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

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

June 3, 2024

Final JAG 3/7/25

ATTENDEES[1]*:*

Amy Bresnahan – DESC
Caleb Gaston – DESC
Ray Ammarell – DESC
Fritz Hoogakker[a] – Dominion
Paul Vidonic[a] – Dominion
Taylor Allen[a] – Dominion
Alison Jakupca – Kleinschmidt
Jenn Güt – Kleinschmidt
Will Pruitt – Kleinschmidt
Bjorn Lake[a] – NMFS
Fritz Rohde[a] – NMFS
Kevin Mack – NMFS
Eric Bauer[a] – USFWS
Melanie Olds – USFWS
Keith Whalen – USFS
Clint Peacock[a] – GADNR
Rusty Wenerick[a,b] – SCDHEC
Bill Post – SCDNR
Elizabeth Miller – SCDNR
Ellen Waldrop – SCDNR
Jason Bettinger[a] – SCDNR
Paula Marcinek[a,b]

[a] attended virtually
[b] outside expert as outlined in the FPTWC Rules of Operation

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.

The purpose of the meeting was to continue development of a fish passage prescription (Rx) for the Stevens Creek Hydroelectric Project (Project) and review planning studies for incorporation into the Fish Passage Adaptive Management Plan (Fish Passage AMP).

Following a welcome and introduction, Alison, Kleinschmidt, stated the purpose of meeting and reviewed the agenda. No additions to the agenda were noted by any member of the Fish Passage Technical Working Committee (FPTWC, group, or committee).

[1] Acronyms: DESC = Dominion Energy South Carolina; NMFS = National Marine Fisheries Service; GADNR = Georgia Department of Natural Resources; SCDHEC = South Carolina Department of Health and Environmental Control; SCDNR = South Carolina Department of Natural Resources; USFWS = United States Fish and Wildlife Service

The group discussed several aspects of the Project Fish Passage Rx throughout the meeting. The discussion summary below is presented by topic and not necessarily the sequence in which discussions took place.

Adaptive Management Plan and Rules of Operation

Based on recent correspondence, the FPTWC, in general, indicated that they were not supportive of the Fish Passage AMP being filed with FERC[2] in the near term; the group would prefer the Fish Passage AMP matches more closely with the Rx that is being developed. The FPTWC is agreeable to the Rules of Operation, which includes information on the how the FPTWC will operate, being filed with FERC.

NSBLD/ADD Update

Fish passage at the New Savannah Bluff Lock and Dam (NSBLD) is still pending a decision from USACE[3] as they are currently under voluntary remand[4]. Kevin, NMFS, is of the opinion that it will be 2025 before USACE presents a resolution on how they plan to proceed further.

Fritz R., NMFS, stated that NMFS filed the final Biological Opinion (BiOp) for the Augusta Diversion Dam (ADD) with FERC and that the fish passage Rx for ADD was not far behind[5]. Jenn, Kleinschmidt, inquired of NMFS what the differences were between the draft and final BiOp for ADD. She noted that she recalled that the final BiOp provided guidance on how to calculate the inflow coming to their project. Kevin commented that Andy Herndon with NMFS was the main proponent of ADD's BiOp, and Kevin did not want to speak incorrectly; Fritz R. noted that there were only minor changes between the draft and final BiOp for ADD. NMFS stated that the fish passage Rx for ADD was tied into placement of fish passage at NSBLD. The City of Augusta (the City), the owner and operator of ADD, is to have an operational fish passage within three years after passage is achieved at NSBLD. It was asked of NMFS if the requirement to construct fish passage at ADD was hinged on passage at NSBLD being proven effective or just once the structure is completed; NMFS replied that the three-year timeline starts once construction is completed.

The FPTWC discussed the engineering details of ADD's Rx. NMFS developed the Rx based on the City's last trial-type hearing request in which NMFS provided options. The current Rx is for a volitional vertical slot ladder. NMFS referenced a manual that includes the

[2] Federal Energy Regulatory Commission
[3] United States Army Corps of Engineers
[4] A voluntary remand occurs when an agency during litigation requests the court to return a proceeding back to the agency (USACE, in this case) for further administrative action.
[5] NMFS filed the Third Modification Prescription for Fishways, Augusta Canal Project (P-11810-004) with FERC on June 7, 2024.

engineering details for the ladder[6]. Bill, SCDNR, noted there was a site visit back in the early 2000s and inquired how close the present design mirrored the structure discussed during the site visit. Bjorn, NMFS, replied that the current design is very similar to the design from the early 2000s; the structure is to be located on the SC[7] side of the dam with the same criteria as the early 2000s.

