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STATE OF NEBRASKA

NEBRASKA GAME AND PARKS COMMISSION

A SUMMARY OF LAKE MC CONAUGHY RAINBOW TROUT SPAWNTAKING ACTIVITIES

WINTER CREEK HATCHERY

December 1970 - July 1971

By

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Research Biologist I

July 1971

Introduction

The objective of this activity is to raise and stock progeny from adult Lake McConaughy rainbow trout for the purpose of: (1) establishing spawning runs of McConaughy strain rainbow trout in streams which have the potential to support reproduction, (2) develop a stocking program for streams which have a coldwater habitat but lack suitable spawning areas (these rainbow, upon reaching a size of seven to nine inches will migrate downstream to Lake McConaughy. They will return to the streams in their third and fourth years weighing 2.0 to 6.0 pounds), and (3) providing additional life history and management information about the migratory rainbow trout population in the North Platte River drainage.

Procedure

All adult rainbow trout used in spawntaking operations were held at Winter Creek Hatchery until sexually mature. Winter Creek Hatchery is a privately operated hatchery located on the shore of Lake Winters Creek, Scotts Bluff County. Eggs were collected from both the fall and spring run of Lake McConaughy rainbow trout. As the adults became ripe they were artificially spawned and the green eggs were placed in an incubator and held until eyed. They were shocked and all dead eggs were picked off. The eyed eggs were placed in hatching troughs and allowed to hatch. Most

of the small trout were stocked when they were between 800 and 1,200 per pound. All fish raised were stocked in the North Platte River drainage above Kingsley Dam which creates Lake McConaughy.

A total of 43 adult Lake McConaughy rainbow trout spawners (29 females and 14 males) were collected from the fall spawning run. Of this number 14 females and 12 males were collected at the Lewellen trap and 15 females and 2 males were collected by electro-fishing in Nine Mile Creek. During the spring run 24 rainbow trout spawners (19 females and 5 males) were collected at the Lewellen trap. Rainbow trout from both runs were transported to Winter Creek Hatchery.

Results

Fall Run

Egg collections from the fall run of rainbow trout are shown in Table 1. The modified Von Bayer table was used to estimate the number of eggs. The average pre-eyed mortality was 4.1 per cent.

A total of 98,347 eggs were collected from 29 females. The average size of the females was 20.6 inches (range 15.8-23.9) and 3.8 pounds (range 1.7-5.7).

The average size of the males was 20.5 inches (range 14.7-23.5) and 3.6 pounds (range 1.0-5.4).

Table 1. Mortality from green to the eyed egg stage of fall run rainbow trout eggs collected at Winter Creek Hatchery, December 1970-February 1971.

Lot No.	Average Von Bayer Count	Number of Eggs	Pre-eyed Mortality (Number)	Pre-eyed Mortality (Per Cent)	Number of Eyed Eggs
1	62	25,858	1,761	6.8	24,097
2	62	17,725	312	1.8	17,413
3	61	7,202	168	2.3	7,033
4	58	6,805	113	1.7	6,692
5	60	9,028	358	4.0	8,670
6	62	6,601	431	6.5	6,170
7	64	20,317	882	4.5	19,435
8	65	4,811	36	.8	4,775
TOTALS:		98,347			94,285

Production figures from eyed eggs to stocking are shown in Table 2.

Table 2. Production from fall run Lake McConaughy rainbow trout eyed eggs.

Hatching Trough	Number of Eyed Eggs	Number of Fry Produced
1	12,519	9,514
2	17,861	12,124
3	6,692	3,495
5	12,298	8,626
6	24,097	20,830
7	12,148	8,939
11	8,670	5,062
TOTALS:	94,285	68,590

The mortality from eyed eggs to stocking was 27.3 per cent.

The stocking records for all trout raised at Winter Creek Hatchery are shown in Table 3.

Spring Run

Fifteen females from the spring run were used for egg collection purposes. The females averaged 22.1 inches (range 17.4-27.3) and 5.2 pounds (range 2.3-10.4) while the males averaged 20.3 inches (range 18.5-22.6) and 3.5 pounds (range 2.6-4.7). A large mortality occurred while the eggs were in the green stage, consequently no reliable estimate of mortality from egg to stocking size could be made. Treatment of the eggs with inferior formaldehyde may have caused the mortality. The number of young trout raised and stocked from the spring run eggs are shown in Table 3.

Table 3. Stocking records of all rainbow trout production at Winter Creek Hatchery, 1971.

Origin	Number Stocked	Size (Fish/lb.)	Stream	Date
Fall Spawning Run	7,078	1,074	Lonergan Creek	4-6-71
Fall Spawning Run	6,205	1,587	Lonergan Creek	4-6-71
Fall Spawning Run	3,036	1,412	Lonergan Creek	4-6-71
Fall Spawning Run	3,149	1,412	Winters Creek	4-15-71
Fall Spawning Run	1,362	397	Winters Creek	5-31-71
Fall Spawning Run	8,939	1,259	Red Willow Creek	4-17-71
Fall Spawning Run	8,626	1,198	Red Willow Creek	4-17-71
Fall Spawning Run	3,356	662	Red Willow Creek	6-21-71
Fall Spawning Run	3,495	798	Otter Creek	5-20-71
Fall Spawning Run	4,935	1,145	Otter Creek	5-20-71
Fall Spawning Run	4,579	1,036	Otter Creek	5-20-71
Fall Spawning Run	5,062	885	Otter Creek	5-20-71
Fall Spawning Run	5,427	1,330	Otter Creek	5-20-71
Fall Spawning Run	1,478	966	Otter Creek	7-1-71
Fall Spawning Run	1,863	730	Otter Creek	7-1-71
Spring Spawning Run	3,766	1,070	Clear Creek	7-16-71
Spring Spawning Run	5,199	1,072	Clear Creek	7-16-71

Table 3. (Continued)

TOTALS		
<u>Stream</u>	<u>Number</u>	<u>Origin</u>
Otter Creek	26,839	Fall Spawning Run
Red Willow Creek	20,921	Fall Spawning Run
Lonergan Creek	16,319	Fall Spawning Run
Winters Creek	4,511	Fall Spawning Run
Clear Creek	8,965	Spring Spawning Run