MONTANA FISH AND GAME DEPARTMENT
FISHERIES DIVISION
HELENA, MONTANA

JOB COMPLETION REPORT
INVESTIGATIONS PROJECTS

State of Montana

Project No. F-23-R-4 Name Fishery Investigation Laboratory

Job No. I & II Title Age & Growth Studies & Analysis of Bottom Samples in Connection With Pollution Studies

Period Covered: May 1, 1960 to April 30, 1961

Abstract:

Over 9,000 fish scale samples were processed in the laboratory during 1960-61. A summary is presented showing the average growth rates of the larger collections aged at the laboratory.

Objectives:

In formulating a sound fisheries management program it is necessary to know the growth rates and ages of the fish populations. This laboratory provides facilities for processing scale samples, determining age and growth and maintaining files of age and growth data. The laboratory location allows utilization of well trained student laboratory assistants in both scale work and in the tedious analysis of bottom samples.

Techniques and Findings:

During 1960-61 over 9,000 scale samples were entered in the accession records of the laboratory. All but a few small collections were aged during this period. These collections represent initial survey data, collections made in evaluating management techniques and special studies concerning life histories and ecology. Three large collections were mounted for special graduate research studies and will be aged by the project leaders. In addition several large collections including fish from mountain lakes, streams, and reservoirs were mounted and returned to project biologists for age analysis.

Work is in progress in placing the age and growth data on cards for easy reference.

A summary of the more significant samples aged during 1960-61 are presented in Table I.

No significant benthos analysis work was done during the year.

Table I - Summary of Age and Growth Studies For 1960-61.

Rainbow Trout

	I	II	III	IV	V	VI
Ajax Lake	3.5(19)					
Belt Creek	3.0(46)	5.6(27)	10.0(3)			
Big Cherry Creek	2.6(12)	4.0(3)				
Big Spring Creek	4.6(56)	11.4(28)	14.9(13)	17.5(2)		
Cut Bank Creek	2.6(25)	6.5(25)	10.5(21)	13.0(4)	15.8(1)	
Diamond Lake	1.9(9)	5.7(9)				
Dry Fork Marias River	2.2(11)	8.8(11)	12.0(8)			
East Fork Reservoir	3.0(29)	9.0(28)	13.5(16)	17.6(4)		
Eureka Lake	11.7(31)					
Fisher River	2.0(28)	5.3(2)				
Georgetown Lake	3.1(149)	6.8(148)	9.4(94)	15.2(7)	22.7(1)	
Gibson Reservoir	3.2(16)	8.1(16)	11.2(10)	14.6(1)		
Holliday Lake	3.6(53)	7.9(44)	12.4(26)	20.4(1)		
Kuhr-Newhouse Res. #6	2.8(39)	6.1(26)	8.7(18)			
Little Big Horn River	3.6(20)	6.1(19)	9.0(1)			
Marias River	3.3(35)	9.6(32)	12.1(21)	12.2(1)		
Martin Creek	3.2(20)	8.4(7)	10.9(2)			
McDonald Pond	4.0(9)	6.8(2)	18.2(1)			
Miller Reservoir #6	2.7(38)					
Mission Lake	2.9(33)	8.4(33)	12.9(5)	16.1(1)		
Ottesen Reservoir	2.9(12)	9.6(12)	12.3(12)			
Pipe Creek	2.5(73)	4.9(19)				
Prospect Creek	2.7(11)	4.6(4)	6.2(1)			
Rock Creek	2.9(118)	6.4(40)	10.2(17)	12.1(5)	14.8(3)	
Sheep Creek	2.7(40)	6.0(29)	8.2(8)			
Tenderfoot Creek	2.7(86)	5.3(77)	7.7(39)	9.5(12)	12.1(4)	
Tiber Reservoir	8.3(233)	11.7(225)	12.6(79)	13.7(6)		
Upper Ulreys Lake	2.4(35)	6.1(35)	9.1(27)	11.0(16)	12.9(3)	
West Fisher River	2.4(23)	4.4(5)				
Whits Lake	3.5(27)	8.8(27)	13.0(11)	17.6(3)	19.4(2)	21.1(1)
Woodward Lake	2.8(21)	5.8(21)	9.8(19)	13.0(13)	14.6(8)	

