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THE TENNESSEE VALLEY AUTHORITY

Clinch River Small Modular Reactor and Barge/ Traffic Site

Stream Survey Report

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This report has been prepared as a supporting document for the Clinch River Small Modular Reactor Site (CRSMR) Early Site Permit Application Project and is being distributed for project use. The report provides a summary of documented fish and crayfish species present in streams occurring on the CRSMR study area including the adjacent barge/ traffic study area.

INTRODUCTION

All streams located within the Clinch River Small Modular Reactor Site and the adjacent Barge/ Traffic Study Area where delineated during several visits in April and May, 2011, and October 2013 and 2014, TVA mapped the location of each waterbody with a Trimble GPS (refer to Aquatic Technical Report).

A total of eight waterbodies (four perennial and three intermittent within the project boundaries) were sampled that had the greatest potential to support aquatic communities (Figure 1). Stream S03 was not sampled due to lack of water at the time of survey. Grassy Creek occurs outside the project boundaries but was also sampled due to its close proximity. Timed searches with a backpack electrofisher of the identified perennial/ intermittent streams (excluding the Clinch River) occurred in March 2015 to determine species present.

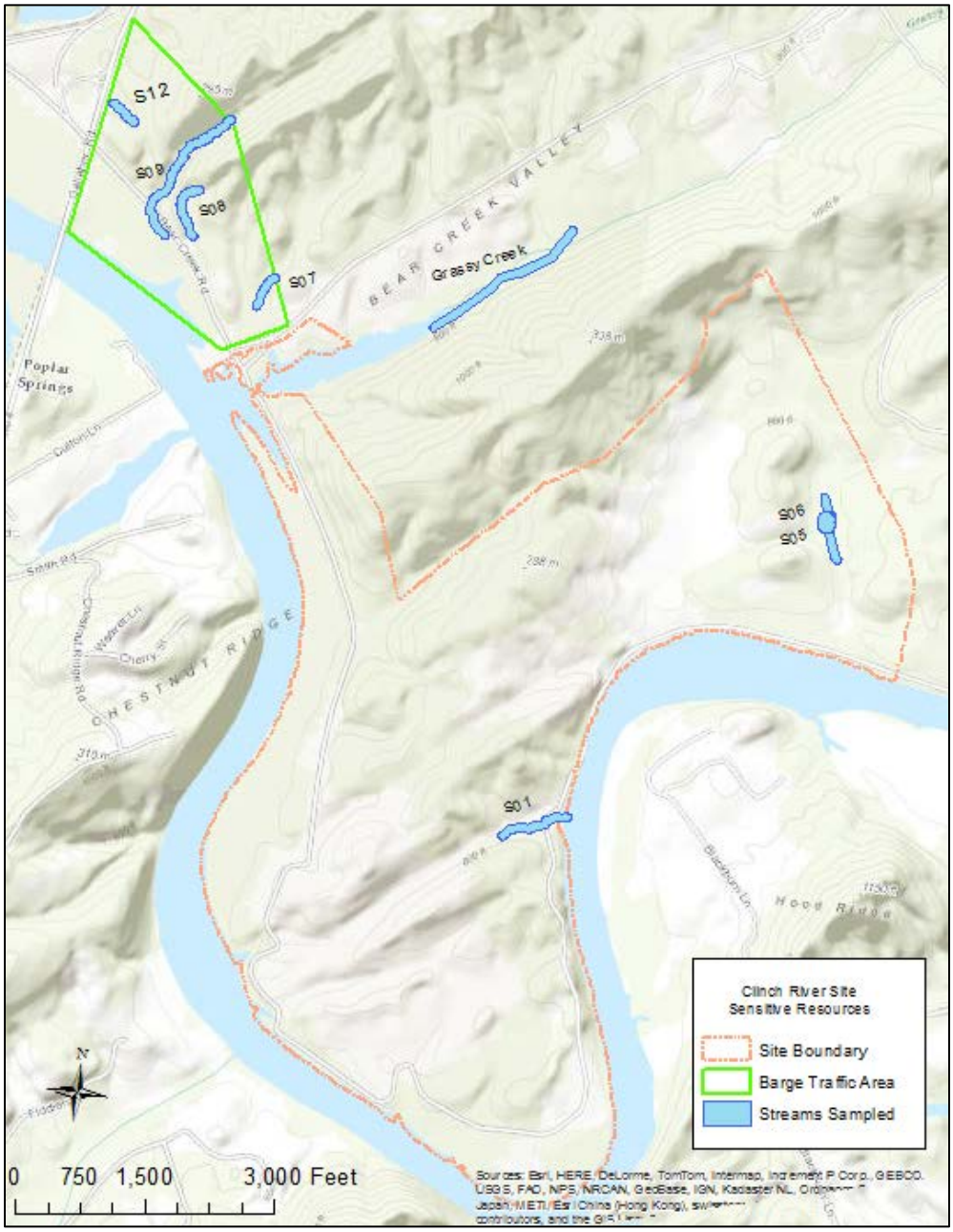

Figure 1: Location of streams sampled.

METHODS

During sampling, a seine was stretched across the channel and a person with a backpack electrofisher worked downstream driving fish into the seine. Individuals where identified and counted and the total time searched was documented for each stream. All habitat types (pool, riffle, run) were sampled if available. If the stream was small or the habitat available homogenous, the entire length of the stream was sampled.

Results

Stream S01 occurs near the proposed water intake on the Clinch River Small Modular Reactor Site. The entire length of the stream (approximately 925ft) was sampled (293 seconds shock time) and documented no fish. A few crayfish were observed but too small for proper identification. Stream S05 documented 1 banded sculpin at a catch per unit effort of (CPUE) 0.001). CPUE is defined as total catch divided by total amount of effort (seconds). For S05 one fish was collected with a total shock time of 822 seconds. One crayfish was collected and preserved for identification in the lab at a future date. Streams S06, S07, S09, S08, and S12 documented no fish or crayfish. Stream S09 documented no fish but one crayfish (*Cambarus dubius*). Although Grassy Creek is not located within the site boundaries, it was sampled because of its close proximity and likelihood to fish and crayfish. Species collected and their CPUE is listed in Table 1.

Table 1. Grassy Creek Fish Species Collected During March 2015 Survey.

Common Name	Scientific Name	# Individuals Collected	CPUE[1]
Banded Sculpin	*Cottus carolinae*	9	0.014
Bluegill	*Lepomis macrochirus*	13	0.021
Creek Chub	*Semotilus atromaculatus*	3	0.005
Green Sunfish	*Lepomis cyanellus*	2	0.003
Largemouth Bass	*Micropterus salmoides*	1	0.002
Largescale Stoneroller	*Campostoma oligolepis*	15	0.024
Logperch	*Percina caprodes*	20	0.032
Tennessee Darter	*Etheostoma tennesseense*	4	0.006
Warmouth	*Lepomis gulosus*	3	0.005

[1] Total search time 629 seconds.

Conclusion

No federal or state-listed aquatic species where documented in any of the streams sampled. No fish where collected or observed in any of the streams sampled within the Clinch River Small Modular Reactor Site and the Barge/ Traffic Study Area with the exception of S05 where one banded sculpin was collected. It appears from visual observations that streams within both sites either lacked stable suitable habitat or the habitat availability is less than desirable to support fish communities.