

Roanoke Rapids and Gaston Hydropower Project
American Eel Working Group Meeting
27 August 2019

Final Meeting Minutes

Present:

Dominion – Peter Sturke, Bob Graham, Taylor Allen, John Swenarton, Ben Rice, Dan Gardner, Corey Chamberlain (phone)
NMFS – Fritz Rohde, Twyla Cheatwood, Bjorn Lake (phone)
USFWS – Doug Newcomb, John Ellis (phone)
NCWRC – Jeremy McCargo, Kirk Rundle
NCDMF – Todd Mathes (phone)
VDGIF – Scott Smith, Dan Michaelson
AKRF – Justin Krebs, Fred Jacobs (phone), Doug Heimbuch (phone)

27 August 2019 American Eel Working Group Meeting – Agenda

- Eel Passage Update
- Upstream Eel Passage at Gaston
 - 90% Design Review
 - Upstream Effectiveness Studies
 - Upstream Eel Distribution Study Design
 - Schedules
- Doug Newcomb Update
- Downstream Passage at Roanoke Rapids
 - AKRF Study Year 1
 - Turbine analysis update
 - Schedules
- Other Member updates

Pete convened the meeting, delivered a brief safety message about the meeting room and asked everyone to do introductions. Pete noted that we would reverse the agenda so we could get Justin back on the road North. He noted that the big ticket items are upstream passage at Gaston, second is downstream passage and study in Roanoke Rapids Lake.

Eel Passage Update

36,000+ eels have been passed upstream thus far in 2019. A figure was shown that represented percent caught in the Roanoke Rapids Traps from 2009 to present with an odd pattern of switching majority of catch between North and South Eelways. An update for Gaston – the north trap washed away earlier in 2019 and the cumulative totals presented for historical comparisons were changed to exclude the North considering it is not operational. South Gaston Trap has passed ~1100 eels this season and all were tagged with Coded Wire Tags (CWT). All eels captured at the traps are scanned for CWT and none were detected indicating no fallback. In the past, 150/month were going to NCSU and some were released downstream of Gaston before interim passage efforts begun in the summer of 2018.

Wilson brought up the topic of publishing these data somewhere and wanted to see if anyone has made progress on this topic. Through discussion, Wilson took an action item to contact Sheila Eyler on proceedings publication from AFS 2018.

Downstream Eel Passage Studies

Turbine Update

Pete started this discussion with an overview of the parallel paths that Dominion is investigating to provide downstream passage by 2023 as indicated in the revised Article 401 schedule. He provided an update on the fish friendly turbine option for Roanoke Rapids which is one path that is being considered, however he expressed Dominion needs the technology to meet certain criteria. The market for aftermarket turbines is expansive however, not all will fit in this application from an engineering or biological perspective. Wilson asked for clarification on that topic and Pete explained that if a fish friendly turbine is indeed the best fit, Dominion needs studies to determine feasibility. Scott asked about grant funding for studying the turbines and Pete brought up that US DOE is very interested and Roanoke Rapids would be the first application of a retro-fitted fish friendly Alden turbine if possible. Roanoke Rapids would also be considered a large-scale application. The turbine would have to be optimized for Roanoke Rapids and Wilson mentioned that it is also good for other species of fish, in addition to eels. Pete confirmed.

Eel Study Update (AKRF)

Pete continued the conversation about downstream eel passage by introducing the proposed study on the current population within Roanoke Rapids Lake and how Dominion and AKRF plan to study the population, behavior, and migratory cues associated with downstream passage. Pete reminded the group that if the fish friendly turbine is infeasible or impractical that the targeted nightly shutdown of turbines seems to be the next best option for safely passing eels downstream of Roanoke Rapids Dam. Pete then introduced Justin Krebs from AKRF.

Justin gave the presentation as they are designing the study plan for American Eel population in Roanoke Rapids Lake. The first part of the study is to analyze the existing biological data – eel survival, population abundance, size and age structure which are available in the study plan. Second, an eel population survey where AKRF indicated using eel pots would provide an independent estimate for their current estimated population within Roanoke Rapids Lake. Lastly, an Acoustic Telemetry Tagging and monitoring study would be used to complete an eel survey of downstream migrations. Justin mentioned that through previous license required studies, Dominion Energy released 1,000 CWT eels below Roanoke Rapids Dam and 68 were recaptured between 2014 and 2016. This translates to an annual survival probability of 0.37 with an annual mortality of 0.994. Based on this and the historical passage numbers into Roanoke Rapids Lake (2.2 million passed since 2009), it's estimated that there are 113,000 in the reservoir. Wilson noted that the eel survival should increase as the eels age and Doug Heimbuch noted that AKRF used Dr. David Secor data from the Hudson River Study on older eels. Justin moved onto the proposed eel population study which would use baited eel traps (48 per month) in a stratified random survey, 6 in Deep Creek, 6 in Johnson Pond, and 12 in each of the three lake stratum. They may be able to further stratify these areas by using Doug Newcomb's maps. AKRF hopes to come up with a habitat specific abundance. All eels captured will be PIT tagged.

