

Dominion Energy, Diadromous Fish Restoration Technical Advisory Committee (DFRTAC)
American Shad and Eel Working Groups
19 May 2021

Conference Call Scheduled from 0900-1500
FINAL MEETING MINUTES

Present (Conference Call Attendees):

Dominion Energy – Peter Sturke, Corey Chamberlain, Katherine Marco
NMFS - Twyla Cheatwood, Fritz Rohde, Bjorn Lake, Kevin Mack
USFWS - John Ellis, Doug Newcomb
NCWRC – Jeremy McCargo, Heather Evans
NCDMF – Todd Mathes, Holly White
VDWR – Scott Smith, Dan Michaelson
Alumnus – Bob Graham, Wilson Laney (NCSU)
AKRF – Justin Krebs, Carlos Lozano, Chris Manhard
VCU – Matt Balazik

Agenda-

- Downstream Eel Passage Update
 - Eel Population and Movement – AKRF
 - Turbine Replacement
- American Shad updates and discussion (Dominion, NCWRC, etc)
- Atlantic Sturgeon sampling on Roanoke (VCU)
- Upstream Eel Passage status at Roanoke Rapids and Gaston
- Gaston Eel Passage, Construction, and Studies Update
 - Construction and **FERC timeline discussion**
- Upcoming events
 - June 2021 FERC filings
 - Bypass Resident Fish and Mussel Surveys 2021

Peter convened the meeting at 9:05 a.m. He noted that he was a bit out of practice on WebEx since he had been using Teams more often.

Peter noted that the agenda has switched around a bit. He reviewed the agenda. Matt Balazik is planning to call in around 10:00. Then we'll do American Shad. Jeremy has to jump off at 11:00, so hopefully we can do that prior to 11:00. Peter noted that the N. Gaston Eelway has been delayed. So, a concurrence is needed on when we can get it in the water.

Peter noted that he will go straight to Justin and the AKRF folks for the downstream presentation. He asked Justin if he wanted to take control.

9:09 a.m. Downstream Eel Passage

Justin Krebs noted that they are approaching the end of year two of eel trapping. They have traps in the water and should wrap up by week's end. They are waiting for comments on the first draft and then will circulate to the DFRTAC. The goal is to have it to the FERC by the end of June. He will give a quick

refresher on the two surveys. Carlos and Chris will then report on several of the products, and Justin will wrap.

Justin noted that they are doing an Eel Population Survey, and Acoustic Telemetry Tagging and Tracking. He reviewed the details of each of the surveys. They will be making three different population estimates, which will have confidence intervals that will be derived from the trapping data. All of the eels are being measured for total length (mm) and PIT-tagged and then being released back into the reservoir (Roanoke Rapids Lake). They are also tagging larger eels for the telemetry survey. Dominion has deployed receivers in the reservoir and river below Roanoke Rapids Dam and NCDMF operates receivers downstream of the Weldon, NC. Forty eels have been tagged and released thus far, of which 20 have outmigrated. Environmental data is being used to assess outmigration triggers.

Carlos reported on the monthly eel trap survey. They did stratified-random sampling from October 2019 through April 2021. The study area was divided into seven zones, five in the reservoir, one in Deep Creek and one in Johnson Pond. Four strata were designated: nearshore natural, nearshore structured, offshore, and offshore deep.

From June 2020 through April 2021 (1,022 to date) 626 traps were deployed. Collections from the traps included 113 eels (138 to date) and 16 other fish taxa. Eels were collected most frequently and were most abundant in Lake Central habitat. Eels were collected most frequently and were most abundant in offshore shallow and offshore deep strata. The highest abundance was observed in shallow SAV habitat.

Carlos showed us the graph of eel captures by month for the time series. Catches increased in April 2020 and peaked in July 2020. The captures were highest at or above 15 degrees C.

Chris addressed the mark-recapture study. Each eel was implanted with a PIT tag. They tagged eels greater than or equal to 300 mm TL. Three fish were recaptured from 165 tagged eels. They used the Schumacher and Eschmeyer mark-recapture model. The estimated population was 3,677 eels, with a 95 percent confidence interval of 2,065 to 16,782 eels.

