MEETING NOTES

SOUTH CAROLINA ELECTRIC & GAS COMPANY
SALUDA HYDRO PROJECT RELICENSING
Instream Flow/Aquatic Habitat Technical Working Committee
SCE&G's Lake Murray Training Center
January 22, 2007

Final CSB 04-02-07

ATTENDEES:

Bill Argentieri, SCE&G
Alan Stuart, Kleinschmidt Associates
Milton Quattlebaum, SCANA Services
Jeni Summerlin, Kleinschmidt Associates
Amanda Hill, USFWS
Ron Ahle, SCDNR
Gerrit Jobsis, AR/CCL
Shane Boring, Kleinschmidt Associates
Brandon Kulik, Kleinschmidt Associates
Hal Beard, SCDNR
Scott Harder, SCDNR

ACTION ITEMS

- Incorporate comments into the Instream Flow Study Plan and send out to all committee members for review.

Shane Boring

- Determine whether HSI curves are available for gizzard shad in riverine systems, and if so, distribute to TWC.

Shane Boring/Brandon Kulik

- Email Prescott Brownell about whether it would be applicable to use the Catawba-Wateree shortnose sturgeon HSI curves for the Saluda IFIM study.

Amanda Hill

- Compile potential source HSI substrate curves and distribute to TWC prior to Feb. 21 meeting.

Shane Boring/Brandon Kulik

- Construct plots of finalized HSI curves (Depth/Velocity for smallmouth bass, rainbow trout, brown trout).

Shane Boring/Brandon Kulik

NEXT MEETING

February 21, 2007 at 9:30am
Location: Lake Murray Training Center[1]

[1] This meeting date was later cancelled.

MEETING NOTES:

These notes serve as a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.

Shane Boring opened the meeting at approximately 10:00 AM and noted that the purpose of today's meeting will be to discuss: (1) HSI criteria for guilds, (2) HSI criteria for stand-alone species, and (3) the next steps that need to be taken for the IFIM study. He briefly reviewed the action items from the previous meeting. Shane noted that he was currently incorporating comments made on the IFIM study plan and would send it back out to committee members within the next week for comments.

Review of HSI Criteria for Guilds

Shane noted that the species guild matrix had been revised based on comments from the previous IFIM meeting and distributed a revised matrix. The group then reviewed the updated matrix, and after several additional revisions, agreed that the following guild approach was acceptable:

DEEP SLOW GUILD		
species	**life stage**	**SI curve source**
American shad	YOY	Catawba-Wateree
blueback herring	spawning	
blueback herring	YOY	
Northern hogsucker	adult	
redbreast sunfish	adult	
robust redhorse	juvenile	
robust redhorse	adult	
spotted sucker	juvenile	
spotted sucker	adult	
DEEP FAST GUILD		
species	**life stage**	**SI curve source**
American shad	YOY	Catawba-Wateree
American shad	spawning	
Northern hogsucker	spawning	
Northern hogsucker	fry/YOY	
Northern hogsucker	juvenile	
shorthead redhorse	adult	
spottail shiner	adult	

DEEP FAST GUILD		
species	**life stage**	**SI curve source**
benthic macroinver.	juvenile	Catawba-Wateree
robust redhorse	spawning	
saluda darter	adult	
spottail shiner	spawning	
spotted sucker	spawning	
DEEP FAST GUILD		
species	**life stage**	**SI curve source**
redbreast sunfish	spawning	Catawba-Wateree
robust redhorse	fry/YOY	
spotted sucker	juvenile	
spotted sucker	fry/YOY	

There was a brief discussion about whether to add threadfin shad to the list of target species. It was noted that HSI curves were not available for threadfin shad, but that gizzard shad could potentially serve as a surrogate. Alan Stuart and others noted that the existing gizzard shad HSI curves were developed for reservoir habitats, not riverine systems. After some discussion, it was determined that availability of appropriate riverine HSI curves for gizzard shad should be evaluated prior to determining whether this species can serve as an appropriate surrogate for threadfin shad. The group agreed to withhold a determination on whether or not threadfin shad should be included until after this information is evaluated.

