

July 17, 2006

Fish and Wildlife Resource Conservation Group Members
Saluda Hydro Relicensing Team

South Carolina Electric & Gas Company – FERC Project No. 516
2005 Lower Saluda River Crayfish Assessment

Dear RCG Members:

In response to a request by the U.S. Fish and Wildlife Service (USFWS) and in preparation for the relicensing of the Saluda Hydroelectric Project (FERC No. 516), South Carolina Electric & Gas Company (SCE&G) contracted with Kleinschmidt Associates to perform a crayfish assessment in the lower Saluda River in the fall of 2005. The first of these assessments was conducted on October 11, 2005, and assessments continued on a weekly basis through November 15, 2005. The following is a report presenting our findings of the study.

BACKGROUND

On April 29th of 2005, SCE&G filed the Notice of Intent (NOI) to relicense the Project with the Federal Energy Regulatory Commission (FERC), as well as issuing the Initial Consultation Document (ICD) to the FERC and stakeholders. The current license is due to expire August 31, 2010. Comments on the ICD submitted by the USFWS include a study request for an evaluation of benthic macroinvertebrate assemblages that include crayfish as well as EPT's (*Ephemeroptera*, *Plecoptera*, *Trichoptera*). This was requested with the justification that such studies will provide information for the assessment of Project effects on benthic resources.

Concurrent with the release of the ICD, in spring 2005, SCE&G carried out a series of diadromous fish studies on the lower Saluda river in response to early study requests from the South Carolina Department of Natural Resources (SCDNR), the USFWS, and NOAA Fisheries. Target species included the American shad, hickory shad, blueback herring, shortnose sturgeon, Atlantic sturgeon, striped bass, and the American eel. It was found, during the American eel surveys, that the traps were efficient in the collection of crayfish. After formal discussions with the USFWS, the eel traps were re-deployed in October 2005 in order to gather data on crayfish species.

MATERIALS METHODS

The traps used during the entirety of the sampling period consisted of double-entry, galvanized wire mesh minnow traps, measuring about 2 ½ feet long (see Figure A). These traps

were successful in sampling crayfish during Spring 2005 diadromous fish studies. Each trap was initially baited with herring and was re-baited on two-week intervals or as needed. A one lb weight was also placed in the traps to insure that they remained submerged. The traps were deployed mid-channel and secured to the bank with a length of cord so that they were readily accessible. Moreover, in an attempt to decrease vandalism and disturbance, they were positioned such that they were not readily noticeable. In the event of vandalism or theft, the trap was replaced as soon as feasible.

Each trap was deployed at its respective sampling location on October 3, 2005 and was allowed to fish continuously until early November, with the exception of when a trap was stolen or vandalized. The traps were inspected once a week under most circumstances. However, rain events and high flows occasionally prevented access to the traps, and they would subsequently be checked when the water levels decreased. Any by-catch was field identified and released. Data recorded for each sample included trap deployment and retrieval time, total number of crayfish collected, and the number of males and females, however only the males were kept for identification in the laboratory. After initial genus identification by Kleinschmidt personnel, species were verified by crayfish specialist Dr. Arnold Eversole, with Clemson University.

Traps were deployed at four points along the Saluda River below the Saluda Dam. These locations were chosen according to resource agency recommendations for diadromous species trapping, and included: (1) the Saluda Dam Spillway; (2) the mouth of Twelvemile Creek; (3) the LSR downstream of Interstate 26 near the USGS gage station; (4) and the Saluda Dam Tailrace (see Figure B).

FINDINGS

During the sampling period a total of 41 crayfish were collected from the LSR. Of those individuals, there were 19 males and 22 females field identified. All of the specimens captured were of two genus', *Procambarus* and *Cambarus*; it is believed that only two species were found within those genus', *Cambarus (Depressicambarus) latimanus* and *Procambarus (Scapulicambarus) troglodytes*.

Cambarus (Depressicambarus) latimanus is found in several river basins in North Carolina, South Carolina, Georgia, Florida and Alabama. Considered a secondary burrower, this species spends its time in small to moderately large streams and burrows¹. *Procambarus (Scapulicambarus) troglodytes* is considered a tertiary burrower, meaning that it spends much of its time in open water, retreating to its burrow for winter frost, egg laying and to avoid desiccation. This species is widely distributed throughout the state and populations are considered stable². Neither of these species is listed on the *Federal List of Endangered and Threatened Wildlife and Plants* for Richland, Lexington, Newberry, or Saluda Counties.

