



Original copy: Fish Division

cc: Mr. Ruhl

Mr. Shetter

Mr. Murphy, Supv., Huron National Forest

INSTITUTE FOR FISHERIES RESEARCH Conservation Officer Leitz

UNIVERSITY MUSEUMS

UNIVERSITY OF MICHIGAN

ANN ARBOR, MICHIGAN

July 7, 1936

REPORT NO. 375

REPORT ON TRIP TO FOOTE DAM, APRIL 29-30, 1936, WITH

AN ANALYSIS OF THE AGE AND SIZE COMPOSITION

OF THE 1936 RAINBOW RUN

On April 29-30, 1936, a cooperative fish tagging experiment was conducted on the main stream of the Au Sable, near the Foote Dam, by the U. S. Forest Service and the Institute for Fisheries Research. The writer assisted Mr. D. V. Gray, of the U. S. Forest Service, and Conservation Officer Leitz in this work. The tags were furnished by the U. S. Forest Service.

When the representative of the Institute arrived at the dam on April 29, a haul through the fish trap was about to be made. It resulted in the capture of 12 Rainbow Trout and about 500 pounds of suckers, both common and fine-scaled. The suckers were apportioned among the spectators at the dam, and the trout towed downstream to a small landing. Here they were transferred from the live-box to tanks of fresh water on a waiting truck which conveyed them some 35 miles upstream above the Banfield Dam.

On arriving at the chosen spot, the fish were tagged, measured, scale samples taken and the fish then released. Through this transference a supply of spawning rainbow are available for a very fine stretch of rainbow water between Banfield and Mio dams. It is hoped that by tagging the rainbows trapped at Foote Dam (the first dam upstream from Lake Huron), something of their migrations and growth rates may be learned from possible future recoveries.

These trapping and tagging operations were conducted on the following dates: April 28, April 29, April 30, May 5, May 9, and May 11, 1936. The fish were tagged by ringing the lower left jaw with a metal strap tag, serially numbered, and bearing

the initials - U S F S. A general summary of the fish handled will be found in Table 1 below.

Table 1

Total Fish Trapped	56*
Total Fish Tagged	46
Number of Males Tagged	23
Number of Females Tagged	23

* 1 escaped, 1 died (sent in for examination to the Institute for Fisheries Research), 1 jumped out of retaining tank and died, 1 taken for sample, and 6 were taken over dam before tagging started.

In the following table (Table 2), there are presented all the necessary data connected with the tagging. Where scale samples were available the age of the fish has been determined.

Table 2*

Tag No.	Sex	Total Length	Winters Old	Age Group	Date Tagged, 1936
U.S.F.S. 1	♂	19.500	...	...	4/29
2	♀	28.750	V	2.3	"
3	♀	27.500	...	...	"
4	♀	20.125	IV	3.1	"
5	♂	24.500	V	2.3	"
6	♀	26.000	V	2.3	"
7	♂	20.250	...	...	"
8	♀	21.000	III	2.1	"
9	♀	18.500	V	2.1	"
10	♀	23.750	V	2.1	"
11	♀	20.000	...	...	"
12	♂	17.375	...	...	"
13	♂	17.125	III	2.1	4/30
14	♂	15.000	III	2.1	"
15	♂	20.000	III	2.1	"
16	♀	18.500	III	2.1	"
17	♀	23.000	IV	2.1	"
18	♂	19.625	III	2.1	5/4
19	♂	23.000	IV	2.2	5/5
20	♀	21.500	III	2.1	5/4
21	♀	23.250	IV	2.2	"
22	♀	18.375	IV	3.1	"
23	♀	19.500	IV	2.2	"
24	♂	19.000	IV	2.2	5/5
25	♀	15.375	III	2.1	"
26	♂	17.250	III	2.1	"
27	♀	25.125	IV	2.2	"
28	♂	20.500	IV	3.1	5/11
29	♂	17.500	...	...	5/9
30	♂	20.500	...	...	"
31	♂	18.250	...	...	"
32	♀	21.875	V	3.2	"
33	♂	18.750	IV	2.2	"
34	♀	20.500	...	...	"
35	♀	17.750	III	2.1	"
36	♂	17.125	...	...	"
37	♂	18.250	...	...	"
38	♂	19.375	IV	3.1	5/11
39	♂	19.125	...	...	5/9
40	♂	22.000	IV or V	...	5/11
41	♀	19.500	IV	2.2	"
42	♀	22.125	VI	3.3	"
43	♂	18.250	IV	3.1	"
44	♀	18.000	III	2.1	"
45	♂	20.000	III	2.1	"
46	♂	20.625	IV	3.1	"
Untagged	♂	18.500	III	2.1	4/30
Untagged	?	17.500	IV	2.2	5/9

* Mr. D. V. Gray of the U. S. Forest Service and Conservation Officer Leitz are to be complimented for their cooperation in furnishing the data used in this table, and on the efficient manner in which they carried out the transference of the fish.

