where the stream is wide and erosion of banks is a problem. Sixteen projects are recommended for the current season as follows:

<u>Number</u>	<u>Type of Work</u>
6	Clear bottom to make channel.
7	Boom east bank and place balsam behind boom.
8	Clear bottom.
9	Cut tree and clear bottom.
10	Boom on northwest bank; dynamite channel. ✓
11	Cut out bottom logs. not done important
12	Cut out bottom logs. ?
13	Cut out debris and tie back; clean bottom. boom fix
14	Cut out bottom logs. important
15	Wire in log. done
16	Wire back log. done
17	Clear bottom. not done.

<u>Number</u>	<u>Type of Work</u>
18	Clear bottom; cut tree on right bank; wire logs.
19	Cut out bottom. <i>not done</i>
20	Cut out tree. <i>not done</i>
21	Cut out material in channel near right bank. <i>not done</i>

important
done

Section 1

The only work recommended for Section 1 this season is the cutting out of a tree at map location number 22.

GENERAL CONDUCT OF WORK

First priority should be given to clearing of fallen trees which will cause jams and start erosions during summer high waters. Boom corners and erosion controls at cut banks should be next in order of work and other operations third. The necessity for opening channel bottoms where buried trees prevent deepening of channel should be stressed. Such development will narrow the stream, ease bank erosion problems, and improve fish-carrying capacity. This work can be greatly facilitated by the use of dynamite in a series of shots put off simultaneously with electric detonator. This detonator will rapidly pay for itself in speeding up channel work and will also increase the safety of the operation. A suitable 10-cap blasting machine can be obtained for approximately \$50.00 from Clark Explosives, 3484 Glenarden Road, St. Paul, Minnesota, or other suppliers of blasting equipment.

It is recommended that all work outlined be completed this year if

possible. The river is approaching very favorable conditions as a result of past work and the present program will preserve the good effects already created and remedy the few remaining erosion problems.

GENERAL RECOMMENDATIONS

Crook Census

The efficient management of fishing waters depends on an accurate estimate of the total harvest of fish, rate of catch in terms of pounds taken per trip, and total number of fishermen trips. Without such information planning of fish or other management practices must be done blindly with the expectation of inferior results. Overstocking which results from continued planting without adequate removal by fishermen wastes funds and, even more serious, may result in an inferior quality of fish. The only safe guide to maintenance stocking is a continual and accurate crook census which will show the total removal and the rate of catch.

It is therefore strongly recommended that every effort be made to secure the cooperation of all Club fishermen and guests in reporting both the fish killed and those returned to the water. ✓ A simple card with the necessary information could be provided with each lunch or could be contained in a diary turned in at the end of each member's stay at the Club. It will materially assist cooperation if catch is summarized each week and posted in the Club lounge.

The required information would include:

Water fished _____ Date _____

Total fish caught _____ Total fish killed _____

	<u>Caught</u>	<u>Killed</u>
Brook trout	_____	_____
Brown trout	_____	_____
Rainbow trout	_____	_____
Bass	_____	_____
Other fish	_____	_____

Signature _____

Fish Planting

Salmon Trout River

In view of present conditions on the river it is recommended that 400 to 600 catchable-size brook trout be planted in the area between the Lower Dam and the Lower Falls. Planting should be done on July 15-25 to provide good fishing for midsummer guests whose fishing time is limited. This planting should be done only if maintenance work can also be completed with available funds.

Howe Lake

Catchable-size brown trout may be planted in Howe Lake at four times the rate of annual removal. Without creel census planting will have to be on an estimated basis but should not exceed 400 fish annually unless there is a much heavier fishing load than has been sustained in recent years.

Trout Lake

Rainbow or brook trout may be planted in Trout Lake on the basis of creel census at the rate of four times the annual removal. If annual removal exceeds 100 fish the rate should be reduced to three times the removal. Without creel-census information planting should not exceed 200 fish annually. Planting policy should restrict introduction to one species only. Mixing of species or planting different species in alternate years will not be efficient.

Pine Lake

Planting of bass in Pine Lake has been suggested as a means of improving the catch. It is believed that planting of fingerlings or brood fish will not result in an increased population since in favorable brood years there are large natural hatches. The current apparent scarcity of fish is probably attributable to one or more poor year classes which should now be supporting the fishing load.

Maintenance Fund for Salmon Trout River

In view of the necessity for continued maintenance of the Salmon Trout River on an annual basis, it is desirable that appropriate provisions for this purpose be made in the Club budget or in a special fund. Availability of maintenance funds should not be based on emergency needs since care of small problems as they arise will greatly reduce total costs over longer periods. A more important consideration, however, is the preservation of beneficial results already attained and prevention of new deterioration. Without care the river can be expected

to return to its former poor condition.

Forestry Practices

If selective cutting is done on the Salmon Trout watershed or if permission is granted to cross Club holdings with logging machinery and trucks, great care should be exercised to prevent cutting of stream banks or starting erosions on the slopes which will dump sand into the river. All cutting should be avoided within 100 yards of the stream bank.

Future Inspection

It is desirable that river maintenance problems be reviewed at 2-year intervals by a competent biologist and that Club fishery policy be checked in the light of creel census results at similar intervals. Such checks are desirable to avoid unnecessary expenditures and also to recommend improvements in the light of changing conditions. Inspections should be made in May after recession of spring floods so that necessary work can be done during the current season.