

MEETING NOTES

**SOUTH CAROLINA ELECTRIC & GAS COMPANY
Fisheries TWC Meeting**

March 3, 2016

Final KMK 03-07-16

ATTENDEES:

Bill Argentieri (SCE&G)	Dick Christie (SCDNR)
Ray Ammarell (SCE&G)	Bill Marshall (SCDNR)
Randy Mahan (SCE&G)	Alex Pellett (SCDNR) via conf. call
Brandon Stutts (SCANA)	Henry Mealing (Kleinschmidt)
Caleb Gaston (SCANA)	Kelly Kirven (Kleinschmidt)
Tom McCoy (USFWS) via conf. call	Jordan Johnson (Kleinschmidt)
Fritz Rohde (NOAA) via conf. call	

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.

Henry opened the meeting with introductions and told the group the purpose of the meeting was to review the Reservoir Fluctuation Report and identify any Protection, Mitigation and Enhancement (PM&E) measures that might be associated with fluctuation of Parr and Monticello reservoirs.

Parr Reservoir

Henry explained the methodology included in the study, where Parr Reservoir was divided into nine segments and 10% of each segment was analyzed to determine how much and what type of habitat was dewatered at each 2 foot increments from 266 down to 256.1 msl.

TWC members had expressed concern over the fluctuation of Parr Reservoir, and so the group tried to identify ways to improve habitat and navigation in the reservoir.

Bill M. asked for ways that navigation could be improved when the reservoir was low. Henry said that at Heller's Creek, stumps could be removed, however this would also remove important fish habitat. Bill M. suggested that only some stumps be removed, to allow for better navigation, but to still provide some fish habitat. Henry said that improving access from Heller's Landing could be considered as a PM&E measure.

Dick said another idea would be to limit fluctuations on both Parr and Monticello reservoirs during spring fish spawning. He understands that this is a difficult issue to address and that this could be something that is done only when conditions allow. Bill A. asked if it's more important to keep the habitat wetted or dry and Dick said that it's more important for the reservoir level to remain stable. Ideally, both reservoirs would be full and stable during spawning, however if the reservoir can't be full, then they should be stable, so fish nests aren't left dry when the water level drops. Bill A. and

Ray said they would talk with operators to see if this is possible. It would also depend on how much water is coming from upstream, although in the spring, generally there is excess water, which may make it easier to hold the reservoir at a steady level.

Henry said that Ron Ahle (SCDNR) had mentioned in a previous TWC meeting that it would be nice to stabilize one of the side channels as a small impoundment in Parr Reservoir, similar to the Recreation Lake at Monticello Reservoir, as a PM&E measure. The group discussed the possibility of this and how the US Army Corps of Engineers (USACE) might handle it. The group looked at maps of Parr and identified a small side channel area as the potential site for an impoundment. Brandon said it would likely be difficult to obtain a permit, plus mitigation would need to be done to account for the loss of wetlands or streams. The railroad would also need to be contacted to see how this would possibly affect their operations, since the railroad tracks run close to the area in question. Caleb also mentioned that duck hunters would need to be considered, since this proposed area for the impoundment is a heavily used location for duck hunting. Navigation into and out of this area could become an issue.

The group also listed the following items for consideration regarding the impoundment:

- build a berm or gate around the 262' or 260' mark, approximately 125 feet long
- the impoundment would need to be somewhat small, so it wouldn't affect storage in Parr (how many acre feet would this take away from operations)
- build a temporary structure that could be installed only during the spring (March, April, May), so sediment doesn't build up, hunting isn't affected, and water doesn't get stagnant
- potentially build a boat ramp that allows for access inside the impoundment (could be considered a recreation enhancement as well)

Tom was concerned about how this structure may cause navigation issues and possible sediment issues for fish and mussels when removed each year. He indicated that a permanent structure, such as a rice trunk, may be the best option. The group decided that this option needs to be discussed further, both internally for SCE&G and externally with the USACE.