It was inquired how ADD's fish passage design may play into the fish passage design at the Project. Fritz R. responded that since the Project is located one mile upstream of ADD, it is logical to expect something similar at the Project, but each project is unique. Will, Kleinschmidt, asked if the fish passage is located on the SC side of the ADD, if it is expected that the passage structure would also be located on the SC of side of the Project dam. The response from NMFS was that it is likely but would depend on site specific studies. The committee theorized that Stallings Island may channel fish on the SC side although it would depend on the species, inflow at the time, and channel depth. DESC noted that the SC side of the Project dam is the most debris-loading side and it would be logistically challenging to operate and maintain a fish passage facility on that side of the dam. NMFS commented that the final form that passage takes may not necessarily be what is initially implemented; there may be temporary passage to help inform the final passage.

Fish Passage Prescription

Kevin noted that there are some topics regarding fish passage at the Project that can be discussed while the Rx(s) are being prepared and prior to FERC issuing the Ready for Environmental Assessment (REA) notice. The topics include the following: details and timeline of the fish passage Rx; what fish passage at the Project could look like based on the river system; basic questions surrounding methodologies; the conceptual design; and most importantly, the timeline, particularly for data gathering. NMFS recognizes the complexity of prescribing fish passage at the Project as the Savannah River is a complex system and there are a lot of moving parts.

Prior to beginning intensive discussions on the Rx, Ray, DESC, wanted to understand the usage of the Project dam's navigation locks for fish passage, as refurbishing the locks compared to constructing a fish passage are two different processes for Dominion. Bjorn stated that it is doubtful that refurbishing the locks is the most effective method for fish passage or the most cost effective. However, NMFS would not rule out using the space in some way. Kevin added that "locking" has fallen out of favor for fish passage.

[6] United States Fish and Wildlife Service (USFWS). 2019. Fish Passage Engineering Design Criteria. USFWS, Northeast Region R5, Hadley Massachusetts.
[7] South Carolina

It was asked of NMFS what assumptions would be made on the fishway feasibility study they have requested. Kevin responded that NMFS's most recent motion to FERC essentially just asked FERC to make a decision on the study request so that the Rx development and the FPTWC could move forward. In general, there is a series of an incrementally greater amount of development for any fish passage design concepts the group comes up with. The first step is basic reconnaissance, such as siting studies. The next step is to look at conceptual alternatives. Maps are reviewed and biologists and engineers provide their perspectives to ultimately list the types of facilities and methods that accomplish the fish passage goal. A feasibility assessment is the step before the preliminary design phase, and it was noted that the FPTWC has talked about this in some detail already. The more detail the group can provide FERC, the better. Kevin indicated that the only conceivable thing would delay working on studies is if DESC desired the same structure to pass both American eel and Alosines. Bjorn followed up that he did not see a reason to not start working towards eel passage; the group can be more cautious with Alosine passage and conduct more studies.

Alison asked the FPTWC if, as a group, they would be amenable to asking FERC to delay the REA notice if they provided FERC with a schedule/timeline for fish passage activities. Melanie, USFWS, asked if DESC was agreeable to asking them to delay the REA notice. Alison commented that the trickiest thing for all involved would be to create a timeline and then have FERC come in with the REA notice and disrupted the timeline. It was asked if an extension of time request could be filed once the REA notice is issued. Alison responded that there are a couple of options for an extension, but they are pretty well determined. Alison stated that there is more flexibility if they are able to delay the REA notice. Melanie noted that should the committee want to pursue an REA notice delay, that she would have to bring it to USFWS management. From the NMFS perspective, delaying the REA notice or not is just a matter of what additional detail is included in the fish passage Rx. It was believed that we should get a good feeling of when the REA notice is coming based on FERC's decision regarding the additional study requests. Bjorn asked what the justification may be for delaying the REA notice. Alison stated that she believed that the FPTWC would need to provide FERC a timeline of specific actions. In addition, DESC would need agency support via follow-up filings from NMFS and USFWS; otherwise, delaying the REA notice will likely not be supported by FERC.