Justin discussed the acoustic telemetry portion of the study. They have tagged 40 eels with acoustic transmitters. They have eight receiver locations in Roanoke Rapids Lake, Deep Creek, and Johnson Pond. Dominion and NCWRC have 6 others downstream of Roanoke Rapids Dam. Further downstream from Weldon, NC to the Albemarle Sound, NCDMF operates approximately 50 receivers and the detections recorded have allowed an estimation of transit time. The NCDMF receivers also document eel survival, since the receivers just downstream can detect tags from eels which did not continue migrations after passing through the powerhouse (turbine). One tag is apparently sitting there and continues to ping in the tailrace.

Justin summarized eel movement for us. Nine of the 13 eels outmigrated from the reservoir in the 2019-2020 migration season. Five of the nine migrants reached Albemarle Sound. Outmigration from the reservoir generally occurred two to three month following release after tagging. There was high variation in transit times between receivers. Transit rates ranged from 1.5 to 33.2 kilometers per day and averaged 18.1 km/day.

Justin reviewed the 2020 tagged eels. Eleven of the 31 eels outmigrated, with 20 tags remaining at large. Six of the 11 migrants reached Albemarle Sound. Outmigration from the reservoir generally

occurred 1-2 months following release after tagging. There was again high variation in transit times between receivers. The average rate was around 24.4 km/day.

Chris explained the analysis of outmigration timing. They used three linear models (Poisson). They looked at movement from Johnson Pond to Deep Creek (n=10); Deep Creek to the reservoir (n=10); and the reservoir to Roanoke River (n=20). They found daily flow, water temperature, rainfall, lunar phase, day/night, lake level, interaction effects. Movement out of Johnson Pond was more likely to occur at night and during a rain event. Movement from Deep Creek into the reservoir is more likely to occur during the same conditions and during “brighter” lunar phase. Movement from the reservoir to the river below the dam was more likely to occur at night, during or following a rain event, and during periods of decreasing lake level. They used GLM models, with the Poisson distribution which is commonly used for count data. The environmental variables they evaluated were those determined from the literature to have some interactions with eel movements.

For Johnson Pond, outmigration most likely occurred at night and during rain events. For movement from the creek into the reservoir, night and rainfall were also important, but lunar phase entered into it as well. Night and rainfall were also significant for movement from the reservoir to the river, and also when lake levels are decreasing, due to dam releases.

Justin noted that in the bottom of Table 9, the results are from the most recent model from the reservoir to the river. The most significant variable was decreasing lake level.

Bob Graham asked Justin to explain how lake level is defined. What is the time step? They got the lake level data from Roanoke Rapids Dam itself, Peter explained. They figured that the eels may detect the change in water level in the reservoir. Justin thought that was the case, especially if the change was occurring over multiple hours. They looked at lake slope as well but wound up going with the delta in lake level.

Bob asked if there were fewer hourly fluctuations over the last couple of years, than in previous years.

Justin noted that they had not looked at the annual variation in lake level changes.

Peter noted that they can take a look at that. Their departure could have coincided with a flood event which required longer releases.

Bob noted that they had often characterized Roanoke Rapids as undergoing daily fluctuations of 3-5 feet.

Justin asked if he was thinking that such fluctuations were normal and might not be affected by the changes.

Bob said yes and explained his logic.

Justin noted that they are definitely going to look further into the relationship with hydrological variables. They should wind up with 30-35 eels in the model, and have more seasons to examine, and really get a better handle on what is going on.

Kevin Mack suggested that they should consider lagging some of the terms, since the eels may be a good bit upstream when they first detect the changes.

Justin indicated that they did lag some of the variables. Chris indicated that they did lag rainfall by several days.

Kevin noted that sometimes you can just visually examine the data and tell whether the response is lagged, or not.

Justin agreed that is a good thing to check. He noted that both changing lake levels, and rainfall, could produce a lag effect.

