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ANNUAL PROJECT REPORT

F I S H E R Y M A N A G E M E N T P R O G R A M

Great Smoky Mountains National Park
North Carolina & Tennessee

Date of Report: Dec. 1982

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Fishery Management Program

Great Smoky Mountains National Park
Tennessee & North Carolina

Introduction

The Great Smoky Mountains reach a majestic climax in the Appalachian Highlands where they form the common border between North Carolina and Tennessee. In the twenties, a movement by men of great vision to create a National Park within the Smokies reached fruition. The money to buy the land for the Park came mainly in the form of donations from the people of North Carolina and Tennessee with a matching contribution by the Rockefeller Foundation. The combined gifts were presented to the Secretary of the Interior, and the Great Smoky Mountains National Park became a reality.

Today its boundary protects 800 square miles of mountain wilderness with many unspoiled watersheds that provide the ultimate in quality fishing for wild stream reared trout. No area in the Eastern United States offers such a vast excellence of trout streams. The scars left by the mountain dwellers and timber cutters have been camouflaged by four decades of uninterrupted forest growth. Over 735 miles of streams found in the Park give refuge to some 70 odd species of fish. Prior to the introduction of rainbow trout in the early 1900's, the native brook trout was the only trout present in the Park. Since its introduction, the rainbow has taken up much of the original range of the brook trout and provides the bulk of sport fishing in Park streams. Brown trout and smallmouth bass inhabit the lower reaches of a few streams, but numerically are abundant in only a few streams.

In 1982 approximately 8,000,000 visits were made to the GSMNP; this was a decrease of about 2 percent from 1981. It was estimated that 18,447 angler-use-days took place during 1982. This represents about a 3 percent decrease in angler use over 1981.

The great majority of angling occurs adjacent to the Park road system which is open to the public. The back country contains over three fourths of the mileage of streams and can be reached only by foot. The remoteness of a few streams is such that in some years angling pressure is very light, while others receive increasingly heavy pressure.

The Abrams Creek Embayment, a 50 acre arm of Chilhowee Reservoir (1,670 acres), is fished in accordance with the laws of Tennessee. A section of Raven Fork and the Oconaluftee River are fished in accordance with the laws of the Cherokee Indian Reservation in North Carolina. In all other waters, Park Service regulations apply.

Figure 1. Length Frequency of Native Rainbow Trout Collected from GSMNP Recreational Fishing Streams*, Fall 1981

* Little River, Bradley Fork, Deep Creek,
Middle Prong and West Prong Little Pigeon River,
and Oconaluftee River

