

RUNNING INVENTORY WITH POPULATION ESTIMATES

NORTH PIKES CREEK
July and August, 1978

Background

North Pikes Creek is the major tributary stream to Pikes Creek. The stream begins from swamp drainage (Section 33, T51N, R4W) where it passes through a series of beaver ponds and flows south for 1.6 miles where it joins the stream's major tributary (Section 4, T50N, R4W) and flows for an additional 4.3 miles to its outlet on Pikes Creek (Section 21, T50N, R4W). North Pikes Creek directly drains 14.62 square miles of land of mostly sandy clay soils. The nature of the soil allows for little absorption of water, thus creating a situation where even the slightest rain causes extensive fluctuations in flow rates and silt loads. Devastating floods occurred in 1942 and 1946 in the watershed. Normal discharge was estimated to be approximately 5 cubic feet per second. The water is considered hard with MPA of 138 ppm and alkaline with a pH of 8.2. In periods of no runoff, clarity is clear to whiskey colored. With heavy rains, the stream becomes very turbid with red clay and with gradual rains which cause greater outflow from marsh areas, the clarity becomes the color of root beer.

Bottom substrate in the upper reaches consists of sand-clay-silt-muck, grading into a gravel-sand substrate in the middle of the watershed, and then gravel-rubble-boulder complex on the lower two miles.

Width averaged 14.4 feet and depth 0.71 feet in the trout water portion. The average gradient on this section is 47.9 feet per mile.

The majority of the springs on North Pikes Creek occur in Sections 9 and 16 of T50N, R4W. The tributary (Section 4, T50N, R4W) which drains Sultz swamp during extended dry periods has an intermittent flow and is not considered trout water.

Past Management

Previously, 5.0 miles of North Pikes Creek was classed as Class IIa trout water with approximately 5.6 acres of trout water.

Stocking records were not kept specifically for North Pikes Creek. Stocking records for the entire watershed are listed in the 1978 Pikes Creek study.

In August, 1947, a fishery survey was conducted. A total of 2,500 feet of the Pikes Creek watershed was sampled by electrofishing. Two 480 foot sections were sampled on North Pikes Creek and data for these stations were kept separate during survey work in 1978 for comparison.

Data for both sampling periods are listed together for convenience in Table 1. Fish recorded from the original survey are listed for each species on the left hand side of the column and fish sampled from the 1978 repeat study are listed in parenthesis.

In the 1946 study, brown trout dominated section D and brook trout were also present. No rainbow trout were present in this station and it is speculated that the anadromous rainbow spawning was not successful in 1946 and 1947. Brook trout and brown trout were planted in the stream during this era. In the present study, the anadromous strain of rainbow trout is dominant. Brook trout were present but no brown trout were sampled in the current study. One white sucker and a brook stickleback were recorded in the original study but not sampled in 1978. Slimy sculpins were present at this station in both studies.

Brook trout were the only salmonid specie sampled in either time period in Station E, although in the 1947 study, much larger brook trout were sampled and a greater number were captured. This is probably due to a shift in land use in the next section of the stream above this study site. The land is presently used to pasture cattle and conditions for trout habitat have been degraded. Three new species of fish were found in the 1978 study that were not sampled in Section E during 1947: slimy sculpin, creek chub, and blackchin shiner.

Fishing History

The bulk of the sport fishery takes place during May when the lake run rainbow population comes up the stream to spawn. There is also a light fishery for brook trout the rest of the year.

Access and Fishability

Access is considered good with two town road crossings and approximately 3.6 miles of the stream bank in state ownership.

Fishability is considered fair to poor because of debris in the stream and speckled alder (Alnus rugosa) encroachment.

Present Fish Resources

In July and August, 1978, Fish Management personnel from the Lake Superior Work Unit sampled the fishery resources of North Pikes Creek. About 4.8 miles of the 5.9 miles (81% of the stream thread) of North Pikes Creek were surveyed. All trout captured were fin-clipped left pectoral and the rainbows over 6 inches were tagged with numbered floy tags. The main interest in fin-clipping and tagging is to assess the impact of the Pikes Creek watershed lake run rainbow on the Lake Superior creel and to supply some data on homing and movement.