Conversation started about what bait to use and Todd mentioned that using Blue Crabs may be expensive and the local eel fisherman he knows use salted Menhaden. The group discussed the previous consideration of eels tendency to avoid low DO areas. Scott noted that there seems to be an abundance in SAV beds. Bob/Wilson concurred. Jeremy asked Kirk about trap vandalism and hopefully that will not be an issue with overnight sets. The Acoustic telemetry study is to begin this fall by putting out five receivers hopefully with a 600m detection radius. Dominion is planning to tag 15 eels from Johnson Pond. There was some discussion of eels leaving Johnson Pond and hopefully should be detected on reservoir receivers. Justin addressed the receiver locations and likelihood of detections on

other NCWRC and NCDMF receivers. Jeremy noted that they should be detectable on the receivers all the way through Oregon Inlet. The group discussed if American Eels were territorial and discussions circled around some studies that indicated they may have a home range. Justin mentioned that receivers may be added to the array if the detection range is less than expected.

Wilson asked about the availability of soliciting for angler caught eels – NCWRC and VDGIF would advertise and post (**Action Item – Dominion to investigate posting and advertising**). They may do that. Scott Smith noted that there is a possibility of tagged eels not really moving within the three year study period. Bob noted that we should learn a lot from the study regardless. The hope is to tag eels toward the larger end of the length frequency Justin noted, and ideally, they hope to be able to model outmigration. The idea is to tag as many eels as possible and Bob noted that 2019 will tell us something, hopefully to learn more in 2020. Wilson noted that the design is good to him. Bob asked Kirk to let Dominion know about any American Eel hot spots within Gaston or Roanoke Rapids Lake. Kirk acknowledged. Back to the traps, they will be fished one night each month and Kirk will notify local Law Enforcement and also to make sure pots are on their NC collecting permit (**Action Item – Dominion checked and pots are an approved method COMPLETE**). Wilson mentioned trap retention and that the Hightower White Oak study looked at trap retention. Justin noted that they have the study. Pete and Justin will be soliciting help from Dominion’s on site contractors for help on the eel pot work. Wilson encouraged Dominion to contact National Fish Hatchery folks as well.

AEWG Note – No members expressed any reservations on the draft plan. Study Plan will be finalized upon receipt of Dr. Jesse Fischer’s (NCSU) data.

Johnson Pond Update

Pete gave an update on Johnson Pond electrofishing. Dominion was able to cover the whole pond and netted 55 eels in 59 minutes of shocking. He noted that 27 were “missed” during the sampling. The length frequency of eels captured was shared and discussions surrounded the ability to catch eels of those sizes again and how encouraging the results were for the downstream study.

Doug Newcomb Presentation

Doug gave background and that he wanted to use LIDAR data, also Periann Russel at NCDEQ had been using water flow data. Doug worked out the LIDAR data and he explained the intricacies related to the digital elevation model and the final was merged to fill the gap elevation grid with single elevation boundary. Doug received water level data for the reservoir from Dominion based on the date and time the LIDAR was flown. Doug noted you need to remove depressions for flow accumulations. Doug is in conversations with NCDEQ staff on permanent/intermittent stream breaks. He is currently using 25 acre basins as break points. Johnson Pond is well within the 25 acre signature. Doug noted that there are some ponds above Johnson Pond which also may contain eel habitat. Bob and Pete noted that they have explored these areas but found hornets in the way. Doug noted that for the reservoir itself, bathymetry is the limiting factor. Doug explained how he was currently modeling the reservoir and the data gaps present. He and Wilson were going to use a 2 meter depth for potential eel habitat before the DO stratification was limiting. Bob mentioned that may be too shallow and followed up later that 3-4meters may be more appropriate based on the relicensing Temp and Do report from 1997. Some discussions surrounded the eels ability to inhabit the densely vegetated areas and Bob reminded the group that’s not necessarily the best place at night due to the plants respiration. All Doug would need is georeferenced depths for the reservoir. Taylor noted that Dominion has a data collection unit. Pete noted that the timing may be best if done in the fall when the SAV interference would be minimal. (**Action Item – 1. Dominion to investigate Temp/DO profiles COMPLETE and Justin noted that water**

quality and depth measurements would be taken during eel trap deployments. 2. Dominion to determine if they can do bathymetric survey)