NMFS suggested that the agenda for the next FPTWC meeting include some allotted time dedicated to developing fishway feasibility work. Kevin further suggested scheduling a meeting with the Water Quality Technical Working Committee (WQTWC) to discuss the final version of the 2023 Water Quality Study Report and how the WQTWC would approach water quality monitoring.

The FPTWC discussed what basic reconnaissance of fishway feasibility would involve. The committee could discuss the eel work that has already occurred. Regarding Alosines, Bill

noted that channel depth will play into sighting so potentially investigating that may be an option. Keith, USFS, asked if a habitat analysis between ADD and the Project would be pertinent. Kevin responded that NMFS is interested in timing and sighting but not necessarily the habitat between ADD and the Project, as the goal is to get fish, Alosines in particular, into Stevens Creek proper. Kevin did indicate that a bathymetry study of the one-mile reach would be useful. Fritz R. agreed that it was critical to know where the shad are going to go once passing ADD, which could be accomplished several different ways: 1) determine shad movement after the structure at ADD is built; or 2) transfer shad above ADD now and see where they move. In the latter case, the release point would be at the base of the ADD fish structure and sufficient receivers would be needed in the one mile stretch of river. The group discussed the studies conducted at Roanoke Rapids and Gaston Hydropower Project (Roanoke Rapids Project; FERC No. P-2009); fish were moved to Kerr Reservoir (above the two Roanoke Rapids Project dams) and tracked from there. The studies at the Roanoke Rapids Project were conducted after the license was issued as Dominion had a very detailed settlement agreement with triggers. Paul, Dominion, asked if the City were required to do a distribution study at ADD and if that would inform shad movement; Fritz R. replied that the City is not required to conduct a distribution study as part of their fish passage Rx. The group discussed how many fish would need be to tagged and moved to obtain a solid indication of their movement. It was stated that at the Roanoke Rapids Project, the study was conducted over a few seasons with over 500 individuals each season. At the Santee Cooper Hydroelectric Project (Santee Cooper Project; FERC No. P-190), the licensee initially started with 400 individuals and then parsed that down to 250 individuals the following year. Bill indicated that there would be handling stress for the fish if the study is collecting individuals below NSBLD and releasing them upstream of ADD, but he believes 250 individuals is a good starting point. The group could then review the results and determine if it makes sense to reduce the numbers for a subsequent study.

DESC inquired how various property owners are handled to obtain necessary access to conduct these studies. There is access on the SC side of the ADD that the City owns to allow them access. The only land DESC owns near the Project dam on the SC side is a very small "crescent" of land. But it was indicated by SCDNR that conducting the shad movement study was likely feasible. The results of the channel bathymetry study could help determine receiver locations. Keith asked how effective we can be at determining the exact location of fish. Ellen, SCDNR, responded that they would likely use different receivers than what SCDNR typically uses, as it was agreed that we would need to be able to pin-point the exact location of fish. She believes some companies have technology to survey fish approaching dams. Melanie provided the comment that she did not believe telemetry studies were feasible as justification for delaying the REA notice as those studies will be a part of the fish passage Rx. USFWS does not need channel depths in order the draft the Rx; they just need to know what structure to prescribe. Melanie is okay with prescribing a vertical slot OR whatever structure that makes sense based on the results of