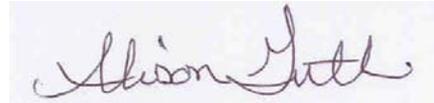
¹ Crandall, Keith A., Fetzner, Jr., James W., and Hobbs, Jr., Horton H. 2001. *Cambarus (Depressicambarus) latimanus* Le Conte 1856. Version 01 January 2001 (under construction). [http://tolweb.org/Cambarus_\(Depressicambarus\)_latimanus/6858/2001.01.01](http://tolweb.org/Cambarus_(Depressicambarus)_latimanus/6858/2001.01.01) in *The Tree of Life Web Project*, <http://tolweb.org>. Viewed 7 July 2006.

² Crandall, Keith A., Fetzner, Jr., James W., and Hobbs, Jr., Horton H. 2001. *Procambarus (Scapulicambarus) troglodytes* Le Conti 1856. Version 01 January 2001 (underconstruction).

I have included Tables 1-4, which depict the findings recorded during the sampling events. If you have any questions or need additional information, please do not hesitate to contact me at (803) 822-3177.

Sincerely,

KLEINSCHMIDT ASSOCIATES

A handwritten signature in cursive script that reads "Alison Guth". The signature is written in dark ink on a light-colored background.

Alison Guth
Licensing Coordinator

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Attachments

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ATTACHMENT A
TABLES AND FIGURES