Henry said the take-home message regarding Parr Reservoir fluctuations is that SCE&G doesn't bring the pond level up to 266' very often, as evidenced by the amount of vegetation growing in the upper contours. Below elevation 260', substrate is mainly sand and silt with large numbers of stumps. There is a large amount of natural structure occurring lower in the reservoir along the shorelines, while the upstream sections of the reservoir are more riverine.

Monticello Reservoir

One of the goals identified by the TWC in the Study Plan was to focus on identifying PM&E measures in this reservoir to enhance spawning/recruitment/and fishing to mitigate for fluctuations. Prior to the meeting, Dick prepared and distributed a document outlining potential enhancements for Monticello Reservoir, from SCDNR's perspective. This document is attached to the end of these notes.

Bill A. asked how SCE&G will show compliance with some of the enhancements that Dick proposed. Dick said that license articles could be worded to require consultation with agencies. Implementation of enhancements can be documented and agencies would send in letters of confirmation that work was completed. He is not concerned with performing creel surveys or other

studies to prove that enhancements are improving fish recruitment in the reservoir. He believes that the enhancements he is proposing have already been proven in many studies in other reservoirs to increase fish production. The installation of these enhancements should be considered successful compliance with the license article.

SCE&G said they are concerned about some of the proposed enhancements, including the amount of gravel needed and possible re-contouring of shorelines. Dick said these are just examples of some things that can be done, but SCDNR would be willing to negotiate on these items. He said that ideally, SCE&G would install all of the agreed upon enhancements versus just providing the funding for work to be done. However, SCDNR may be able to provide some assistance during installation, in the way of boats or technicians.

The group discussed the different ideas that Dick presented and agreed that a PM&E measure could address installing three different types of fish habitat: spawning, nursery, and deep water, which agrees with the report. Some of the attractors could be purchased from Mossback, or a similar company, and some could be built by SCE&G. Brandon and Caleb brought an example of a deep water attractor to the meeting that they built using scrap parts. A photo is included below.

PHOTO 1 DEEP WATER FISH ATTRACTOR BUILT BY SCE&G



The TWC and report initially identified “9 enhancement areas” on Monticello. The group discussed these and other areas of the reservoir and identified approximately 20 areas around the lake where spawning, nursery, and/or deep water fish attractors could be installed. Some of the 20 areas

included all three components, while others included only one or two. The group agreed to the following specifics for each habitat type:

- Spawning – areas will be approximately 1000ft x 10ft, and will include up to 200 spawning disks or gravel beds – spawning disks will be installed in groups of 3-5
- Nursery – areas will be paired with spawning sites above and will include approximately 15 nursery/fry structures, such as the fry cage built by Mossback or handmade stake beds or bamboo structures built by SCE&G.
- Deep water – each deep water site will be approximately 1500 square feet, with approximately 15 structures scattered around a central buoy. Structures can be constructed by SCE&G or purchased from Mossback.

SCE&G and Kleinschmidt will put together a PM&E proposal that addresses site location, cost estimation, and installation schedule. This will be brought back to the TWC for review and discussion. The group discussed several different schedules for the term of the new license, including installing enhancements in two sessions several years apart, or installing one or two sites per year for 15 years. The group also discussed prioritizing sites and installing in phases during the first 30 years of the license. Everyone agreed that at least one pause in the timeline is necessary for a check and adjust on the process.

Kleinschmidt will order a few fish attractors from Mossback to use for testing. The TWC will plan to meet at the reservoir later in the spring to field verify the sites identified and possibly install a few fish attractors to determine level of difficulty. Dick noted that Robert Stroud (SCDNR) should be involved, since he is the SCDNR representative assigned to Monticello Reservoir. Scott Collins (SCE&G) will also be consulted to ensure that the sites identified are not located in areas where docks can be permitted.

The meeting adjourned. Action items from this meeting are listed below.

ACTION ITEMS:

- SCE&G will discuss internally the option of building a berm at the site on Parr Reservoir identified in the meeting. Depending on the outcome of this discussion, they, potentially along with SCDNR, will talk with USACE about permitting this action.
- SCE&G and Kleinschmidt will put together a PM&E proposal detailing the next steps for installing fish habitat enhancement in Monticello Reservoir – types, places, timeline.
- Kleinschmidt will order some fish attractors from Mossback for testing.
- The TWC will meet later in the spring to visit the Monticello Reservoir sites identified in the meeting for fish habitat enhancement.

