

PROGRESS REPORT

State: New Hampshire Grant: F-61-R

Grant Title: NEW HAMPSHIRE'S MARINE FISHERIES INVESTIGATIONS

Project I: ANADROMOUS FISH INVESTIGATIONS

Job 4: SEA RUN BROWN TROUT PROGRAM

Objective: To provide opportunities for sea run brown trout fishing in coastal New Hampshire rivers.

Period Covered: January 1, 2007 - December 31, 2007

Abstract:

A total of 5,750 fish from New Hampshire's own strain of sea run brown trout were stocked into Berrys Brook at the Brackett Road bridge in Rye, NH during April and October 2007 to produce a sea run brown trout fishery. A volunteer angler survey was used to monitor the fishery. The number of survey participants was higher than the previous year. In 2003, record levels of participation and success were observed and this was attributed to the implementation of a fall stocking program. The fall stocking schedule was repeated in the years 2004-2007; however, volunteer angler participation has been lower than the high levels observed in 2003.

Introduction:

Since 1964, 500 to 10,000 domestic brown trout have been stocked annually into Berrys Brook (and occasionally other coastal tributaries) in an attempt to develop a small brown trout fishery. A fishery developed with reported catches of some fish exceeding 5 pounds. No formal monitoring occurred until 1989 when a volunteer angler survey was initiated to evaluate the fishery. The results of that survey indicated that a vast majority of the fishing effort was concentrated in Berrys Brook. Participants have reported more fish being observed than being caught.

Past experience with sea run brown trout in the State of Massachusetts suggested that utilization of a sea run strain of brown trout could result in return rates four times that experienced with domestic brood stock. New Hampshire undertook a program to establish their own strain of sea run brown trout beginning in 2000. New Hampshire stocked this strain of sea run brown trout in Berrys Brook for the first time in 2003.

Procedures:

Five thousand, seven hundred and fifty sea run brown trout composed of yearlings, and three and four year-olds from New Hampshire's own strain of sea run brown trout were stocked in April and October 2007 into Berrys Brook in Rye, N.H. (Table 4-1). There were 5,000 yearling sea run brown trout in April, while the remainder were released in October. Stocking took place at a location in Berrys Brook close to the ocean off of Brackett Road Bridge.

The fishery was evaluated with information received from volunteer angler surveys. Two methods of survey were used. An unmanned daily survey box supplied with survey cards allowed individuals making daily trips to record their fishing information. In addition, log cards were mailed to known brown trout anglers and all trips and fish caught in 2007 were recorded. The log cards asked anglers to record date fished, number of hours fished, number of fish caught, the length or weight of each fish caught, and to indicate if the adipose fin was clipped. The latter item identified two-year-old fish stocked in 2001 that were all marked with an adipose fin clip prior to stocking. The unmanned daily survey box was checked weekly to retrieve cards. The log cards were gathered from participating anglers at the beginning of January 2008.

Results:

The annual numbers and size of brown trout stocked from 1989 through 2007 into coastal rivers are shown in Table 4-1. Trout stocked in Berrys Brook during these years ranged in size from approximately 0.2 fish per pound to 12.0 fish per pound. The smaller of these two extremes were yearlings stocked in 2001; the larger sized fish were six year-olds stocked in 2005 and four and five year-olds stocked in 2006.

Results of the nineteen years of angler surveys, including 2007, comprise Table 4-2. At Berrys Brook, the number of anglers reported

fishing for brown trout in 2007 was 27, an increase from the previous three years. One hundred and four fish were reported caught by volunteers in 2007, more than four times the amount caught in 2004 and 2005. The angler hours per fish caught was 1.2 hours per fish during this time period. The fish caught were reported to range in size from 6 to 29 inches and ranged from 0.5 to 7 pounds. Nineteen fish were reported having a clipped adipose fin.

Discussion:

The brown trout fishery in coastal New Hampshire is characterized by limited numbers of dedicated fly fishermen that enjoy the challenging pursuit of a notoriously elusive but highly prized fish. As can be seen from Table 4-1, the nineteen-year stocking effort has remained relatively constant for Berrys Brook with the exception of adding a fall stocking from 2003-2007.

