MEETING NOTES
Stevens Creek Hydroelectric Project (FERC No. 2535)

Dominion Energy South Carolina, Inc.
Fish Passage Technical Working Committee

June 30, 2025

Draft JAG 8/5/25

MEETING ATTENDEES[1]:

Ray Ammarell – Dominion Energy
Will Barnes – Dominion Energy
Jason Bettinger* – SCDNR
Bryant Bowen* – GAWRD
Amy Bresnahan – Dominion Energy
Aaron Gray* – GAWRD
Jenn Güt – Kleinschmidt
Andy Herndon* – NMFS
Fritz Hoogakker – Dominion Energy
Alison Jakupca – Kleinschmidt
Jordan Johnson – Kleinschmidt
Bjorn Lake* – NMFS
Kevin Mack – NMFS
Paula Marcinek*
Elizabeth Miller – SCDNR
Melanie Olds – USFWS
Bill Post – SCDNR
Will Pruitt – Kleinschmidt
Andrew Rollins – Dominion Energy
Paul Vidonic – Dominion Energy
Ellen Waldrop* – SCDNR
Keith Whalen – USFS

* Attended virtually

Not in Attendance: Not Applicable

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

MEETING PURPOSE: The purpose of the meeting was to review preliminary results and future planning for fisheries surveys and fishway prescriptions (Rx) for the Stevens Creek Hydroelectric Project (Project).

Alison Jakupca, Kleinschmidt, began the meeting with a welcome and safety moment and then led introduction of Fish Passage Technical Working Committee (FPTWC) members (also referred to herein as group or committee).

[1] Abbreviations/Acronyms: GAWRD = Georgia Department of Natural Resources, Wildlife Resources Division; Kleinschmidt = Kleinschmidt Associates; NMFS = National Oceanic and Atmospheric Administration, National Marine Fisheries Service; SCDNR = South Carolina Department of Natural Resources; USFWS = United States Fish and Wildlife Service; USFS = United States Forest Service

Regional Fish Passage Updates

Regional fish passage updates were provided by Kevin Mack in discussions regarding preliminary prescriptions for the Project.

American Eel Studies

Caleb Gaston, Dominion Energy (DE), provided a review of the results from the Spring 2025 Eel Sampling Study. In summary, 29 American eels were captured via the eel ramp, no eels captured via the eel pots, and 195 eels captured during electrofishing efforts. The captured eels were marked with coded wire tags but there were no recaptures. April 7-8 pot and electrofishing sampling was missed due to high water conditions along with May 20-21. DE biologists rescheduled the May dates but were prevented from sampling due to severe thunderstorms.

During high water, some of the predation cover of the eel ramp was submerged. It is unknown if or how this may have impacted ramp success. It was noted that the temperature within the live well of the ramp and the Project tailrace remained within 0.5 °C of each other. Biologists added decoy eels (untagged live eels) to the live well, but no additional eels were collected while the decoy eels were in place. The average length of eels captured via the ramp was 156.6 mm, and the average weight was 5.1 g. The first eel was captured April 4 at a tailrace temperature of 13.9 °C, but most of the eel were collected in May after water temperatures reached 15.0 °C. Fritz Hoogakker, DE, noted that at the Roanoke Rapids Project, 15.0 °C appeared to be the trigger for eel movement; there was usually a pulse of eel approximately one week after high flows once the target temperature was reached.

No eels were collected via the pots despite three different baits being used. There was some bycatch in the eel pots, believed to be Black Banded Darter and Savannah Darter. The pot throat mesh would have excluded larger eel that were collected via electrofishing.

Approximately 3.7 hours (13,216 seconds) were spent electrofishing along the Project dam at 7 sites: 1) SC shoreline; 2) 4-ft flashboards; 3) 5-ft flashboards; 4) first shoal; 5) navigation lock; 6) empty bays; and 7) GA shoreline. A total of 195 eels were collected for a CPUE[2] of 53.12 eels per hour. The sites where the most eel were collected were in front of the 5-ft flashboards, in front of the navigation lock, and along the GA shoreline. Multiple age-classes were present below the dam. Keith Whalen, USFS, assisted with some of the electrofishing effort. In general, water depth and clarity make a difference during electrofishing. The zero collections are likely influenced by turbidity as was likely for all sites during the May sampling period.