Approximately 2,952 trout were fin-clipped of which 2,445 were rainbow trout, 488 brook trout, and 19 brown trout. Of these fish, 201 rainbows were tagged with numbered floy tags.

A complete list of fish that were sampled follows.

Rainbow trout	2,445	Slimy sculpin	898
Brook trout	488	Brook stickleback	374
Coho salmon	209	Creek chub	90
Brown trout	19	Blackchin shiner	39
		Central mudminnow	2

Population and standing crop estimates are shown by species, age group, and station in Table 2.

Rainbow trout dominated the lower three stations of North Pikes Creek with 51.1 lbs/acre in Station 4 and 20.5 lbs/acre in Station 5. These fish are all of an anadromous strain of fish and no rainbows were sampled over 8.0 inches.

Brook trout were dominant in Stations 7, 8, and 9, with approximately 7.0 lbs/acre in Station 7. Station 9 was made up mainly of young-of-the-year (YOY) brook trout and the upper end of this station is very marginal trout water. All brook trout found in North Pikes Creek are considered stream native fish.

Coho salmon were found in Stations 4, 6, and 7 and population results show approximately 3.0 lbs/acre in Station 4.

Only 19 brown trout were sampled on North Pikes Creek and all were YOY and found only in Station 3. Due to average low water conditions during fall spawning runs, which makes ascension of the red dam on Pikes Creek difficult, brown trout and coho salmon were not very successful in spawning in the watershed. Adult chinook salmon are also present in the fall run but none were identified during survey work. They could be present but misidentified as coho salmon fingerling.

On May 22, 1978, redds were counted on North Pikes Creek. This sampling period is during the latter part of the spawning season. Six redds were counted between the outlet on Pikes Creek to the Star Route road, and in this area, not many spawning sites are available. Twenty-one redds were counted from the Star Route road upstream to the next town road crossing.

Spawning population statistics for the Pikes Creek watershed are explained in detail in the 1978 Pikes Creek study.

A population estimate of total numbers of rainbow trout on North Pikes Creek is:

<u>YOY</u>	<u>Age I</u>	<u>Age II</u>	<u>Age III+</u>
8,707*	2,460	185	5

*Calculated from ratio of Age I to YOY rainbows in population estimate in Station 5.

Age I rainbows above are part of the prodgeny of the 1977 spawning run. Back calculation of scales of the 1978 spawning population showed that 35% of them had left the stream at age I+ (fall of the second summer); 59% emmigrated as Age II+ fish (the majority leave in May and June); and 6% at Age III+. At present, results imply that they smolt and leave the stream when they reach about 6.5 inches.

Management Problems

Quick runoff and ensuing bank erosion could be considered the most important factor in future limiting of trout production on North Pikes Creek. Detrimental changes of land use plans within the watershed should be watched carefully. Future protection of the headwater marshes is one of the most important factors in protection of the watershed. These hold water and release it more slowly during times of moderate rains.

The present use of the north half of Section 4, T50N, R4W, for cattle pasturing is having detrimental effects on habitat for brook trout. Cattle are widening the stream and exposing the stream banks to erosion in areas important for brook trout nursery purposes.

Floods in 1942, 1946, and in 1952 have damaged the banks considerably. The stream has very few undercuts and these past floods have widened the channel and shallowed the mainstream. Extensive quantities of debris have choked the stream in many places. The banks are covered with speckled alder which is a very fast growing, quickly maturing tree. With age they fall into the stream and catch debris moving with the stream current and change meandering patterns causing holes to form in the middle of the stream instead of undercutting banks. They provide very little protection to the soil and the bank is eroded very easily under these conditions. Speckled alder prevent much sunlight from reaching the stream and directly reduce quantities of food produced in the ecosystem.

Summary and Management Recommendations

1. The 1978 survey results show that the old stream classification is too conservative. The following classification is proposed:

Class Ia - All of North Pikes Creek from the outlet of North Pikes Creek on Pikes Creek, upstream for 4.8 miles (top of Station 9).