Cutthroat Trout

Albino Lake	2.9(74)	6.6(70)	10.7(28)	14.4(7)		
Avalanche Lake	2.8(10)	6.9(10)				
Bear Lake	2.8(16)	6.6(16)	11.0(16)	14.3(1)		
Darkhorse Lake	4.2(15)	6.7(11)	9.6(9)			
Flower Creek	2.5(17)	4.5(15)	6.4(8)	9.2(1)		
Georgetown Lake	2.5(111)	6.1(111)	9.8(99)	12.8(53)	14.0(1)	
Holliday Lake	3.9(14)	9.9(14)	16.0(3)	12.5(1)		
Little Blackfoot River	3.1(19)	5.8(16)	7.2(1)			
Lower Spanish Lake	3.1(15)	6.3(13)	10.3(9)	13.4(3)		
Martin Creek	2.8(24)	5.8(5)	9.3(1)			
Nine Mile Creek	2.1(77)	4.3(37)	6.9(11)	9.3(6)	11.1(1)	
O'Brian Creek	3.4(25)	5.4(15)	9.1(3)			
Postal Creek	3.3(8)	6.1(7)	8.2(3)			
Prospect Creek	1.9(13)	4.2(9)	7.1(2)	10.4(1)		
Ramshorn Lake						
Rock Creek	2.9(29)	5.1(9)	10.6(1)			
Solitude Lake	3.0(21)	5.8(21)	8.1(15)	9.7(2)		
Summit Lake	3.9(16)	8.0(16)	11.3(11)	13.2(4)		

Table I - Cont'd.

Whitefish

	I	II	III	IV	V	VI
Belt Creek	3.3(27)	6.4(24)	9.3(22)	11.1(18)	12.4(11)	13.8(4)
	VII-15.4(2)	VIII-17.3(1)				
Canyon Ferry Reservoir	3.9(10)	7.0(10)	9.7(8)	11.9(7)	12.8(4)	13.7(3)
	VII-14.0(1)					
Cutbank Creek	3.7(33)	7.0(32)	9.6(21)	10.7(5)		
Hungry Horse Reservoir	3.4(18)	7.4(18)	9.6(15)	10.9(10)	10.7(1)	
Nine Mile Creek	2.7(9)	5.2(8)	7.8(7)	10.4(2)		
Prospect Creek	2.6(16)	5.4(23)	7.3(2)			
Rock Creek	2.8(377)	6.2(209)	8.8(168)	10.6(94)	12.4(49)	13.5(28)
	VII-13.9(16)	VIII-16.7(3)	IX-17.4 (1)			
Sheep Creek	3.2(15)	6.2(14)	8.3(3)			
Smith River	3.7(76)	7.4(63)	9.4(27)	10.6(17)	11.7(6)	12.9(2)

Large Mouth Bass

Kicking Horse Reservoir	2.0(17)	5.2(17)	6.4(14)	7.6(3)		
Ninepipe Reservoir	3.1(107)	7.1(107)	10.9(107)	12.6(84)	13.8(62)	14.7(30)
	VII-15.8(25)	VIII-16.6(16)	IX-17.0(3)	X-17.5(3)		
	XI-17.9(1)					

Bluegill

Killens Reservoir	1.4(14)	2.9(14)	4.1(14)	5.3(14)	6.0(13)	6.4(4)

Walleye

Dybas Reservoir	3.9(9)	8.4(9)	11.8(9)	15.1(9)	18.9(2)	20.3(2)
Killens Reservoir	3.1(18)	6.7(18)	12.0(12)	16.0(12)	17.6(7)	
Milk River	5.1(16)	11.8(9)	16.9(4)	22.1(2)	24.2(2)	
Whiteside Pond	5.3(22)	9.1(22)				

Yellow Perch

Bynum Reservoir	1.4(63)	3.0(63)	4.1(63)	6.7(40)	7.9(9)	9.9(2)
	VII-11.6(1)					
Canyon Ferry Reservoir	2.3(146)	4.8(146)	6.7(124)	8.1(75)	9.0(54)	9.8(19)
	VII-11.2(4)					
Fort Peck Reservoir	2.1(50)	4.7(48)	6.9(7)	8.4(1)		
Milk River	2.1(21)	3.8(12)	5.6(3)			