[2] CPUE = catch per unit effort

Fritz asked if the Project area water temperature was colder or warmer than average.[3] It was noted that fish passage at the Blewett Falls Hydroelectric Project[4] was occurring a little later than normal due to water temperatures.

It was also asked if there were any distinguishable differences in the age class catches among dates or sites. DE will review the data in detail to confirm, but it was believed to typically be a good mix of age-classes across dates and sites.

Caleb observed that attraction flow from the Project powerhouse appeared to travel down and across the head of Stallings Island.

Keith asked if the sampling period with the most eels collected during electrofishing coincided with the biggest eel numbers on the ramp. Caleb responded that the answer is difficult to determine because of the turbidity issues while electrofishing in May.

Fritz noted that some species do not feed during migration and asked if that could be a potential reason eel are not being collected via the pots. This is currently unknown.

Bill Post, SCDNR, asked what the settings were for electrofishing. Caleb replied that settings were adjusted based on conductivity but were generally between 3.5 and 4 amps.

Bill suggested sampling into June for the next effort and to continue to sample in March for comparison to 2025 data.

Keith suggested the FPTWC may want to consider electrofishing above the Project dam since fishing with the pots is not proving effective. In past meetings, there has been conversation focused on safety of electrofishing the area, particularly near the lip of the dam, but it could be further explored. Caleb stated that moving forward, one thought he had was to double the eel pots at each site and remove the mesh throats on half of the pots. Caleb agrees that electrofishing above the dam should be explored. Potential sites are the tributaries on the GA side of the Savannah River, islands in the middle of the river channel, and the shoreline along the SC side. DE to consult with USACE[5] regarding potential shoreline downstream of J. Strom Thurmond Dam (Thurmond Dam). The committee discussed different baits to try for the pots – SCDNR has a source for shad roe; DE will look into the availability of blue crab.

Paul Vidonic, DE, asked the FPTWC if they felt the eel ramp extended far enough into the river or if the angle should be changed. Fritz added that if they adjust the ramp, it may be

[3] The water temperature in the Savannah River in Augusta, Georgia is generally higher in 2025 than the same day in previous years (https://seatemperature.net/rivers/water-temp-in-savannah-river).
[4] Part of the Yadkin-Pee Dee Hydroelectric Project (FERC No. 2206), which is located in Montgomery, Stanly, and Anson counties in central North Carolina near the town of Rockingham; operated by Duke Energy.
[5] USACE = United Army Corps of Engineers

worth moving it downstream away from the direct influence of the Project tailrace. Bryant Bowen, GAWRD, asked if it appeared that eels were accumulating in areas with the most flow potential. Caleb responded that no, that was not necessarily the case. Keith suggested not moving the ramp if the sampling period is going to be revised. Kevin Mack, NMFS, agreed with Keith and added that he thinks it is still advantageous to look for eel in March moving forward. Paul recommended revising the checking frequency to once a week (the ramp was checked three times per week during the present study). The group discussed that the risk of checking just once a week is relatively low in March but becomes an issue as water temperature rises; the concern is that eels could die in water that heats up and is deprived of oxygen. The check frequency could be once a week until eels are collected and then check twice per week, etc. Other options discussed included utilizing a temperature threshold (check more often once it hits 15 °C), installing a monitoring camera, and using the operators stationed at the Project to check.

Andy Herndon, NMFS, asked about the ramp shield and whether it heats up in the direct sun. Will Barnes, DE, replied that the water splashing appears to keep the aluminum wet and there is usually condensation on the ramp shield.

Caleb reviewed some of the updates to the study plan discussed. The study period will start in March, and June will be added for electrofishing and the eel ramp. Kevin stated that capturing and tagging eel and operating the ramp are most important; NMFS noted that their priority is not the eel pot sampling if they are not catching eel. Caleb mentioned that the biggest issue with electrofishing above the dam is turbidity – the mainstem Savannah River is relatively clear but Stevens Creek is not; however, Caleb believes there are some spots to attempt electrofishing.