the studies. USFWS has already ruled out several things regarding fish passage at the Project including permanent trap-and-haul and the refurbishment of the navigation locks. Melanie stated that temporary trap-and-haul may be implemented but she is not currently sure that is necessary. The vertical slot is USFWS's preferred option at the Project because it handles both downstream and upstream passage, and aquatic connectivity is the ultimate goal for USFWS. However, Melanie does believe it is good to begin discussing a timeline. Regarding passage at the Project, Melanie is amenable with tying it to passage at ADD. Although it may be likely that DESC is requested to be pretty much shovel-ready once ADD has completed construction. Ray reiterated that it is a major concern for DESC if passage at the Project is not tied to completion of passage construction at ADD considering the City's FERC history. Keith reminded the committee that the City has three years to complete passage at ADD once passage is completed at NSBLD, and that it could take three years just to conduct siting studies at the Project, so the sooner the FPTWC can begin studies, the better. Studies could be conducted once the Rx is filed but would need to be pretty soon thereafter. It was again suggested that the next FPTWC focus on delving more into the concept design of fish passage and develop a list of methods. In general, USFWS is envisioning a vertical slot with likely year-round operation as they are looking at passing several species and provide aquatic connectivity within the system. The listing for Robust Redhorse is expected by the end of the 2024 fiscal year. Temporary eel passage could be considered and discussed.

Fritz H., Dominion, mentioned the Hightower Study[8] that was conducted at the Roanoke Rapids Project, which indicated that shad passage was not needed based on the current shad population. Fritz H. asked if there was some utility in conducting something similar for the Project – basically determining if the FPTWC was doing shad any favors by passing them over the Project dam. Kevin believed that we may not know the shad population in the Savannah River Basin, whereas population was known for the Roanoke Rapids Project Hightower Study. Alison asked the committee if it was worth seeing where shad are going (i.e., the Savannah River vs. the Stevens Creek Arm) as part of this process. NMFS responded that they view that component as being part of passage monitoring; once passage is in place, that is something to investigate. Based on the habitat assessment conducted in the early 2000s, Stevens Creek flows through USFS land and is believed to contain good habitat. It is NMFS intention to pass fish into this area; they are not necessarily concerned with passage above the Thurmond Dam. Fritz H. asked if there was a timeline for removing the two smaller mill dams in Stevens Creek; it is currently unclear. DESC reiterated that Stevens Creek is a very flashy system with a high debris load. Elizabeth, SCDNR, stated that the thought for SCDNR is to improve water quality in Stevens Creek so that fish are not being put into a bad situation.

[8] Harris, J.E., and J.E. Hightower. 2011. Movement patters of American shad transported upstream of dams on the Roanoke River, North Carolina and Virgina. North American Journal of Fisheries Management 31(2):240-256.

Alison wanted to confirm the agenda with the group for the next FPTWC meeting. It was sounding like the group needed more discussion around what fish passage concepts would look like and the timing for construction. There was general agreement with the agenda, and it was noted that the discussion did not necessarily need to cross over into pre-construction design. It is considered important to look at alternatives as a committee. According to NMFS, the proposed methodology for the fishway feasibility study includes the following components: 1) ability to meet design; 2) site constraints such as land access; 3) permitting constraints; 4) operations and maintenance of the structure; and 5) investment and lifecycle cost.

Bill commented that triggers had been discussed during previous FPTWC meetings and inquired from NMFS their philosophy on including triggers in the Project Rx. Kevin responded that NMFS has gone away from number triggers; the time trigger is preferred (i.e., construct passage within three years of completion of passage at ADD). Bill asked if number triggers are not being considered, if there is flexibility in potentially determining that passing shad above the Project is not a good idea; Bill is not certain that shad need the habitat provided by Stevens Creek and wonders how/where the group will end up on that topic. Melanie responded that such questions/uncertainties are why USFWS has drafted more general prescriptions and why they like the AMP component. Alison asked the FPTWC if determining whether passing shad is truly warranted would be covered under a new information clause, which basically states that things can change based on new scientific information. The response was that basically a new information clause would cover that question, although it may also depend on how FERC handles things. The Roanoke Rapids Project AMP committee decided that passing Alosines at that particular project was not needed but they do not know if/how FERC will challenge that. Bjorn added that trigger numbers have become a "nightmare" for regulatory agencies and has delayed passage for decades. Trigger numbers also provide incentives for owners to not pass fish, which has been in issue in the past.