The combination of the additional inland stocking location off Sagamore Road Bridge, the introduction of a sea run strain of brown trout, plus the fall stocking are hoped to contribute to an increase in number of fish caught and a decrease in the number of hours per fish caught. In 2006 and 2007, there were no fish stocked at the Sagamore Road Bridge due to fallen trees in the brook that lowered the water level. In 2003, a record 152 fish were reportedly caught. The large number of brown trout caught was perhaps due to the yearlings stocked in 2003 being easier to catch than older fish. In 2007, the number of reporting anglers increased from 2004-2006 and the effort needed to catch a fish was 1.2 hours per fish, a little higher than what was found in 2006. The number of fish reported caught was more than four times that caught in 2004 and 2005. The angler response to fall stocking was good and the data show a more productive and better utilized fishery.

In 2007, nineteen fish were reported having a clipped adipose fin. All but one fish were too small to be from those that were marked and stocked in 2001. The larger fish, was approximately 29 inches in length.

In addition, anecdotal reports indicated that there were many fish observed in Berrys Brook. The fish stocked in March seemed to remain in Berrys Brook for an undetermined time. However, the presence of a seal was occasionally reported in the fall.

In May 2004, the New Hampshire regulations were changed so that the open season for fishing in Berrys Brook was extended from August 15-

December 31 to August 15-March 1. It was reported that in 2007 and 2008, Berrys Brook had a sheet of ice on its' surface during the months of January and February and thus it would have been difficult to fish by angling. However, in 2007 and 2008, some fishing did occur and the data from the survey cards for January 2007 and 2008 was included in Table 4-2. It should be noted that a survey card including information on fishing activities in 2006 was received this winter and Table 4-2 was updated with the new survey data for this report.

Brown trout hatched from the eggs of a sea run strain from Nova Scotia and reared at the Milford Hatchery are providing New Hampshire with its own strain of sea run brown trout. New Hampshire plans to continue to stock its own strain of sea run brown trout in Berrys Brook in 2008.

In addition, fall stocking of fish has encouraged more anglers to participate in the program. Record levels of participation and angler success were observed in 2003. High levels of participation and angler success were also recorded in 2007. These are optimistic signs for the sea run brown trout program at Berrys Brook. However, it is unknown if New Hampshire Fish and Game Department hatcheries will be able to provide the space needed to hold sea run brown trout yearlings through the summer for fall stocking in future years.

In conclusion, 5,750 sea run brown trout were stocked into Berrys Brook in Rye, NH. There were 27 individuals reporting that 104 fish were caught. The angler hours per fish was 1.2 hours per fish. This year and the previous year showed a decrease in hours per fish from 1989-2005.

Table 4-1. Summary data of sea run brown trout stocking in New Hampshire coastal Waters, 1989-2007.