Bjorn Lake, NMFS, suggested evaluating the size distribution of electro-fished eels by site. Will B. noted that there was little variation in size of eel collected via the ramp.

Keith asked the committee if there was a size class of eels that should be excluding from tagging since they are unlikely to traverse the dam. It appears that based on the sizes of eels collected below the Project dam that some are resident fish whereas others are migrating. There would likely need to be a literature search to determine the appropriate cut-off size and there is the issue of site specificity. The potential limit is for eels less than 300 mm total length to be tagged, but the group will reconvene on the number.

Paul asked the FPTWC if eels are still being collected at the end of June, if DE should continue to collect and tag eel. The general consensus among the group was yes, that it may be good to determine when the migration ends. However, it was noted that the further the study continues into the summer, the more concern there is for the live well water temperature becoming too hot. If there is more than a 5 °C difference between the tailrace and live well,

there could be a concern; DE can monitor the temperatures and make the judgement call in the field.

It was noted that the range of tag numbers is being documented and saved so that DE can trace recaptured eel back to the original tagging. Any recaptured eel would have to be sacrificed to determine the wire code.

Alison reviewed the summary of American Eel Study Plan updates with the FPTWC and DE will provide a written report of the Spring 2025 Eel Sampling Study results prior to the next FPTWC meeting.

Paula Marcinek commented that it may be beneficial for the resource agencies to join the DE biologists for one to two days of electrofishing when eel captures appear to be peaking. Utilizing multiple shock boats/rafts across the channel could help shed light on capture efficiencies and if the eels are congregating elsewhere. Caleb is open to this suggestion. GAWRD expressed interest in joining and noted they have a couple of boats that would be suitable.

Fishery Resources Enhancement Fund

The FPTWC discussed the Fishery Resources Enhancement Fund (Fund), which DE has proposed to continue under the new Project license. In summary, Article 406 required the Licensee to provide, annually, $4,700 (1995 dollars, adjusted for inflation [$9,350 in 2024 dollars]) for resource enhancement activities as mitigation for loss of fish to entrainment through the hydroelectric plant. The following areas were identified as opportunities for improvement in the general Savannah River Basin fisheries resource: 1) fisheries and mussel restoration and/or enhancement and 2) bottom habitat enhancement. The current Enhancement Fund amount as of December 31, 2024, was $131,151.27, and there have been two funded projects to date which studied the following components: 1) chlorophyll-a; 2) forage fish abundance; 3) seasonal distribution of striped and hybrid bass; 4) largemouth bass exploitation; 5) fish relative abundance, condition, and growth; and 6) stocking and evaluation of redear sunfish. The FPTWC discussed that the Fisheries Resources Enhancement Plan (Plan) is required to be updated every 10 years, and that it was currently up for renewal.

Elizabeth Miller, SCDNR, asked if DE issues permits for docks within the Project boundary. DE noted that they do not issue permits for docks within the Project boundary, as this is under the purview of USACE[6].

[6] USACE = United Army Corps of Engineers

Keith suggested setting a geographical scope for the Plan other than the expansive Savannah River Basin. Alison noted that FERC[7] prefers the geographical boundary for plans to be within the Project boundary, which may be part of the reason why the Parr Hydroelectric Project HEP[8] fund ended up being off license. Keith mentioned that if a focus of the Fund is mussel enhancement, there is not much appropriate habitat within the Project boundary. For example, the Fund could be used for Carolina heelsplitter, where habitat is located upstream of the Project boundary in the Stevens Creek watershed. Elizabeth added that the Fund could potentially be used for land acquisition, aiding in habitat protection, if the geographical scope was extended beyond the Project boundary. Keith recommended the Fund geographical scope encompasses upstream of the Project dam and includes Stevens Creek and GA[9] tributaries; end the scope at the Thurmond Dam. Andy commented that NMFS would be interested in the geographical scope extending downstream of the Project dam to include the Augusta Shoals to aid in endangered sturgeon habitat enhancement.