Number = 1,342 fish

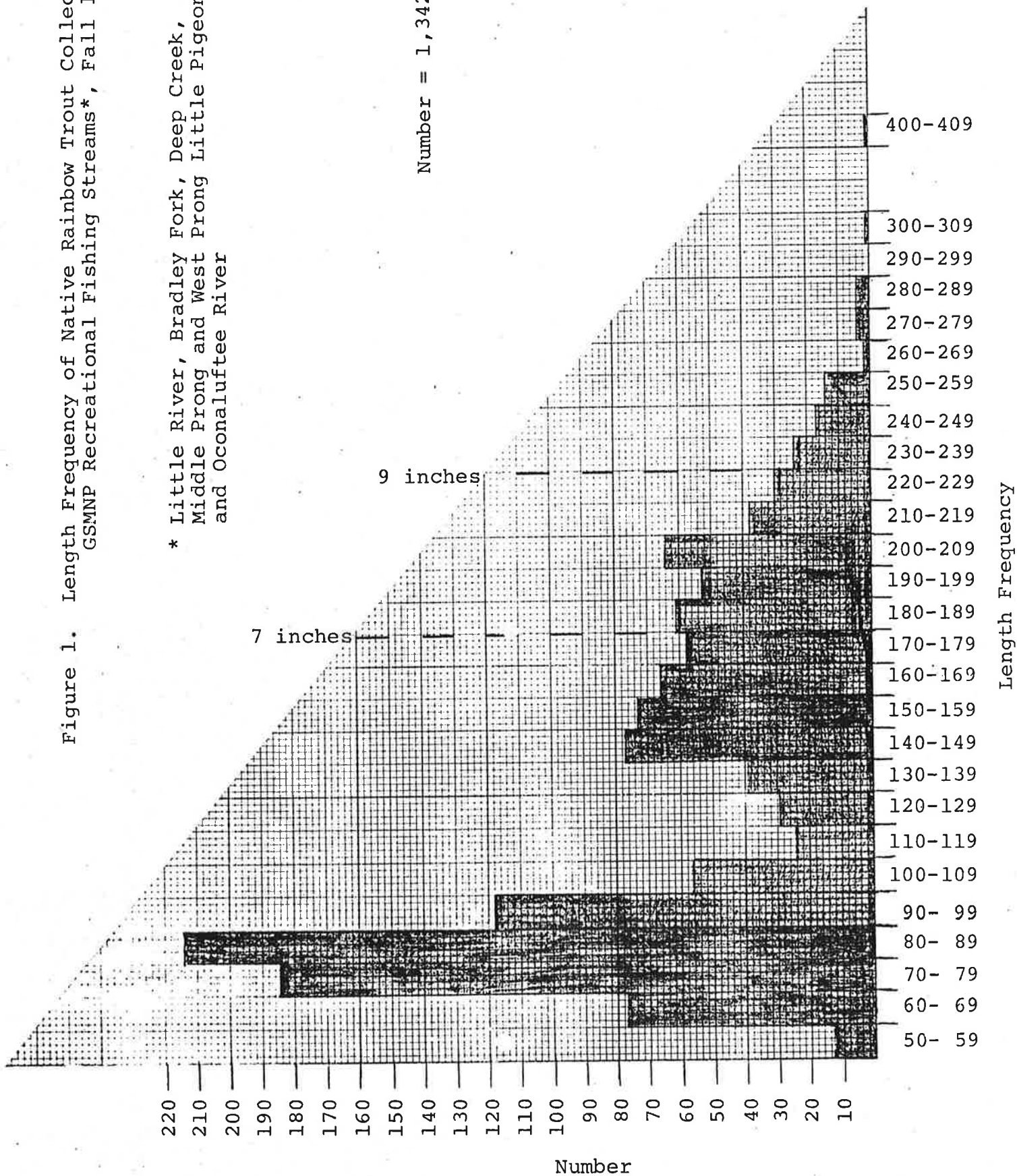


Table 1. Standing Crop of Rainbow and Brown Trout in
Recreational Fishing Streams, GSMNP, Fall 1981

	<u>No. BNT/Ac</u>	<u>Lbs. BNT/Ac</u>	<u>No. RBT/Ac</u>	<u>Lbs. RBT/Ac</u>
Deep Creek (Campground)	30	2.5	101	11.6
Deep Creek (Turn-around)	36	6.3	*	*
West Prong Little Pigeon River (Headquarters)	+	+	192	24.6
Oconaluftee River (below Smokemont)	40	16.7	243	20.4
Bradley Fork (Campground)	189	21.6	711	36.0
Little River (above Elkmont)	<u>+</u>	<u>+</u>	<u>*</u>	<u>*</u>
Mean	/4	11.8	312	23.2

* Invalid sample

+ Species not present

Figure 2. Length Frequency of Native Brown Trout Collected from
GSMNP Recreational Fishing Streams*, Fall 1981