Water Quality

The FPTWC discussed Stevens Creek water quality as a potential migration barrier for fish. Melanie asked what the differences were between the draft and final 2023 Water Quality Study Report. The main author of the report was not in attendance, but Jenn noted that essentially the final report just included the additional analyses requested by the resource agencies and addressed their comments. It was noted that there needs to be a separate meeting to discuss water quality at the Project and to discuss the Water Quality AMP. The final report was sent to the entire Fish, Wildlife, and Water Quality Resource Conservation Group (RCG); however, Alison suggested transitioning from the RCG to the AMP Team moving forward. The WQAMP Team includes members from regulatory agencies and expert(s).

Kevin stated that the water quality during summer to fall are the primary concerns for juvenile shad. DESC asked if juvenile shad are expected at river mile (RM) 4.5 of Stevens Creek. The response was that it would depend on how far the adults travel upstream because the eggs float downstream. Literature identifies dissolved oxygen (DO) thresholds for fish, particularly juveniles – the 4-5 milligrams per liter (mg/L) standard of DO is based on this literature. Elizabeth added that SCDNR is concerned about the water quality as a barrier for passage for other species as well, not just Alosines. Alison commented that the FPTWC needed to do some serious thinking on the problem they are to attempting to solve. DESC proposed a continuous monitor at the USGS gage on Stevens Creek at Woodlawn Road (near RM 4.5) to allow for real-time data collection. The Water Quality AMP will be implemented simultaneously with the Fish Passage AMP. The committee does not see operations at Thurmond Dam changing in a way that addresses water quality (i.e., it will likely remain a peaking facility). Based on the Atlantic States Marine Fisheries Commission habitat assessment from the early 2000s, adult shad are expected to migrate upstream in the spring. NMFS is most concerned with the minimum instantaneous DO values in Stevens Creek. DO less than 5 mg/L can be considered sub-lethal to juvenile shad and DO values less than 3 mg/L were found to block juvenile migrations. Concentrations below 2 mg/L can be lethal to juvenile shad. It was noted that the referenced study was concentrated on rivers in the northeast, but we are skirting those DO levels at the Project.

Alison asked the committee if the timing with continued discussions under both AMPs will work as currently outlined. For example, are water quality issues going to hold up the Rx process? Will something done under the Water Quality AMP effect the Fish Passage AMP? Both USFWS and NMFS replied that water quality issues will not hold up a Rx; both organizations will be prescribing passage and the water quality in Stevens Creek will need to improve as a result. Kleinschmidt will prepare a presentation for the WQTWC meeting that identifies the differences between the draft and final 2023 Water Quality Study Report. Kevin reiterated that NMFS recognizes the complexities of the system and Project – what they are essentially trying to discover is what, if anything, can be done about it (i.e., spilling or modification). The "low hanging fruit" is engaging with SEPA[9] to change operations at Thurmond Dam but that is a very uncertain area.

Alison asked the group if they felt that they had enough information to inform water quality at the Project as it relates to fish passage. Bill asked DESC if there are moments when the Project is generating that the flow reverses. Ray responded that yes, there are times when Thurmond Dam generates, and the Project Reservoir is filling that there will be a "backwater" effect; this largely depends on the time of year. It was noted that reversing flow could be confusing for fish. The group discussed passage at the Santee Cooper Project. Bill stated the majority of shad passing through that project are through the re-

[9] SEPA = Southeastern Power Administration

diversion canal because when the Santee Cooper Project generates, there is a backwater effect up Santee River proper. Fritz H. added that it was also worth considering that Alosine eggs settle in the area of backwater effects rather than remain suspended and pass downstream. Ray wanted to tease out with the group whether the water quality issues in Stevens Creek were thought to be from backwater effects or from water level fluctuations. It is believed water from Thurmond Dam backs up Stevens Creek is depleted from oxygen. It was added that there are high biological oxygen demand off-channel areas to contend with in Stevens Creek. On a typical summer day, Thurmond Dam begins generating around 1:00 PM, with the peak around 5:00-6:00 PM. Keith commented that ideally if both the Project and Thurmond Dam had steady releases, there would likely not be a flow reversal and subsequent water quality issues; however, it is likely not possible that Thurmond Dam will alter its operations to release water continuously. NMFS asked the committee if this was a scenario that the water quality modeling could look at, but the group was not sure. There are two main issues NMFS is trying to resolve: 1) re-regulation effects on Augusta shoals through selective spilling (i.e., minimizing sub-daily fluctuations); and 2) the water quality issues of Stevens Creek proper. They are currently interested in learning how the flashboards may play a role in this investigation. NMFS acknowledges that the Project releases good water downstream.