Keith asked why bottom habitat enhancement was considered a priority. Jenn Gut, Kleinschmidt, read the language from the Plan – the use of stone to provide bottom structure in areas of flow was identified as a potential means of improving fish spawning and rearing habitat in the vicinity of the Project; removal of accumulated sediment was also identified as a potential method for improving spawning and rearing habitat. The "Identification of Need and Evaluation for Potential for Improvement" section of the Plan was revised to "Fisheries and Mussel Restoration and/or Habitat Enhancement".

The group discussed the HUCs[10] for defining the Plan geographical scope. The following areas were identified:

- Middle Savannah 8 Digit Watershed: HUC 8-03060106 – GA tributaries into the Project reservoir; mainstem Savannah River from Thurmond Dam to New Savannah Bluff Lock and Dam (NSBLD)
- Stevens Creek 8 Digit Watershed: HUC 8-03060107 – entire watershed

Bryant asked the FPTWC if they felt mussel surveys needed to be conducted or if there was enough information. Alison explained that mussel surveys were conducted as part of relicensing. Keith stated that he believes there is enough information regarding mussels on the SC[11]/Stevens Creek side of the Project reservoir. Will Pruitt, Kleinschmidt, added that the mussel surveys conducted during relicensing indicated that mussel habitat within Little Kiokee Creek and Uchee Creek on the GA side was not ideal.

[7] FERC = Federal Energy Regulatory Commission
[8] HEP = Habitat Enhancement Program
[9] GA = Georgia
[10] HUC = Hydrologic Unit Code
[11] SC = South Carolina

Alosine-Focused Studies

Fritz presented the comments provided by NMFS on the Stevens Creek Habitat Suitability Study which included the following: 1) recommended excluding substrate from quantitative suitability calculations; 2) suggested using ADCP[12] for water velocity and depth and RTK[13] position system for each transect; 3) recommended reviewing National Flood Insurance Program data for Stevens Creek; and 4) recommended conducting field work at flows that will maximize access and reduce safety concerns.

The group discussed NMFS comments and reviewed each comment in detail. DE noted that it continues to be their preference to collect data on substrate while they are in the field, as it can either be included or excluded from the analyses. Kevin was amenable to this process.

The group also discussed some of the difficulties with utilizing the ADCP and RTK in the field at Stevens Creek due to the shallow nature of most of the water and tree cover, respectively. Jordan Johnson, Kleinschmidt, further explained that the ADCP requires a minimum depth because of the transducer's depth and water depths typically less than one meter results in a lot of noise/erroneous data. RTK relies on a GPS[14] signal which would be difficult in Stevens Creek as the base would likely need to be moved at each transect, adding significant time to the field efforts. Bjorn clarified that the suggestion was for ADCP to be used in non-wadable areas. Fritz prefers keeping with the Hightower HSI[15] model, as well as traditional flow meter techniques because it has been proven effective.

Fritz added that he has requested data from the National Flood Insurance Program but has yet to hear back.

The committee discussed NMFS's flow target comment. Bjorn clarified that the HSI model is based on depth, velocity, and a system of transects, but does not provide information on habitat under various flows in the system. Conducting the study at the migratory median flow of 175 cfs[16] would provide good habitat conditions at that flow but not other flows. Bjorn elaborated that a hydraulic model could provide data on habitat under different flows, but he understands it could be cost prohibitive, and this is not a required study. A 1-D[17] hydraulic model would present average conditions at a given transect, but that is not the same information that would be provided by the ADCP which would contribute a more robust data set. The 1-D model would be an expansion of the field dataset and could likely

[12] ADCP = Acoustic Doppler Current Profiler
[13] RTK = Real-Time Kinematic
[14] GPS = Global Positioning System
[15] HSI = Habitat Suitability Index
[16] cfs = cubic feet per second
[17] D = dimensional

provide a percentage of area that remains habitable under certain flows. DE noted that they will investigate this further.

DE will review comments and discussion and provide any updates to the written plan for the Stevens Creek Habitat Suitability Study prior to the next FPTWC meeting.

NMFS (Early) Draft Preliminary Fishway Prescription

Kevin presented NMFS Draft Section 18 Prescription and Fishway Alternatives for the Project. Kevin reviewed that NMFS did not prescribe sturgeon to pass at the Augusta Diversion Dam (ADD) and sturgeon are not a target species at the Project. The ADD Rx calls for a vertical slot fishway structure on the SC side of the river to pass Alosines, which are also a target for passage at the Project. The ADD Rx did not include a requirement for eel passage as it is known that eels are above the ADD dam; American eel is a target species at the Project.