Justin did a summary. They collected 113 eels in the eel pot sampling during Year 2, in comparison to Year 1 (25). The low abundance in Year 1 was probably a result of sampling months with lower water temperatures and missing the warmer months of peak abundance. Eels were most abundant in the offshore habitats of the lake (both shallow and deep strata) and from June-September. Of 40 eels acoustically tagged, 20 were detected downstream of the dam. Eleven of them reached Albemarle Sound. Migration time from the Dam to the Sound ranged from 8 days to 2 months, with a mean transit rate of 21.4 km/day. Eels were most likely to emigrate at night during/following rain events, consistent with prior studies; and were most likely to emigrate during periods of declining lake level. Twenty eels remain at large, and future detections will improve sample size.

Doug Newcomb wondered if they took any DO readings in the shallows and how those compared in summer versus winter.

Scott Smith asked about the fate of the outmigrated eels that didn't show up in the sound.

Justin thinks that they are still hanging out in the river. They may have been able to sneak past some receivers, but they don't believe they could pass all of them. He noted that they might be staging there prior to making a spawning outmigration.

Peter noted that in the CT, some of the eels hung out until the next year after passing the dam which may suggest a phased outmigration.

Wilson asked if any of the eels showed signs of silvering.

Justin said not really, he thought.

Peter said that there were some that were questionable but no measurements were taken as a quick surgery and release was the goal.

Wilson asked if it was possible that tags were in the stomachs of predators, instead of the eels. He noted that this might be evident if there was a sudden noticeable change in the rate of downstream travel.

Justin noted that was certainly possible, but hard to tell.

Chris noted that if a tag was ingested, then it should be ejected fairly soon.

Wilson noted that the most likely predators would be Striped Bass, or large catfish such as Blue Catfish.

Justin noted that if a tag is detected moving back upstream, then they may presume that predation had taken place. If a tag is detected in the estuary, and then disappears, then predation may have occurred. At least they may have served their purpose.

Wilson noted that the data are great, and he hopes that they will be publishing their work soon.

Peter noted that they have submitted some abstracts to the AFS annual meeting, but they haven't heard anything back yet.

Justin noted that they will be giving an overview of the study, and Chris will report on the outmigration.

Peter thanked Justin, Chris and Carlos for their reports.

Peter noted that he is reviewing the AKRF report and then will get it out to the entire DFRTAC soon. The effectiveness and distribution reports are due to FERC June 30, 2021. Peter will give us a two-week review period.

On the fish-friendly turbines, the study by EPRI and R2 (2020) resulted in finding two fish-friendly turbines. One is a minimum/reduced gap runner, and the other the Alden Fish-Friendly Turbine. Peter explained which bays could take which of these types. Their Capital Project Team is investigating the path forward; modeling and engineering scheduled to begin in 2022. They will determine which route they want to go. They are still on pace for 2024 if the turbine is a feasible option. Peter noted that survival of other fish had come up during our last meeting. The graphic that Peter showed is percent survival, and survival does improve to over 90 percent with the fish-friendly turbine. With the turbine and downstream passage, they are still working on the timing for downstream migration. They have a report due to FERC at the end of June. The final report is due in 2022, and based on the license Article 401 schedule, we have to make a decision on downstream passage in 2023.

Bjorn shared recent material on downstream turbine passage models ([Technical Reports | HydroPASSAGE](#))

Peter asked for any questions on the downstream eel material.

Corey had a question for Justin. He asked about length of the eels that made it to Albemarle Sound, versus those that are elsewhere.

Justin noted that they would see a range of sizes. He asked if Corey thought that perhaps the larger eels which are likely female, are leaving earlier.

Corey said yes.

Justin indicated that they have those data and can definitely look at that factor.

Bob noted that he had a thought about how to get an estimate of variance. In 1994 or 1995, they put out a report looking at a lot of the vertical profile data in that report. Doug's habitat modeling is based on those data which showed where the hypoxic layer occurs, so perhaps you can use that to estimate variance in the number of eels.

Justin asked how that could be used to estimate the variance in the number of eels.

Bob thought that since Doug's model will give the variance in the habitat, then his work could be used to estimate variance in eel numbers as well.

Justin noted that the DO values they have been measuring have been pretty good. Also, the traps with lower DO values have caught more eels.