Review of Habitat Suitability Criteria (HSC) for Stand-Alone Species

Brandon Kulik noted that a memorandum regarding HSC for stand-alone species was sent out on January 16, 2007 to all committee members (Attachment A). He noted that this memorandum summarized HSC curves for smallmouth bass, rainbow trout, and brown trout from a number of potential source studies for purposes of evaluating transferability to the lower Saluda study. He noted that TWC members should consider their field experience/observations regarding the target species and the lower Saluda River in evaluating applicability of the potential source curves. The group examined the HSC curves for each species and lifestage for both depth and velocity. The group agreed to use the following HSC curves for the following species:

SPECIES	LIFE STAGE	PARAMETER	SI CURVE SOURCE
brown trout	adult	Depth	Combination: Housatonic (poor), Deerfield
	adult	Velocity	Lackawaxen, w/modifications
brown trout	fry/YOY	Depth	Deerfield
	fry/YOY	Velocity	Deerfield
brown trout	juvenile	Depth	Combination: Deerfield, Raleigh
	juvenile	Velocity	Combination: Lackawaxen, Deerfield
brown trout	spawning	Depth	Raleigh
	spawning	Velocity	Raleigh w/modifications
rainbow trout	adult	Depth	Deerfield
		Velocity	Deerfield (abundant)
rainbow trout	fry/YOY	Depth	Raleigh
		Velocity	Raleigh
rainbow trout	juvenile	Depth	Lackawaxen
		Velocity	Lackawaxen
rainbow trout	spawning	Depth	Raleigh
		Velocity	Raleigh
smallmouth bass	adult	Depth	Combination: Groshens & Orth, Bain
		Velocity	Combination: Groshens & Orth, Deerfield (abundant)
smallmouth bass	juvenile	Depth	Combination: Bain, Deerfield w/modifications
		Velocity	Deerfield (abundant)
smallmouth bass	spawning	Depth	Lockhart
		Velocity	Lockhart
smallmouth bass	YOY	Depth	Combination: Groshens & Orth, Bain
		Velocity	Combination: Deerfield, Bain

Zone of Passage for Striped Bass

Brandon suggested that the minimal flow limiting passage requirement for a fish would be an adequate amount of water so that the body of the fish is submerged. A maximum flow limiting factor for passage would be a high velocity that exceeds the fish's sustained swimming strength. Gerrit noted that there are striped bass passage standards for South Carolina. He explained that according to the standard, river must be 18 inches in depth for a 20 pound striped bass, with a 10 ft width, covering 10 % of the channel. Hal Beard noted that he thinks there may only be one year in which striped bass were not able to make it up the lower Saluda River past Millrace Rapids. Hal noted that it may have occurred in the months of May/April of 1991. This was because Saluda

Hydro was not releasing. Brandon presented a spreadsheet model from the USGS Conte Lab paper (Attachment B) that described limiting velocities for striped bass passage based on fish size and ambient water temperature.

Next Steps

Brandon noted that the group would need to also agree upon appropriate substrate HSC curves. The group agreed that discussion of potential source curves for substrate would be appropriate for the February 21st TWC meeting. Brandon and Shane agreed to draft and similar memo summarizing potential source curves and distribute to the group prior to the meeting.

Brandon noted that Shane will be going out in the field to characterize mesohabitats on the lower Saluda River. Shane added that they hope to have the mesohabitat characterization completed and available for review by the TWC by late March.

Brandon mentioned that they have not yet obtained the final HSC curves for shortnose sturgeon from Prescott Brownell. After some discussion, the group agreed that the Catawba-Wateree IFIM study would be the most likely source for shortnose sturgeon curves. Amanda Hill noted that she would e-mail Prescott regarding transferability of the Catawba-Wateree curves; she recommended contacting Pace Wilbur at NOAA-Fisheries if we were not able to contact Prescott.

Next Meeting

The group noted that the next TWC meeting had been scheduled for February 21st, 2007 at Lake Murray Training Center. The meeting adjourned at approximately 3:10 PM.

ATTACHMENT A

MEMO SUMMARIZING POTENTIAL SOURCE HABITAT SUITABILITY CURVES FOR DEPTH AND VELOCITY FOR SMALLMOUTH BASS AND RAINBOW AND BROWN TROUT LIFESTAGES

ATTACHMENT B

SPREADSHEET SUMMARIZING LIMITING VELOCITIES FOR STRIPED BASS PASSAGE
(SOURCE: CONTE ANADROMOUS FISH LAB)