Kevin briefly presented on the eel studies noting that several other projects in the SE[18] have ongoing eel studies based on their Rx, including the Roanoke Rapids Hydroelectric Project[19], the Blewett Falls Project, and the Santee-Cooper Hydroelectric Project[20].

The downstream obstruction to fish passage is the NSBLD, which WRDA[21] 2024 has instructed USACE to "fully repair" the "lock and dam structure" which will allow for construction of a fishway in a bypass channel on the SC-side of the dam. Alosines are currently able to pass the NSBLD approximately 15 percent of the time. As previously mentioned, a vertical slot fishway on the SC side of ADD has been prescribed within three years of passage at NSBLD.

NMFS is currently proposing that Alosine passage at the Project consist of EITHER cooperative trap and transport OR volitional passage through a bypass/nature-like solution, fishway structure, or emerging technologies. The NMFS-preferred alternative at this time is cooperative trap and transport between DE and the city of Augusta (City), owner of the ADD. An example cooperative trap and transport operation is on the Contoocook River in the NE[22] United States. The efficiency of the cooperative trap and transport at the Project is likely comparable to two volitional fishways but with a reduced cumulative delay, reduced risk of falling back through Project turbines or spillway, and fish being directly passed into Stevens Creek. Trap and transport would be seasonal.

[18] SE = southeast
[19] Part of the Roanoke Rapids and Gaston Hydroelectric Project (FERC No. 2009), which is located on the North Carolina and Virginia border; operated by Dominion Energy.
[20] FERC No. 199; located on the Santee and Cooper rivers in Berkeley, Calhoun, Clarendon, Orangeburg, and Sumter counties in South Carolina; operated by the South Carolina Public Service Authority.
[21] WRDA = Water Resources Development Act
[22] NE = northeast

NMFS provided the FPTWC with additional details regarding options for Alosine passage. Alternative 1 is a bypass or nature-like solution on the SC side of the river with additional spilling from Stevens Creek; however, property ownership issues, conflicts with existing infrastructure, and limited access are recognized and that a nature-like fishway is probably not feasible at the Project. Additionally, due to the large fluctuations of the Project reservoir, a nature-like fishway would likely have to be manually operated to some degree. There are placement concerns regarding a fishway structure, and whether it would be more appropriate to be installed on the SC side of the river, GA side, or somewhere in between. With the fishway approach, fish are passed into the mainstem Savannah River rather than Stevens Creek, with a higher risk of falling back through Project turbines or spillway. Some emerging technologies include Fishheart and WOOSH, which require no need for a permanent fishway structure but are unproven at moving large numbers of fish without delay.

Potential Rx components would include the requirement to continue eel passage studies and to install a volitional eelway by the 5th year of the license. Kevin explained that "eelway" is a relatively loose term, allowing the FPTWC the flexibility to determine what is best. A component of the Rx regarding Alosines will be to have an operational fishway in place after completion of fish passage at ADD UNLESS a trap and transport agreement is in place to pass fish from ADD into Stevens Creek.

Paul asked regarding the trap and transport operation on the Contoocook River, if the cost was split equally among the projects. Kevin replied that the project was in development and not yet put forth to FERC. The owner is the same for all three projects under one license renewal. NMFS does not have the authority to prescribe sharing the costs with the City; that would be determined by the parties involved.

Bill suggested adding another "UNLESS" to the Rx components regarding shad presence at ADD regarding the committee making determinations on the best available data/science, similar to language that was used to address the issue as the Roanoke Rapids Project. Bill is not convinced there will be shad numbers below ADD to justify fish passage. DE would also want data to indicate that if they are moving fish into Stevens Creek, that it is, in fact, good quality habitat. Fritz also commented that if DE were to enter into an agreement with the City that there would be an opportunity to not be required to trap and transport if there is not adequate return or spawning success. If that was the case, DE would want assurances that they would not have to then construct a fishway structure. Kevin replied that NMFS prefers to have a Rx on the record and not reserve their authority but understands and is amenable to relying on the adaptive management approach.