Bob confirmed that they haven't gotten any DO levels below 2 ppm. He noted that typically, by the dam, they should be seeing a summer stratification.

Justin noted that they weren't putting any traps in that area. They may not have seen the low DO values, because of that stratification. He noted that there is no limit otherwise on the depth where they put traps.

Corey asked what the nighttime DOs are doing, particularly in the SAV areas.

Justin indicated that the DOs would normally go down at night in the SAV areas.

Doug noted that is why he was wondering about the DOs and whether in the winter, the shallower areas may be more habitable for the eels.

Justin agreed. They are also going to look at water movement and will presume that the water will be calmer in those shallow, vegetated areas.

Peter noted that the lowest DO values were in Johnson Pond, but it was few and far between that they were below five ppm.

Justin noted that is good to know.

Peter asked for any other questions on downstream eel movement. He noted that we can always go back if there are other questions.

Peter noted that Matt hasn't logged on yet. If he comes on, then we will go to him.

Justin noted that Bjorn had suggested that they do some mobile tracking using hydrophones, to see if they can pick up any of the missing tags.

Peter noted that hopefully we can hear them later. He noted that at least one eel made it all the way to Oregon Inlet.

Justin noted at least one other one made it to the Old Manns Harbor Bridge.

Peter noted that Matt has moved his operations into the Roanoke River. Peter noted that a guide recently caught a big Atlantic Sturgeon in the river.

John Ellis noted that he had talked to the guide, and it was caught above Weldon, above the rapids. There was also one seen on the scope, down by Jamesville.

Justin asked Peter to make sure that Matt has the eel tag numbers, in case he detects any of them.

Peter asked Jeremy to give the American Shad update, since he is only here until 11:00 a.m. Peter thanked Justin and the AKRF folks for their reports.

American Shad and Bypass Anadromous Sampling Updates

10:18 a.m. Jeremy was made the presenter and gave his report. Jeremy noted that this will be just a quick update on the 2021 sampling. They sampled thus far from March 25-May 13. Due to Covid

restrictions, they only had one dip netter this year. They did nine sites each day. They take length, weight and gender for each fish and take fin clips for genetic analysis.

Jeremy showed a map of the sampling sites and replicates. They sample weekly. Jeremy showed us the graph of CPUE. There was no sampling in 2020, due to Covid. Thus far, the CPUE is relatively low. The peak was on April 29. They caught 83 males, and 113 females thus far. Most years were heavily skewed towards males. The gender distribution is more equal, even slightly skewed toward females this year.

The females are larger than the males as is usually the case. They see several modes in the males. Jeremy noted that they will apply an age-length key to estimate the ages of the fish.

Jeremy reminded us that stocking was done for quite a few years. Stocking ceased with 2018 being the last year. No fry stocking has occurred in 2019-2021. Jeremy noted that in 2017 and 2018, the fry stocking was reduced, due to poor production at the hatchery. That could be significant when you see the hatchery results. Jeremy reviewed the stocking by location, and the OTC marking, versus Parentage Based Tagging (PBT).

They did sample juveniles in the fall of 2020. They collected 42 juvenile shad from September-November, and all of the fish were wild. They could have come either from the Chowan, or Roanoke. The sampling is low enough on the Roanoke, so that they could have been from either river.

Wilson asked if the lower numbers this year had anything to do with river flows.

Jeremy stated that they have had really good flows for sampling; they haven't had flood flows this year, and Katy indicated that the one dip netter did catch most of the fish.

Carlos asked if there is a relationship with numbers and the peak dates. He noted that the peak dates appear strongly related to temperature and wondered if they had looked at temperature relative to the peaks.

Jeremy noted that the peak usually occurs around 18-20 C. Sampling usually starts around 12 C and continues through 22 C. There are definitely peaks associated with the temperature curves. He noted that the CPUS may in fact be strongly correlated with temperature. If the temperatures stay in the peak range, then spawning may be protracted.

Carlos asked how protracted the peak is, from year to year.

Jeremy indicated that they have looked at this, and it could vary for several weeks, depending on when the peak temperature is reached. Some years they see fish into June.