Aquatic habitat enhancement in Monticello Reservoir

Monticello Reservoir is a 6,800 acre impoundment associated with the Parr Shoals Hydroelectric Project (project). This project is a pump-back project that utilizes the Fairfield Pumped Storage Facility to generate electricity and refill the lake. The project has the capacity to transfer up to 29,000 acre-feet of water between Parr Shoals reservoir and Lake Monticello, and for the period 2005-2013, average daily fluctuations in Lake Monticello were 2.35 feet. However, the authorized daily operational range is 4.5 feet, which could result in a minimum reservoir level (MRL) of 420.5 feet and should be considered in the placement of any fish habitat.

When the project is operated at the minimum reservoir levels, the surface acreage is reduced from 6,800 acres to 6,467 acres, which results in the dewatering of about 333 acres or (14.5 million sq. feet) This shoreline, which is exposed on a daily basis, is generally devoid of aquatic or terrestrial vegetation, woody debris, or other structure that could provide habitat for aquatic organisms. Much of this shoreline is a silt/clay hardpan material.

To mitigate project effects on littoral habitat, the fisheries technical working committee (TWC) is developing a proposal to supplement aquatic habitat in Monticello Reservoir. The TWC recommended 1) enhancements should provide habitat for spawning, nursery area and deep water cover; 2) they should be installed in close proximity to facilitate movements from one habitat type to another; and 3) ideal spawning habitat would be located in the backs of coves protected from the wind.

Draft DNR Proposal: DNR recommends a robust fisheries enhancement program be implemented over the term of the new license. If the new license is issued for a term of 30-years, we recommend enhancement of a minimum of 15 coves on Lake Monticello. In the event a License is issued for more than 30 years, an additional 5 coves should be enhanced for each additional 10-year period. Enhancement efforts should focus on the creation of spawning, nursery and deep water cover or attraction habitats. In keeping with proposed language in the General Permit (GP) for Lake Monticello, *inshore enhancements* would include spawning and nursery habitats, and be placed in shallow water areas along shorelines and within coves, in a minimum depth of 3 feet below MRL (with the exception of felled or hinged trees). Ideal areas for inshore structures exist in areas with little to no human habitation, docks, piers or boat landings. *Open water enhancements* would be located in deep water areas away from shorelines, in water depths where the tops of the structures would be a minimum of 6 (?) feet below MRL and would not interfere with navigation. Ideal areas for open water structures exist where the absence of aquatic vegetation, submerged woody debris, or topographical depressions may provide natural fish habitat.

Spawning habitat – Cove selection is important and should be conducted in coordination with the resource agencies. Selected coves would be enhanced with structure that provides substrate suitable for spawning and cover to attract spawning fish and to provide protection for fry. Area covered (square feet) is probably more important than height (cubic feet) for spawning habitat. Spawning habitat should cover an area ranging from about 0.25 to 1 acre in each cove, which would result in a total reservoir enhancement of between 3.75 and 15 acres. Each area would be from 1000 – 2000 linear feet in length and 10-20 feet wide, depending on topography, and these areas would be located primarily in the backs of coves.

Enhancement materials could include, but are not limited to:

- gravel beds 3-4 inches in depth with aggregate ranging in size from pea gravel to crusher run (or native stone equivalent);
- spawning benches created by utilizing a 4 to 6 foot piece of log sawed lengthwise in half and attached to cinder blocks on each end; and
- spawning discs such as the Honey Hole spawning disc. Honey Hole recommends installing up to 24 discs per acre in groups of 3 to 8. We are thinking that a minimum of 200 discs/1000 linear feet of shoreline may be adequate if used alone, fewer if other spawning habitats are also used.

A combination of these various habitat types is recommended. Rock jetties less than 2 feet high and or stump fields and felled trees should be placed near the spawning habitat to provide cover for all life stages and to stabilize gravel. During periods of low water levels, exposed lake bottoms may be re-contoured to excavate a shallow depression in which to hold gravel for spawning beds. All of the structures utilized to provide spawning habitat would be generally located in water depths of 3 – 6 feet below MRL and marked with appropriate signage and/or noted with downloadable GPS data.

