

## memorandum



DATE: 8/28/79

REPLY TO  
ATTN OF: Robert P. Smith

SUBJECT: Spotfin chub

TO: Warren Parker, Endangered Species Staff Specialist, Asheville Area

I've enclosed two copies of the latest field report and supplementary materials.

Your attention is directed to the attached public notice (no. PH 79-5). It appeared to me while working in Island Creek that the stream was already receiving heavy mine discharges. The rocks are covered with the slick, brown leachate typical of mine discharges in the area. I've marked the approximate location of the NPDES (proposed) discharge site, and the location where we collected H. monacha on 8/23/79. Perhaps the Service should recommend a denial on this permit application?



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OPTIONAL FORM NO. 10  
(REV. 7-76)  
GSA FPMR (41 CFR) 101-11.6  
5010-111

b3-7

Status Report on The Occurrence of the Spotfin Chub,  
Hybopsis monacha (Cope), in the Emory River,  
Morgan County, Tennessee

Abstract:

A field survey was conducted on August 15, 1979, by personnel from the Fish and Wildlife Service, Fishery Resources Station at Gatlinburg, Tennessee. The survey began at the confluence of the Obed and Emory Rivers (mile 0, Obed; mile 28.6, Emory) and continued downstream on the Emory River to the Nemo Bridge (Emory River mile 27.5). Mask and snorkle technique was used to locate H. monacha, and a seine in conjunction with underwater observations was used to capture specimens. Approximately fifty-five (55) juveniles and twenty-five (25) adults were observed in the 1½ mile reach that was surveyed. Juveniles appeared to be occupying a "nursery" habitat, with adults present in a different habitat type. Adults of the species appeared to be in breeding condition, as evidenced by the highly colored, tuberculate males. H. monacha is considered to be uncommon in this reach.

The August 15, 1979, survey was conducted by Robert P. Smith, Fishery Resources, Gatlinburg; Walt Mayer, National Park Service, Walburg; and Jim Beats, Aquatic Biology--University of Tennessee at Knoxville. An inflatable raft was launched at the confluence of the Obed and Emory Rivers. Seines and other equipment were carried in the raft while two biologists "snorkled" alongside, drifting downstream.

The first group of H. monacha was observed at Emory River mile 28. Approximately forty (40) juvenile fish were observed in what appeared to be a "nursery" habitat situation. The river narrowed at mile 28, and the entire flow spilled into a large, long pool. At a flow rate of 130 cfs, the river was about 60 feet wide at the plunge pool. Young H. monacha were observed in small, loosely defined schools on both sides of the pool at the upper end (ie, near the point where riffle water was feeding the pool). Individuals appeared to be feeding on the surfaces of large rocks. These rocks appeared to be partially scoured by eddy currents which occurred near the main "feeder" riffle. It is important to note that similar rocks in lower sections of the pool were coated with considerable amounts of sediment and attracted few young fish, and no H. monacha.

Young H. monacha were observed at another location downstream, but in a similar habitat type. At a point just upstream from the Nemo Bridge (Emory River mile 27.6), a run-riffle habitat again feeds a large pool. Young H. monacha were observed in the upper portion of this pool, with instream location and habitat being quite similar to the individuals observed at mile 28. A total of fifteen (15) juvenile H. monacha were observed at this site.

The only confirmed sightings of adult H. monacha were made in a run-riffle type habitat, about 50 yards upstream from the large pool at Nemo Bridge, at Emory River mile 27.7. The adults were scattered in 6 inches to 2 feet of water, and were intermingled with shiners of the genus Notropis, especially Notropis coccoensis. Components of this particular habitat appeared to be in unique combination when compared to similar habitats along the reach that was surveyed. The river bed was primarily eroded bedrock (ie., bedrock with uneven "potholes" and whorled features along its surface). Scattered along this bedrock base were medium-sized boulders up to 2 feet in diameter. Small patches of pebble-sized gravel were interspersed among the boulders in bedrock invaginations.

Ordinary seining techniques proved to be unsuccessful in capturing adult specimens. Since adults were easily identified underwater by color and feeding habits, it was decided to combine underwater observation with seining in our capture attempts. One man would use mask and snorkel to locate an adult or group of adults underwater. This accomplished, the observer would raise his hand above water level and point to the approximate location of the fishes. The other two men would then slowly approach with a 6' straight seine ( $\frac{1}{2}$  inch mesh), and plant the seine in the proximity of the pointed finger, allowing the seine to stretch and billow-out slightly in downstream current. The "snorkler" would then slowly approach H. monacha always "herding" the fishes in the direction of planted seine. At the last second, the snorkler would charge the fishes, driving them into the seine, and lift the lead line to "close the door." Although it sounds involved, four H. monacha were collected in five attempts using the method described above. This seems to be an efficient method for capturing this fish in such a difficult habitat.