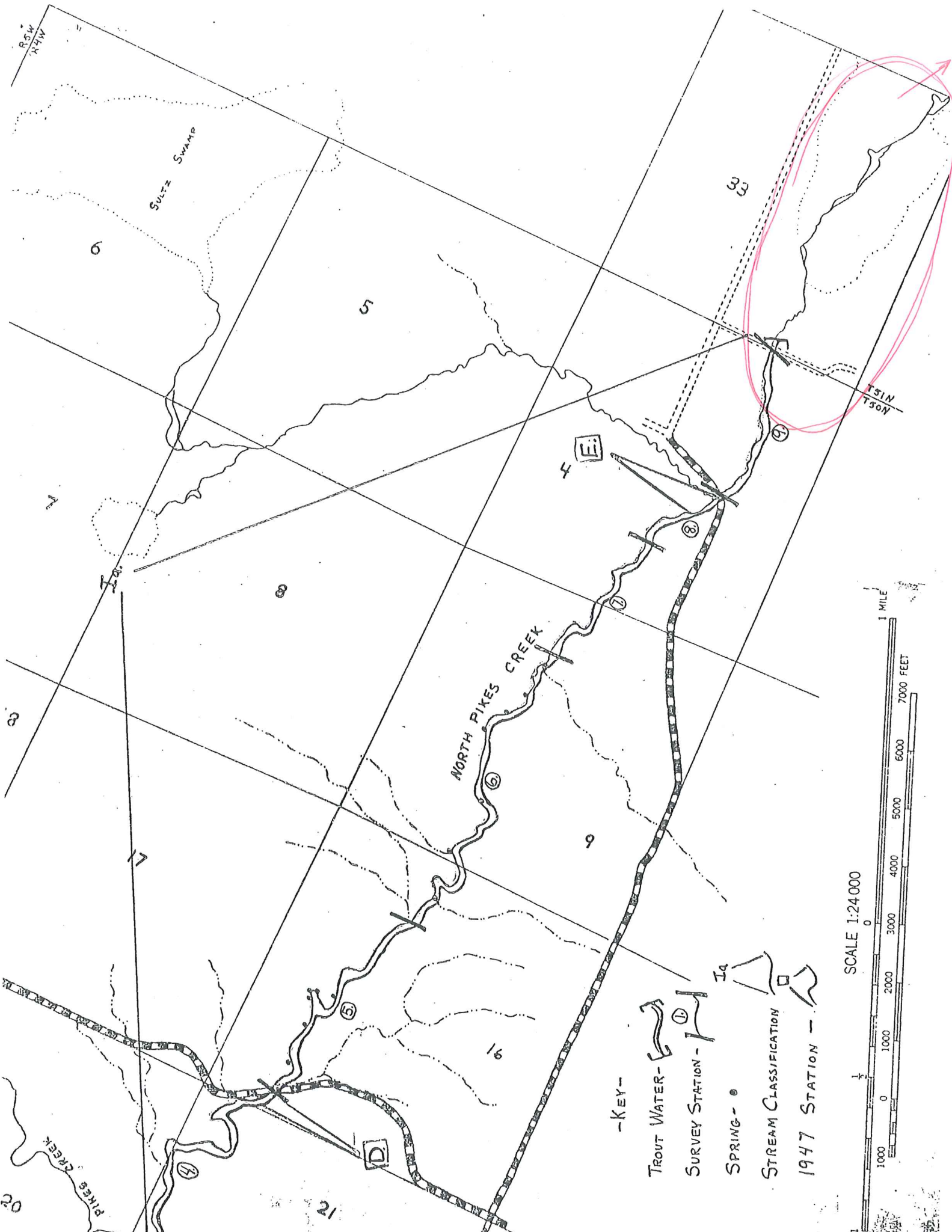
*** Non-Trout Water - From the top of Station 9 for 1.1 miles upstream.

- All 2.75 miles of the tributary stream to North Pikes Creek in Section 4, T50N, R4W.

2. Continue monitoring of any detrimental watershed conditions as stated previously.

CED

6/14/79



-KEY-

TROUT WATER - [Symbol]

SURVEY STATION - [Symbol]

SPRING - [Symbol]

STREAM CLASSIFICATION [Symbol]

1947 STATION - [Symbol]

SCALE 1:24000