Nursery habitat – for each cove, several shallow water structures should be established to serve as nursery habitat. These structures should be designed to provide cover for fry and juveniles and substrate for periphyton, and would be placed near the spawning areas and in depths of water ranging from 6 -10 feet at MRL. The goal would be to establish a minimum of 2-3 “nursery areas” associated with each spawning area, each consisting of a minimum of 12 habitat units (8 feet by 8 feet) spread over an 800 -1000 square foot area. Some vertical profile is important (2-4 feet tall) for this habitat type, as is the need for numerous small interstitial spaces that exclude fish larger than 6 inches. Enhancement areas would be marked with appropriate signage and/or noted with downloadable GPS data.

Enhancement materials for nursery habitat could include:

- rock jetties 3-4 feet tall;
- stump fields;
- a combination of rock jetties and stump fields;
- concrete or corrugated culverts no greater than 24 inches in diameter;
- homemade pvc attractors;

- commercial artificial structures such as the Mossback safehaven or 9-post safehaven structures; and
- low-profile horizontal bamboo bream nursery mats.

Open water habitat - open water habitat enhancement (fish attractors) will be established at suitable locations, and would generally be located in the proximity of the spawning/nursery area enhancements but could also be located in other areas as determined by the TWC. The purpose of these areas is to enhance structure and habitat to provide cover, feeding areas and attraction for larger fish, and they would be placed in water depths between 12 and 20 feet at MRL. Vertical profile is very important for attraction habitat. The goal would be to establish at least one attractor per cove, and each attractor should cover at least 2,000 square feet (1/10 of a surface acre) and provide vertical profile (50% of water depth). All open water enhancement areas would be marked with "Coast Guard" yellow fish attractor buoys.

Enhancement materials for open water attractors could include:

- homemade PVC;
- small and large diameter corrugated and/or concrete pipe;
- concrete products or clean construction debris;
- bamboo, recycled coniferous trees and other large woody debris with concrete block anchors;
- commercially available products such as the larger Mossback safehaven structures.

Staging areas - Designated staging areas will need to be developed at Lake Monticello. These could be at existing lake access areas, or could be in areas previously used by SCDNR for Canada Geese restoration activities. Best Management Practices will be incorporated throughout the use of these areas as temporary staging for loading of materials. The proposed materials may be transported by boat or barge to a site from the designated staging areas and placed. Because of the high fluctuations in water levels, it will be necessary to use heavy materials to insure they remain where they are deployed. A mini-excavator and a skid-loader (or similar equipment) will be needed to load and off-load the material to and from the barge.

Excavation may be required in order for habitat barges to reach staging areas for load of material. Excavation is limited to the minimum necessary for access to temporary staging areas, and excavated material must be properly disposed of on an upland site. All disposed material shall be properly stabilized or contained so as to preclude entry into any surface waters, wetlands, streams or any other waters of the United States, or public property. The disposed material shall not affect cultural or historic resources or threatened or endangered species. All disposal sites must be authorized by the lake manager.

Material outlined above (ex. large rock, logs, gravel) may be used to form a temporary ramp or nosing area to load material onto boat or barge from the staging area. Stabilization of the shoreline using a rock loading ramp will prevent gouging and shoreline erosion during construction. Temporary matting may also be used where applicable. When appropriate the materials in the loading/nosing areas will be

removed, though some residual material may be left in place as bank stabilization and/or habitat enhancement (i.e. gravel beds) where applicable.

Approach – SCE&G would ultimately be responsible for conducting this work. DNR will consult with SCE&G to identify the specific areas for enhancement, to develop cove-specific descriptions of the enhancement activities, and to provide other guidance as needed for the selection of enhancement materials and deployment. We recommend that the project be phased over the term of the new license by the establishment of 10-year work periods. Annual meetings would be held to discuss the progress and accomplishments of the program and to conduct planning and coordination for annual activities. A 10-year meeting would be conducted in the last year of the work period to discuss and formulate the next 10-year work plan.