In summary, four (4) adults and eight (8) juveniles were collected from the three sites described above. Two male adult fish were iridescent blue on the back above the lateral line, and had conspicuous tubercles on the snout. A total of fifty-five (55) juvenile fish were observed in the two "nursery" locations, and twenty-five (25) adults in their apparently uncommon runriffle habitat. Hybopsis monacha is considered to be uncommon within the reach surveyed in this field exercise.

Robert P. Smith  
Fishery Resources  
Gatlinburg, Tennessee

Status Update on the Occurrence of the Spotfin Chub,  
Hybopsis monacha (Cope), in a Tributary to the Emory River,  
Morgan County, Tennessee

On August 23, 1979, personnel from the Gatlinburg Fishery Resources Station made another attempt to locate H. monacha in the Emory River. This effort was specifically directed in a reach below the confluence of Rock Creek, a tributary known to carry acid discharges from active surface coal mines in the watershed. Service personnel hoped to locate the "threatened" chub in the main stem Emory River downstream from a documented mine discharge.

Even though flow rates were relatively low(150 cfs) on this date, scattered thunderstorms during the night caused heavy turbidity in the main channel. A riffle-run type habitat near Emory River mile 27 was sampled repeatedly with seines and electroshocker. A number of fishes were captured, but no H. monacha. While working in this turbid reach of the main stem, a small, clear tributary was noticed entering the Emory on the right descending bank, just upstream from river mile 27. It was decided to electroshock the tributary, known as Island Creek.

It appeared that most of the fishes collected from Island Creek were young-of-the-year. Among the fishes captured in the first 50 meters of Island Creek (see list below) were two juvenile H. monacha, measuring about 35mm each. It is thought that these fishes use small tributaries such as Island Creek to seek refuge from high water velocities and turbidity often encountered in the main stem.

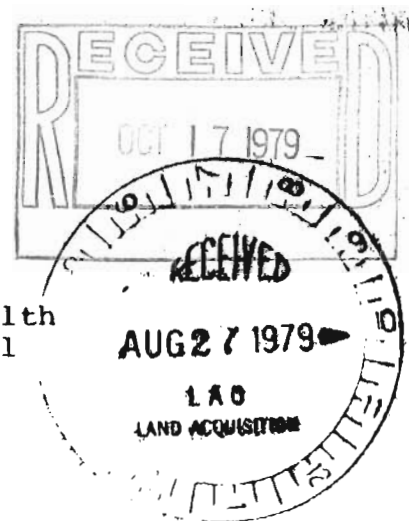
List of Fishes collected from approx. mile 0.1,  
Island Creek, Morgan Co., Tn. 8/23/79 R.P. Smith,  
E. Crittenden, H. Stansell. U.S. Fish and Wildlife  
Service. collection method: electroshocker

Species	Number
<u>Campostoma anomalum</u>	1
<u>Hybopsis monacha</u>	2
<u>Notropis galacturus</u>	2
<u>N. leuciodus</u>	2
<u>N. coccogenis</u>	24
<u>N. volucellus</u>	1
<u>Nocomis micropogon</u>	1
<u>Ambloplites rupestris</u>	1
<u>Micropterus dolomieu</u>	1
<u>Etheostoma blennioides</u>	1

Robert P. Smith  
Fishery Resources  
GSMNP Hdqtrs.  
Gatlinburg, Tn. 37738

NOTICE OF HEARING

Tennessee Department of Public Health  
Division of Water Quality Control  
490 Capitol Hill Building  
Nashville, Tennessee 37219  
(615) 741-7883



Public Notice No. PH 79-5

August 23, 1979

NOTICE IS HEREBY GIVEN, that in response to public requests the Tennessee Division of Water Quality Control will hold a public hearing, pursuant to Rule 1200-4-1-.05 at:

7:00 p.m. est, September 25, 1979  
Municipal Building (Auditorium)  
Roane Street  
Harriman, Tennessee

At the hearing, public comments will be received concerning the proposed issuance of NPDES permit to the following applicant:

G & M Coal Company, Route 1, Harriman, Tennessee 37748, for coal deep mine #1, NPDES Application No. TN0045888. This discharge will enter Island Creek, 36° 03' 39" North, 84° 39' 54" West, Morgan County.

The hearing officer may limit oral presentations to five (5) minutes, and will require that all testimony be relevant to water quality issues. In order to allow all interested persons an opportunity to speak, undue repetition will not be allowed in oral presentations. Written testimony will be accepted at the hearing, for ten (10) days following the hearing, and will be considered part of the hearing record.

Interested persons may obtain additional information, a copy of the draft permit, and inspect and copy forms and related documents at the Division's office, the address of which is given above.