Figure A: Standard Trap that was Used Throughout Sampling



Figure B: Lower Saluda River Crayfish Sampling Locations

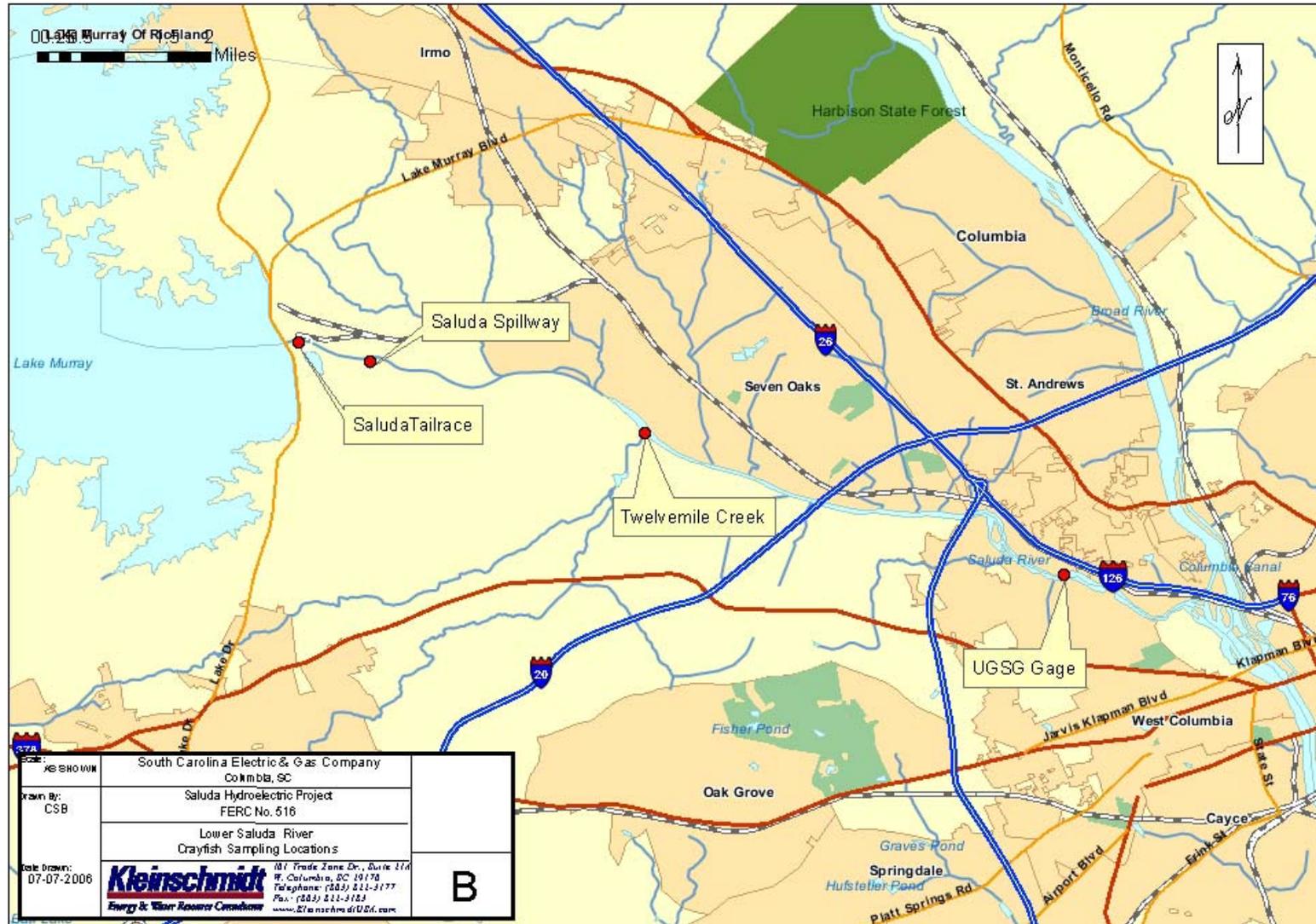


Table 1: Crayfish Surveys – USGS Gage Station

**Saluda Hydro Project Relicensing
2005 Crayfish Surveys**

USGS Gaging Station

Date	Time Retrieved for Inspection	Time Redeployed	Total Number	Genus of Males	Comments
10/3/2005		10:50			Deployed Trap Much vegetation covering trap, removed vegetation and rebaited, no catch
10/11/2005	12:59		1:18		
10/19/2005	11:35		11:39		Rebaited, no catch
10/25/2005	2:46		2:52		Rebaited, no catch
11/3/2005	2:16		2:30		Rebaited, no catch
11/15/2005	2:51				Retrieved trap, no catch
Total				0	

Table 2: Crayfish Surveys – Tailrace

**Saluda Hydro Project Relicensing
2005 Crayfish Surveys**

Tailrace

Date	Time Retrieved for Inspection	Time Redeployed	Total Number	Genus of Males	Comments
10/3/2005		12:23			Deployed Trap
10/11/2005	1:55		2:10	5 (4M, 1F) Cambarus	Rebaited trap
10/19/2005	12:00				Trap out of water, rebaited
10/25/2005	3:15		3:22		No catch
11/3/2005	2:51				Trap stuck, could not retrieve
Total				5 (4M, 1F)	

Table 3: Crayfish Surveys – Spillway

**Saluda Hydro Project Relicensing
2005 Crayfish Surveys**

Spillway

Date	Time Retrieved for Inspection	Time Redeployed	Total Number	Genus of Males	Comments
10/3/2005		1:06			Deployed Trap
10/11/2005	2:35	2:51	11 (7 F, 4 M)	Procambarus (2), Cambarus (2)	Rebaited
10/19/2005	12:30	12:39	2 (M)	Procambarus (1), Cambarus (1)	
10/25/2005	3:45				Could not access trap, high water
11/3/2005	3:26				Trap gone
Total			13 (7 F, 6 M)		

Table 4: Crayfish Surveys – Twelvemile Creek Location

**Saluda Hydro Project Relicensing
2005 Crayfish Surveys**

Twelvemile Creek Location

Date	Time Retrieved for Inspection	Time Redeployed	Total Number	Genus of Males	Comments
10/3/2005		1:33			Trap Deployed
10/11/2005	3:15	3:27	6 (4 F, 2 M)	Cambarus	Rebaited, caught 1 <i>Anguilla rostrata</i>
10/19/2005	1:52	2:03	4 (3 F, 1 M)	Cambarus	Rebaited
10/25/2005	4:15	4:32	11 (7 F, 4 M)	Cambarus	Rebaited
11/3/2005	3:57	4:03	1 (M)	Cambarus	Rebaited
11/15/2005	3:47		1 (M)	Cambarus	Collected Trap
Total			23 (14 F, 9 M)		

ATTACHMENT B

REFERENCES

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Crandall, Keith A., Fetzner, Jr., James W., and Hobbs, Jr., Horton H. 2001. *Cambarus (Depressicambarus) latimanus* Le Conte 1856. Version 01 January 2001 (under construction).
[http://tolweb.org/Cambarus_\(Depressicambarus\)_latimanus/6858/2001.01.01](http://tolweb.org/Cambarus_(Depressicambarus)_latimanus/6858/2001.01.01) in The Tree of Life Web Project, <http://tolweb.org> . Viewed 7 July 2006.

Crandall, Keith A., Fetzner, Jr., James W., and Hobbs, Jr., Horton H. 2001. *Procambarus (Scapulicambarus) troglodytes* Le Conti 1856. Version 01 January 2001 (under construction).
[http://tolweb.org/Procambarus_\(Scapulicambarus\)_troglodytes/7660/2001.01.01](http://tolweb.org/Procambarus_(Scapulicambarus)_troglodytes/7660/2001.01.01) in The Tree of Life Web Project, <http://tolweb.org> . Viewed 7 July 2006.

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South Carolina Department of Natural Resources. South Carolina Rare, Threatened, & Endangered Species Inventory-County Selection From List. 2005. 7 July 2006.
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