YEAR CLASS	LIFE STAGE	STOCKING DATE	NUMBER RELEASED		SIZE (#/lb.)	STOCKING LOCATION
			Total	Sub-lot		
1988	YEARLING	4/89	10,000			
				5,000	2.30	Berrys Brook
				5,000	2.30	Taylor River
1989	YEARLING	4/90	10,000			
				5,000	2.30	Berrys Brook
				5,000	2.30	Taylor River
1990	YEARLING	4/91	10,000			
				5,000	1.70	Berrys Brook
				5,000	1.70	Taylor River
1991	YEARLING	4/92	10,000			
				6,880	1.60	Berrys Brook
				3,200	1.60	Taylor River
1992	YEARLING	4/93	10,000			
				7,000	2.00	Berrys Brook
				3,000	2.00	Taylor River
1993	YEARLING	3/94	10,000			
				5,000	3.80	Berrys Brook
				5,000	3.80	Lamprey R.
1994	YEARLING	3/95	10,000			
				5,000	3.40	Berrys Brook
				5,000	3.50	Lamprey R.
1995	YEARLING	3/96	10,000			
				5,000	2.50	Berrys Brook
				5,000	2.50	Lamprey R.
1996	YEARLING	4/97	10,000			
				5,000	1.70	Berrys Brook
				5,000	1.50	Lamprey R.
1997	YEARLING	3/98	10,000			
				5,000	3.30	Berrys Brook
				5,000	3.30	Lamprey R.
1998	YEARLING	3/99	5,000			
				5,000	2.20	Berrys Brook
1999	YEARLING	3/00	5,000			
				5,000	3.60	Berrys Brook
2000	YEARLING	4/01	5,000			
				5,000	12.00	Berrys Brook
1999	2 YR. OLDS	4/01	1,500			
				1,500	0.90	Berrys Brook
2001	YEARLING	3/02	5,000			
				5,000	1.10	Berrys Brook
2002	YEARLING	3/03	5,000			
				5,000	5.50	Berrys Brook
2002	YEARLING	10/03	1,500			
				1,500	2.30	Berrys Brook
2003	YEARLING	4/04	5,000			
				5,000	6.00	Berrys Brook
		9/04	2,419			
2003	YEARLING			784	2.80	Berrys Brook
2002	2 YR. OLDS			1,515	1.70	Berrys Brook
2001	3 YR. OLDS			120	0.70	Berrys Brook
		4/05	5,000			
2004	YEARLING			3433	2.50	Berrys Brook
2004	YEARLING			1567	6.30	Berrys Brook
		10/05	529			
2004	YEARLING			500	6.00	Berrys Brook
1999	6 YR. OLDS			29	0.20	Berrys Brook
		3/06	5,000			
2005	YEARLING			5,000	6.70	Berrys Brook
		10/06	1,725			

2004	2 YR. OLDS			1500	2.40	Berrys Brook
				150	1.00	Berrys Brook
2001	4-5 YR. OLDS			75	0.20	Berrys Brook
		4/07	5,000			
2006	YEARLING			5,000	6.45	Berrys Brook
		10/07				
			750			
2006	YEARLING			650	2.00	Berry's Brook
2004	3 YR. OLD			80	0.50	Berry's Brook
2003	4 YR. OLD			20	0.33	Berry's Brook

Table 4-2. Summary of information collected from volunteer angler survey cards from brown trout anglers fishing in Berrys Brook, Taylor River and Lamprey River, 1989-2007.

YEAR	RIVER	#TRIPS	ANGLER HOURS	# FISH CAUGHT	ANGLER HR./FISH	# INDIVIDUALS REPORTING*
1989	Berrys	46	118.50	3	39.5	16
	Taylor	NO REPORTS				
1990	Berrys	62	165.00	3	55.0	17
	Taylor	10	121.00	0	-	4
1991	Berrys	55	153.70	2	76.8	36
	Taylor	7	11.50	2	5.7	1
1992	Berrys	53	156.50	11	14.2	27
	Taylor	NO REPORTS				
1993	Berrys	29	87.00	3	29.0	13
	Taylor	NO REPORTS				
1994	Berrys	64	121.00	4	30.2	46
	Lamprey	NO REPORTS				
1995	Berrys	33	105.00	3	35.0	28
	Lamprey	NO REPORTS				
1996	Berrys	34	91.00	2	45.5	13
	Lamprey	NO REPORTS				
1997	Berrys	20	48.50	0	-	7
	Lamprey	NO REPORTS				
1998	Berrys	15	52.50	1	52.5	6
	Lamprey	NO REPORTS				
1999	Berrys	24	60.50	4	15.1	14
2000	Berrys	27	70.00	9	7.8	12
2001	Berrys	24	53.50	4	13.4	8
2002	Berrys	25	39.25	6	6.5	18
2003	Berrys	99	234.00	152	1.5	35
2004	Berrys	65	123.00	23	5.3	25
2005	Berrys	18	47.25	23	2.1	12
2006	Berrys	73	148.50	131	1.1	23
2007	Berrys	60	122.25	104	1.2	27

* A card not signed was counted as one individual.