Table 2 (Continued)

All trapped at Foote Dam (T. 24 N., R 8 E., Sec. 35)

All tagged and released at Flat Rock, T. 26 N., R. 5 E., Sec. 28.

		<u>Air</u>	<u>Water</u>	
April 30	2:00 p.m.	60	48	264 suckers, 4 rainbow
	3:30 p.m.	48	46	154 " , 2 rainbow

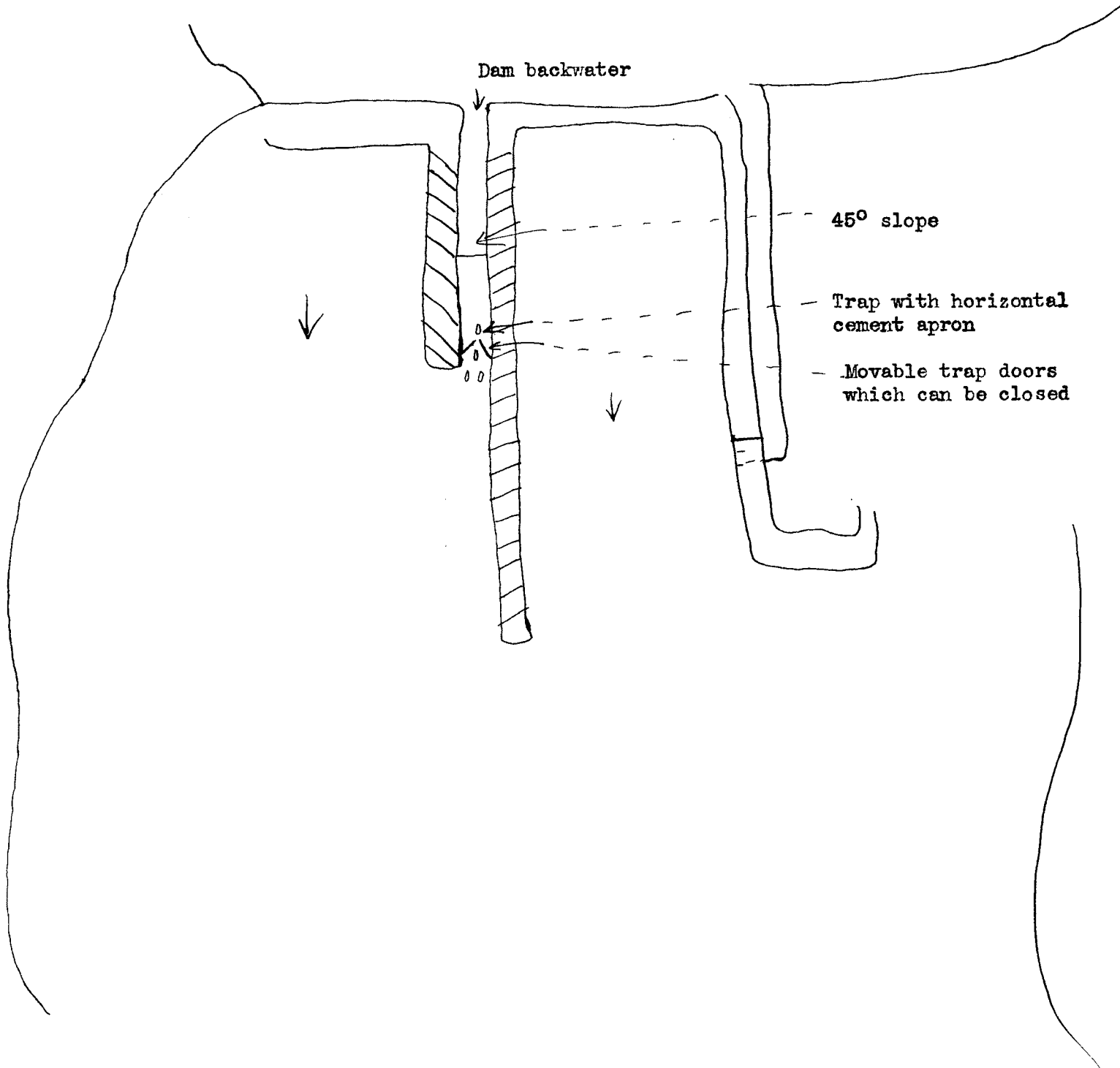
Table 3 (see below) indicates the assortment of the 34 fish from which scale samples were available. In this table the fish have been assorted as to age, growth type and sex. The average length for each type is given.