Keith asked the FPTWC if a vertical slot were placed on the SC side of the Project dam, if the water coming through the slot may provide enough flow to improve water quality conditions in Stevens Creek. Keith wondered about the potential for the slot to be manipulated during "trouble" periods of particularly low DO to allow more water to move through the system. Elizabeth believed that would be something interesting to model. The committee discussed the fish passage slot opening being designed for certain species of fish based on their migration season; the water flow through the slot would be an aside. DESC noted that there was not a good period of time in recent years to have studied functioning flashboards and the more recent years are not typical with all the dam work that was going on. Alison suggested that how the flashboards relate to flows downstream may be something the WQTWC could further investigate. It is possible that properly functioning flashboards improve the water level fluctuations downstream. With pneumatic gates, flows would still need to be ideal in order for them to reset, and it is not understood if the recovery time would be much quicker for pneumatic gates compared to the flashboards. NMFS believes that selective spilling is more easily accomplished with pneumatic gates; they are currently not sure if all flashboards would need to be replaced to accomplish selective spilling or just a section.

The FPTWC discussed if and how operations may or may not be manipulated should be a topic for a future meeting. Kevin stated he is always a proponent for continued discussion, and they will rely on Dominion to provide some of the information. For example, Project operations when USACE sends more or less water than they originally stated. Ray reminded NMFS that they file an Operations Report with FERC every year that includes a lot of that

information. When USACE does not send water as planned, the situation tends to build upon itself (i.e., if USACE send less water than stated one day, they will likely send more water than stated the next day requiring the Project operators to pivot). Ray told the group that DESC is working on installing a control system in the Project powerhouse that includes an algorithm to perform the re-regulation function. The group concluded that discussions on operations, how re-regulation is conducted, and how that relates to the Augusta shoals downstream is needed for a future Water Quality AMP meeting. Jason, SCDNR, inquired of DESC who they may use as for the water quality modeling. It was discussed that Andy Sawyer[10] was the consultant that DESC typically uses.

American Eel

Caleb, DESC, presented information to the FPTWC regarding a preliminary American eel survey conducted by DESC biologists. Equipment included a Zodiac inflatable boat equipped with electrofishing gear. Electrofishing was divided into four distinct transects: 1) toe of the dam below the 5-foot flashboards; 2) first shoal immediately downstream of the 5-foot flashboards; 3) around the outside of the navigation lock; and 4) the downstream face of the powerhouse and the GA[11] shoreline for approximately 25 meters downstream. Biologists were not able to survey the SC side of the Project dam as the 4-foot flashboards were down with water rushing over presenting a safety hazard. No American eels were observed along the toe of the dam (below the 5-foot flashboards) and one eel was observed but not netted in the first shoal downstream. Twelve eels were netted around the navigation lock with lengths ranging from 134 to 260 millimeters. Approximately 30 eels were observed near the GA shoreline of the fourth transect on a gravel bar but could not be netted. The eels were estimated to be similar sizes of the eel collected at the navigation lock. There was no vegetation observed on the gravel bar. Some leakage was coming from the lock doors and flow was coming from the powerhouse. The electrofishing was conducted slightly before 7:00 PM. After dark, biologists surveyed the empty turbine bays, navigation lock, and downstream face of the dam using red head lamps to illuminate walking surfaces and white flashlights to search for eels. No eels were observed. Fritz R. commented that the eels congregating along gravel rocks is very similar to what was seen at the Roanoke Rapids Project and at the Blewett Falls Hydroelectric Project. Bill suggested that DESC conduct a survey on the SC side of the Project dam to see if and to what extent eel are present. NMFS is also in favor of DESC checking the SC side.