* Bradley Fork, Oconaluftee River, Deep Creek,
and Little River

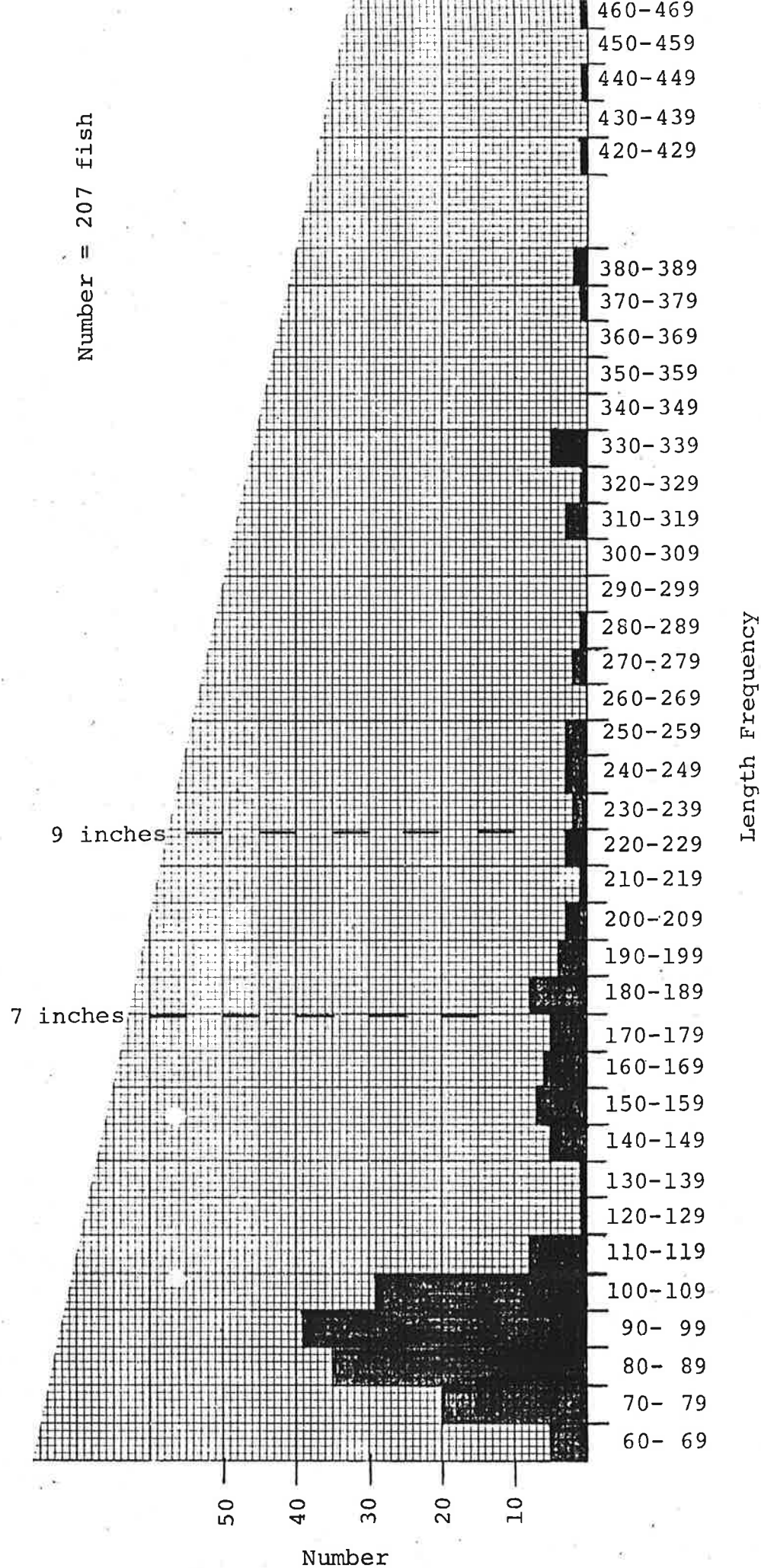


Table 2. Species of Fish Collected and their Location, Great Smoky Mountains National Park, Tennessee and North Carolina, 1981