BREAK FOR LUNCH

Upstream Passage Update

90% Design Review

Group reconvened after lunch and Peter noted that Dominion has received NMFS – Bjorn Lake comments. Nothing from USFWS Fishway engineer Brett Towler as of yet. John Ellis will circle back with him on that review. Pete covered the design changes for the North and South Traps at Gaston from the 60% review previously. He noted that Dominion is going to separate the North and South Eelways into separate capital projects as they will be considered separate capital assets once they are completed. Pete noted that Dominion has moved the pump to an existing concrete structure upstream of the entrance to the eelway – Bjorn agreed that they can address any issues with reliability in the future with adaptive management. Pete noted that another comment from Bjorn and NMFS surrounded the potential for predation when Roanoke Rapids Lake is at less than 132.0 feet, due to exposed ramp surface. He noted that the lake can go down to 126.0 feet but for very short amounts of time during the year however there still may be approximately 15 feet of ramp exposed at times. The group discussed covers on the ramps and Bjorn noted that Exelon has used netting on their ramp at Conowingo since they have a lot more birds than observed at Gaston. Wilson thought that any predator issues would likely be smaller snakes and or gull species. The group thought that great blue heron would not likely be a major issues. Cormorants may be an issue in the water. Pete mentioned that we could also monitor and utilize adaptive management to solve any future issues as they arise. He will also follow up with Kleinschmidt on potential solutions.

Pete then moved to the North Eelway 90% design review. He mentioned that there were relatively few changes to the North Eelway but he pointed out the necessity to construct an access road from the North Shore for construction and access during high flows. Pete noted that the access road and eelway construction will require local permitting and that may delay the start of construction. Pete addressed the schedule and that Dominions intent is to have the South Eelway plans submitted to FERC in September and construction complete prior to March 1. The North Eelway plans should be submitted to FERC in October and construction hopefully before May 1. He noted that those dates are ballpark estimates and will be fluid depending on a multitude of factors including weather. After asking for any additional comments on the eel traps, none were heard and Pete moved onto the next topic.

Upstream Effectiveness Studies

The next topic of discussion is upstream passage related FERC required studies. The first of which is the passage efficiency studies. Pete gave a background of what was done at Roanoke Rapids to complete this FERC requirement and noted that the focus of these studies was the North Roanoke Rapids Eelway as it is approximately 100 linear feet for the eels to climb. Considering that the North and South Gaston Trap Designs are significantly shorter, some of the studies completed at Rapids would not necessary apply at Gaston. Pete proposed that the studies would be done for two years (2020-2021) with a final report in 2022. The group discussed estimating efficiency even though we don't know what the number of eels put into RR Lake is each year and we don't know how many would want to move upstream. The group also discussed tagging eels captured at Gaston and Pete noted that considerations would be made during large runs to ensure the eels are not retained longer than necessary before being passed upstream. All members agreed that completing comparisons to historical catches, holding eels after capture to determine safety (survival), and fallback by tagging individuals prior to passage (to determine

fallback) is an acceptable method for determining efficiency. Pete noted that he will start working on specifics now that the group has accepted the study approach, frequencies, and duration.

AEWG Note – All members agreed that this is an acceptable path forward pending draft studies for review later in 2019.

Upstream Distribution Studies

Pete then brought up another FERC license required study, upstream eel distribution. He noted that the distribution studies are required to be on a 3 year cycle and he shared that 2020 will be the first year of studies. Pete recalled what Dominion had completed previously with regard to upstream passage above Roanoke Rapids Dam and that the plan is to learn from the experiences in Deep Creek. He proposed a study design focusing on the lentic and lotic portions of Lee/Summit Creek in Lake Gaston as a study area for the first study cycles. He also mentioned that the first report will be filed in 2021 with the second in 2024, at which time the AEWG will likely be able to determine the path forward from the outcome of those studies. Wilson suggested that NCWRC share any diet data from their catfish studies with Dominion as an additional source of data on eel distribution. NCWRC is going to complete a creel survey and that will provide some supplemental data for this effort.

AEWG Note – All members agreed that this is an acceptable path forward pending draft studies for review later in 2019.

Lastly, Wilson noted that as part of the East Coast US and Canada American Eel stock assessment, Laura Lee has been asked to spearhead the Canadian stock assessment. Bob asked about logos for everyone, Jeremy mentioned the NCWRC needs to be updated as does the NCSU.