Alison asked the committee that with the information presented today, what the group's thoughts were on next steps regarding American eel passage. Melanie asked if it were possible to electroshock above the Project dam to determine eel presence. It is possible but it was discussed that the data of eel captures in the watershed above the Project could

[10] Reservoir Environmental Management, Inc. (REMI)
[11] Georgia

be compiled, which may provide the necessary data. Kleinschmidt is in the process of obtaining the data from GADNR. Elizabeth noted that SCDNR has some "stream team" data they could send. There was some previous discussion on whether there was a number or level eels upstream of the Project that would document passage is not needed at the Project. A population study above and below would look to answer that, or a tag and release study provided we are able to pinpoint where exactly eel are passing. DESC has installed a high-quality camera on the navigation locks, but there is not the appropriate illumination at night to determine if and where eels are climbing the Project dam.

Alison asked the FPTWC if a fish passage Rx for American eel hinged on whether there is eel movement above the Project already. NMFS responded that they would prescribe passage now but if it can be shown in the future that eels are able to pass effectively at present, NMFS may consider that additional passage is not warranted, but they do not believe it is likely. USFWS commented that if enough studies could be done to show that eel passage is not needed, the structure of Alosine passage would just be a bonus for eel passage. If it is shown that eels are not effectively passed, an additional structure may be needed.

Bill suggested DESC consider the cost of the studies compared to putting in a temporary eel ladder which is relatively cheap. If enough data on lengths is available and different size classes of eels are collected upstream, then that may also indicate eel are migrating upstream of the Project at a sufficient level. It was noted that even temporary passage structures are becoming more costly so studies may be good. At the Roanoke Rapids Project, Dominion has been trapping eels but not passing them for several years. Fritz R. suggested that the group may be overthinking the situation; the dam blocks the majority of eel movement and there is a good possible spot for an eel ramp. Fritz R. mentioned that temporary ramp used at the South Gaston site would likely be ideal for the Project; he anticipates the requirement for eel passage on the GA side of the Project dam. Taylor, Dominion, commented that the Roanoke Rapids Project eel siting study included a lot of experimentation with the traps; they learned from that process that it is good to know where eels are going prior to installing traps.

It was suggested that NMFS consider what current effective eel passage looks like and if there is a number that would be acceptable. USFWS noted that upon compiling the data of eel upstream of the Project, that the appropriate amount of length data may not be available so follow-up discussions may be needed. Paula commented that GADNR provided upstream data several years ago but is unaware if an update may be available. It was provided for the Aquatic Habitat Whitepaper.

Kleinschmidt has previously worked on developing a rough draft of the strawman Rx. The committee discussed whether it would be more practical to review it in the present or wait since the August meeting would likely finalize the Rx components. It was asked if the

strawman Rx could be distributed to the committee for review and comment; yes, Kleinschmidt/DESC will do that. Will reviewed the general components of the strawman Rx: 1) no downstream passage structures would be needed at the Project (it was noted that the vertical slot option would also provide downstream passage); 2) no permanent upstream eel passage (at first) – temporary eel ramps would be installed and sighting studies conducted; and 3) no Alosine passage until after passage at both ADD and NSBLD has been demonstrated to be effective. DESC could distribute the strawman Rx as a working document on a SharePoint site for live editing. Fritz R. commented that that the Santee Cooper Project Rx had an "and/or" clause that basically stated if there was new technology or a structure for fish passage that the agencies agreed upon, that the technique/structure could take the place of the trap-and-haul passage that was originally prescribed; Fritz R. suggested something similar for the Project. If AMP language is to be included in the Rx, the group should discuss where that language belongs in the Rx and what it would consist of. Fritz R. additionally suggested that the group will need to define what "effective" fish passage at ADD means because it could be interpreted as one individual shad.

The next FPTWC meeting was discussed to be held in the August time frame. The group wanted to attempt to have the WQTWC meeting prior to the next FPTWC meeting; NMFS suggested, if possible, holding it prior to the end of June when comments on the 2023 Water Quality Study Report are due. The agenda for the next FPTWC meeting will generally include the concept design for fish passage, timing, comments on the strawman Rx, and an update on the eel survey.

The next quarterly meeting was scheduled for Wednesday, August 7, 2024, from 10:00 AM to 3:30 PM ET. The meeting location is to be determined; at the time of the meeting, it was discussed being in either Columbia or Charleston, SC.

ACTION ITEMS:

- Distribute draft components of Fish Passage Rx for AMP Review Committee comment