Table 3¹

<u>Age</u>	<u>Sex</u>		<u>All fish</u>
III	♂	♀	
2.1 ²	18.21	18.69	18.43
	(7)	(6)	(13)
IV			
3.1	19.69	19.25	
	(4)	(2)	20.39
2.2 ³	20.25	22.08	(15)
	(3)	(5)	
V			
2.3	24.13	27.38	
	(2)	(2)	22.98
			(5)
3.2	....	21.87	
		(1)	
VI			
3.3	....	22.125	22.125
		(1)	(1)

- ¹ Scales read under a binocular microscope mounted in glycerin jelly or in water mounts. Readings checked by G. P. Cooper, and also compared with scales used by J. R. Greeley in his growth rate study of Michigan Rainbow Trout.
- ² Indicates growth type. Figure at left of decimal shows number of years of stream growth observed on scale; figure at right of decimal indicates number of years spent in lake. Stream growth is relatively slow; lake growth relatively fast.
- ³ Indicates one 2.2 type sex not known.

A general plan of the dam, along with a picture of the trap are appended.



Conclusions

1. Unless there are adequate spawning grounds below Foote Dam on the Main Au Sable, the run of migratory Rainbow Trout from Lake Huron is much lighter than comparable runs of Rainbow from Lake Michigan into such streams as the Manistee, the Boardman, etc., on

the west side of the state.

2. Of the 34 fish from which scale samples were available, 13 were 3 winters old, 15 were 4 winters old, 5 were 5 winters old, and 1 was 6 winters old.

3. The growth type predominating in this sample is the type spending 2 years in the stream before migrating to the lake, 27 individuals of this growth type being present as compared with 7 individuals spending 3 years in the stream before migrating to the lake.

4. Although the data are limited, they tend to indicate that where fish are greater than 3 years old, those fish which have migrated to the lake at the end of two stream years are of larger average size than fish of the same age spending 3 years in the stream before migrating to the lake. This is in agreement with Greeley's² findings, whose data came mostly from Rainbow, native to streams flowing into Lake Michigan.

² Greeley, J. R., 1933. The Growth Rate of Rainbow Trout From Some Michigan Waters, Trans. Am. Fish Soc., Vol. 63, pp. 361-378.

INSTITUTE FOR FISHERIES RESEARCH

By: David S. Shetter

Original copy: Fish Division

cc - Mr. Ruhl

Mr. Shetter

INSTITUTE FOR FISHERIES RESEARCH

DIVISION OF FISHERIES

MICHIGAN DEPARTMENT OF CONSERVATION

COOPERATING WITH THE
UNIVERSITY OF MICHIGAN

A. S. HAZZARD
DIRECTOR

September 22, 1936

ADDRESS
UNIVERSITY MUSEUMS
ANN ARBOR, MICHIGAN

APPENDIX TO REPORT NO. 375

(Copy of letter by Arthur Leitz)

1936

P. M. Dipping

Fish taken and transported at Foote Dam, Iosco County.

<u>Date</u>	<u>Suckers</u>	<u>Rainbow Trout</u>	
4/21	50	6	returned
4/27	150	3	"
4/28	400	11	
4/29	400	12	
4/30	426	7	
5/4	967	6	
5/5	762	5	
5/6	2680	2	
5/7	4122	10	
5/8	1536	1	returned
5/11	1575	14	
5/14	250	4	
	<u>13,318</u>	<u>81</u>	

46 Rainbow trout were tagged and transported to Au Sable River, Alcona County, T. 26 N., R. 5 E. Tags were furnished by U.S.F.S.

10 rainbow trout returned to the stream
Gave suckers to the needy people
3 rainbow trout lost in transfer

22 rainbow trout transported to Alcona County, T 26 N, R 5 E.
were not tagged.

Rainbow trout weight, $1\frac{1}{2}$ to 6 lbs.

Arthur Leitz
Conservation Officer
East Tawas, Michigan