The question was raised if the City receives three years to construct passage at ADD following passage at NSBLD, why the same timeline was not provided to DE for the Project. It would be important to DE to have follow-up studies performed proving the effectiveness of the

ADD fishway. Kevin explained that if a trap and transport agreement can be worked out, something other than a vertical slot can be constructed at ADD. There are different technologies in place to trap Alosines and there could potentially be a phased approach at ADD to do some monitoring to determine if there is a response from shad traversing NSBLD. NMFS reiterated that they are not in favor of requesting someone spend millions of dollars on something that may not work effectively.

The FPTWC discussed downstream passage at the Project. Alison commented that based on the Desktop Fish Entrainment Study conducted during relicensing, that there is a high survivability rate for fish through the Project. NMFS agrees, and the current thought is that downstream passage would be as-is.

Ray Ammarell, DE, asked Melanie Olds, USFWS, if trap and transport would meet USFWS's goals. Melanie responded that no, USFWS's goal is volitional passage.

Caleb mentioned the siting concern for Alosines and if it is NMFS's preference if the trap and transport is operated on the SC side. Kevin responded that having the trap and transport on the SC side of the Project is the preference for two reasons: 1) to be consistent with the fishway location at ADD; and 2) the ability to pass fish directly into Stevens Creek. Caleb asked if it would be considered a failure of the fishway if fish choose to go up the Savannah River to Thurmond Dam rather than go up Stevens Creek. No, Kevin does not believe so.

Fritz commented that the FPTWC should discuss the potential introduction of invasive species should volitional passage move forward. Fritz additionally noted that there is some concern that the 10(j) recommendations may play against each other; the re-regulation function required by FERC may be leading to the low dissolved oxygen (DO) issues within the Stevens Creek arm. Kevin acknowledged that NMFS understands that there is a relationship between flows and DO.

Keith asked if trap and transport would be a viable option for transporting robust redhorse if the species gets listed under the ESA[23]. Paula commented that due to the extremely low capture efficiencies with robust redhorse that trap and transport would not be practicable. Melanie stated that if NMFS's Rx included passive transport/vertical slot as the preferred alternative, the USFWS may be willing to reserve authority; however, the USFWS does not prefer trap and transport and the handling of species. The USFWS has reservation of authority at ADD, and as such, if a fishway is not constructed at their dam due to a trap and transport agreement, there is no trigger for the USFWS to prescribe passage at the Project because there is no mechanism of passage at ADD. As such, Melanie will need to discuss internally to determine USFWS's next steps regarding their fishway Rx for the Project. As far

[23] ESA = Endangered Species Act

as the USFWS is concerned, there is no other option for moving robust redhorse other than volitional passage.

Keith asked if an eelway could potentially be developed into a fishway. Yes, the possibility exists; the ADD Rx provides that flexibility.

DE was asked if the company had any interest to approach landowners on the SC side regarding access. Ray explained that DE's concern with operating on the SC side of the dam is not limited to landowner issues but geographical concerns as well. DE has ROW[24] access but because of the slope, DE would likely have to excavate the hillside, which is mostly rock, potentially increasing costs exponentially, and resulting in dam safety concerns. However, it was discussed that these are topics to be considered during the design phase.

Next Steps

The FPTWC agreed that an in-person meeting was likely not needed until the fall following the Stevens Creek Habitat Suitability Study. However, a short check-in call in August is warranted. The group could also convene a meeting should FERC issue their REA[25] Notice before the next FPTWC meeting.

A one-hour call was scheduled for August 28, 2025, from 1-2 pm. The next in-person meeting was scheduled for October 29, 2025, starting at 10:30 am in North Charleston, SC.

The meeting was adjourned.

ACTION ITEMS:

- DE to provide the Spring 2025 Eel Sampling Study Report prior to the next FPTWC meeting
- DE to provide any revisions to the Stevens Creek Habitat Suitability Study Plan prior to the next FPTWC meeting
- DE to provide a red-line version of the Fisheries Resources Enhancement Plan to the FPTWC for review

[24] ROW = rights-of-way
[25] REA = Ready for Environmental Analysis