Common Name	Scientific Name	Bradley Fork	Deep Creek	Little River	Oconaluftee River	West Prong Little Pigeon River
Rainbow trout	<u>Salmo gairdneri</u>	x	x	x	x	x
Brown trout	<u>Salmo trutta</u>	x	x	x	x	
Banded sculpin	<u>Cottus caroliniae</u>	x	x	x	x	x
Mottled sculpin	<u>Cottus bairdi</u>			x		
Stoneroller	<u>Campostoma anomalum</u>	x	x	x	x	x
Rosyside dace	<u>Clinostomus funduloides</u>	x	x		x	
Longnose dace	<u>Rhinichthys cataractae</u>	x	x	x	x	x
Blacknose dace	<u>Rhinichthys atratulus</u>		x			x
Hogsucker	<u>Hypentelium nigricans</u>	x	x	x	x	x
Black redhorse						
sucker	<u>Moxostoma duquesnei</u>			x		
Golden redhorse						
sucker	<u>Moxostoma erythrurum</u>				x	
White sucker	<u>Jatostomus commersoni</u>				x	
Whitetail shiner	<u>Notropis galacturus</u>		x	x		x
Tennessee shiner	<u>Notropis leuciodus</u>		x	x		
Silver shiner	<u>Notropis photogenis</u>		x			
Mirror shiner	<u>Notropis spectrunculus</u>		x			
Telescope shiner	<u>Notropis telescopus</u>		x	x		x
Warpaint shiner	<u>Notropis coccogenis</u>		x	x	x	x
Saffron shiner	<u>Notropis rubricroceus</u>					
Gilt darter	<u>Percina evides</u>		x			
Olive darter	<u>Percina squamata</u>		x			
Tangerine darter	<u>Percina aurantiaca</u>			x		
Greenside darter	<u>Etheostoma blennioides</u>		x	x	x	x
Redline darter	<u>Etheostoma rufilineatum</u>			x		
Tennessee snubnose darter						
Greenfin darter	<u>Etheostoma simoterum</u>			x		x
Fantail darter	<u>Etheostoma chlorobranchium</u>					x
Swannanoa darter	<u>Etheostoma flabellare</u>					x
River chub	<u>Etheostoma swannanoa</u>					
Creek chub	<u>Nocomis micropogon</u>		x	x	x	x
Rock bass	<u>Semotilus atromaculatus</u>					
Smallmouth bass	<u>Ambloplites rupestris</u>		x	x		x
	<u>Micropterus dolomieu</u>			x		x

x = present

The fish stocking program was eliminated in 1976. All fishing is maintained by self sustaining populations of fish, both native and exotic species.

Lower Elevation Stream Studies

During the fall and early winter 1981-82, population studies were conducted on Little River, West Prong Little Pigeon River, Bradley Fork, Oconaluftee River and Deep Creek to develop baseline data to evaluate the proposed changes in the Park's fishing regulations. Figure 1 presents the length frequency data for the wild rainbow trout. Approximately 23.3 percent of the fish are seven inches or greater. This group of fish would be available for harvest under the proposed regulations, whereas under the current regulations, only 5.0 percent of these fish are of legal size.

Bradley Fork has by far the largest trout population in the Park (Table 1). However, only 8.9 percent of the rainbow trout would be legal size under the new regulations. The remainder of the fish are mainly in the two to four inch class.

The length frequency of brown trout is presented in Figure 2. Approximately 22.2 percent of these fish are seven inches or greater, while 13.0 percent are nine inches or greater. Nearly all of the larger brown trout (12 inches +) came from the Oconaluftee River or Bradley Fork. These fish were probably the result of the stocking program on the Cherokee Indian Reservation.

Table 2 presents the species collected and their location. A total of 32 species were collected during this survey. Fishes found in the 1981 survey, but not collected in the 1978-80 survey as reported by Douglas (1980), were the silver shiner (Notropis photogenis) and the golden redhorse sucker (Moxostoma erythrurum). Two other species not collected in 1978-80, but found in the Raven Fork, were the mountain brook lamprey (Ichthyomyzon hubbsi) and the popeye shiner (Notropis ariommus).

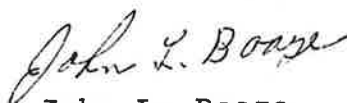
Acid Precipitation Studies

In order to try and determine if the acid problem that is present on the Raven Fork drainage of the Park occurs on other streams, a limited study was conducted. Ramsey Prong and Miggie Prong Little Pigeon River, which are on the opposite side of the mountain from Raven Fork, were sampled. Results of this one time sample indicated that the Middle Prong is supporting a rainbow trout density of 362 fish/acre, while Ramsey Prong has 235 fish/acre. It appears that the Ramsey Prong may be depressed for some reason.

Recommendations for Future Studies

1. Population studies need to be conducted on the major low elevation streams in 1983-84 to evaluate the new fishing regulations. After the two year study only bi-annual sampling will be necessary.
2. Sampling of unique habitat types such as the Abrams Creek Embayment is needed to update the fishes of the Park list.
3. Additional sampling of Ramsey Prong and the Middle Prong Little Pigeon River would be useful to determine the impact, if any, of acid precipitation on these watersheds.

Submitted by



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