Common Suckers

Bynum Reservoir	1.7(51)	5.0(51)	9.1(48)	12.4(34)	14.5(18)	15.2(7)
	VII-15.9(2)	VIII-16.0(1)				
Canyon Ferry Reservoir	2.1(164)	5.2(164)	7.9(138)	10.2(115)	11.5(84)	12.3(19)
Hungry Horse Reservoir	2.0(22)	4.5(22)	7.6(21)	10.4(18)	11.4(5)	
Kellenbeck Reservoir	1.2(10)	3.9(10)	7.9(9)	10.7(9)	11.9(3)	
McDonald Pond	1.8(19)	5.7(9)	10.6(9)	13.2(6)		
Mission Lake	1.6(32)	5.5(32)	10.8(26)	13.8(21)	15.3(3)	16.4(1)
	VII-16.9(1)					
Tiber Reservoir	2.8(280)	8.4(246)	10.5(42)			

Table I - Cont'd.

	I	II	III	IV	V	VI
Thompson Lake	3.6(27)	6.7(27)	9.8(20)	11.5(4)		
Upper Falls Creek Lake	2.8(14)	6.4(14)				
Vermillion River	2.0(9)	4.3(6)	6.9(1)			
Brown Trout						
Canyon Ferry Reservoir	3.7(49)	8.3(49)	13.6(43)	16.4(32)	18.4(18)	19.1(6)
					VII - -	22.9(2)
Gallatin River	3.9(47)	9.0(36)	13.7(12)	16.0(5)		
Hound Creek	3.8(46)	9.0(17)	13.4(6)	18.4(1)		
Little Bighorn River	3.3(18)	6.9(5)	8.0(1)			
Musselshell River	3.4(50)	8.0(42)	12.4(11)	15.7(4)		
Smith River	3.7(23)	8.9(7)				
Eastern Brook Trout						
Georgetown Lake	3.2(51)	7.2(51)	11.2(30)	15.1(2)		
Holliday Lake	4.1(58)	8.4(57)	11.0(37)			
Martin Creek	3.3(14)	5.6(1)				
Nine Mile Creek	2.8(20)	5.2(13)	7.8(3)			
O'Brian Creek	3.4(14)	6.1(5)	9.2(1)			
Prospect Creek	2.8(55)	4.4(23)	6.0(5)			
Riebe Reservoir	4.5(15)	10.1(14)	13.9(1)	16.9(1)		
Rock Creek	3.6(10)	6.1(6)				
Shonkin Creek	3.5(91)	6.0(18)	7.1(1)			
West Fork Sun River	2.7(10)	5.3(10)	7.3(3)			
Dolly Varden						
East Fork Reservoir	3.1(34)	6.9(34)	10.6(25)	14.7(4)		
Flower Creek	2.1(8)	3.8(7)	5.2(5)			
Hungry Horse Reservoir	2.9(39)	5.6(39)	9.4(38)	13.9(23)	17.3(7)	
Rock Creek	3.1(23)	6.2(23)	9.0(16)			
Grayling						
Agnes Lake Big Hole	4.7(19)	10.8(19)	13.6(12)	15.2(5)	16.0(2)	
Fine Scale Sucker						
Canyon Ferry Reservoir	2.0(69)	4.6(69)	7.6(69)	9.7(42)	11.2(18)	9.8(1)
					VII - -	10.5(1)
Georgetown Lake	1.0(29)	3.1(29)	6.3(28)	8.8(13)	10.4(5)	
Hungry Horse Reservoir	2.0(21)	5.0(21)	7.6(21)	8.9(11)	9.5(3)	
Tiber Reservoir	2.7(16)	7.0(16)	9.9(11)	11.5(3)		
Goldeye						
Fort Peck Reservoir	4.2(17)	7.5(13)	10.8(5)	12.6(4)	13.3(3)	14.0(2)
Squawfish						
Hungry Horse Reservoir	1.8(20)	3.7(29)	6.9(29)	8.7(17)	10.4(4)	

Recommendations:

Collection and analysis of fish scales for age and growth should continue with attention devoted to collecting adequate samples from the important waters. Work on assembling age and growth data should reach a state this year where we will be able to evaluate the weak areas in the collections.

Prepared by John R. Heaton Approved by George D. Holton
George D. Holton

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