Bob Graham asked if they are sampling juveniles around Plymouth, to try and keep a handle in juvenile abundance.

Jeremy indicated that is the case. They want to verify that there are still wild fish being produced.

Bob stated if the numbers make a wide swing, that is good to know.

Jeremy noted that swings have occurred, even when stocking was occurring, so it is hard to make any inferences from looking at juvenile abundance.

Peter noted that it was good to see some juveniles seemingly from the same spawning class from which we found the first American Shad larvae in the bypass sampling.

Peter moved to his American Shad update, from the Bypass Reach sampling. The Bypass Reach flows were recorded in the table. The actual flows were increased this year to 1,000 cfs base flow. One of the things coming up, if NCWRC resumes stocking next year, is that we need to consider the flow change.

Peter noted that electrofishing occurs at station A in the Bypass Reach, just below the dam and then at Station C near the end of the Bypass Reach is where the ichthyoplankton sampling is conducted. Peter showed us the hydrograph for 2020 and 2021, so we could compare them, for January 1 through mid-May. Peter noted that there were some station conditions where they had to spill more water. The flows were a bit higher than last year.

Peter showed the CPUE for river herring, Striped Bass, American Shad and Hickory Shad. There was a high catch rate of Striped Bass at the beginning of March. River herring were up this year but low in comparison to American Shad and Striped Bass. Peter noted that the sampling isn't finished yet, but he showed us the graph for the CPUE for Bypass Reach electrofishing. River Herring are still low but increased from last year. American Shad and Striped Bass are slightly down in comparison to last year. The values for American Shad are in the same ballpark as the NCWRC numbers.

Peter noted that Wilson had asked to look at the peak numbers as well as the average. He showed us that graph as well. He said he could go back to any of the graphs if we had questions.

Peter noted that the ichthyoplankton sampling is ongoing so they will report on it at our fall meeting. He noted that they are preserving all the samples in ethanol to allow for genetic sampling if they capture any American Shad larvae.

Peter noted that at the end of June 30, 2025, is when we have to decide when the Bypass Reach flows need to be for the remainder of the license. He asked for any questions. He noted that we will discuss again in September Shad Fry stocking and any flow changes for 2022.

Heather noted that she didn't have a presentation, but she can give us an update on hatchery contribution. Sixty-four percent of the adults returning were hatchery fish, in 2019, down from 71% in 2018. Most of them came from Weldon (92%). Four percent came from Gaston stocking and 4% came from Roanoke Rapids stocking. The majority of the fish came from 2013, 2014, and 2015 year classes. Heather noted that those were still heavily stocked years and was surprised to see the decrease in hatchery contribution for 2019 adults. She had discussed with Jeremy and Katy, and Katy said that 2013 was a pretty robust production year which could have inflated 2017 and 2018 numbers. Heather noted that we expect to see the hatchery contribution continue to decrease, which isn't a bad thing because we were starting to see genetic effects on the diversity.

Jeremy noted that it is interesting that we did get contributions from Gaston and Roanoke Rapids fry stocking.

Heather noted that there was a slight majority, in a ten-fish sample, from Roanoke Rapids stocked fish from the 2016 cohort.

Jeremy noted that he isn't surprised since the percentage of fish stocked in Roanoke Rapids was higher than those stocked at Weldon.

Holly White asked about the adult fish from Albemarle Sound.

Heather noted that she only had 30 fish but none of those came back as hatchery fish.

Heather noted that she had done some basic analysis of hatchery contribution calculation and relation to sampling effort by subsampling previous years' data. The hatchery contribution was within 4 percent as long as she had 60 fish for adults. For the juvenile fish, she needs a higher sample size. She will need 150-200 fish to get consistent percentages of hatchery fish contribution.

Wilson asked if you wouldn't have a higher likelihood of getting fish from the Roanoke, if you sampled further upstream, instead of lower in the river or in western Albemarle Sound. Fish from those areas could possibly be juveniles exiting the Chowan River system, instead of the Roanoke.

Jeremy concurred that Wilson is correct. He noted that they had tried to sample in the area around Plymouth consistently.

Wilson noted that it would be good to develop a better sampling technique. He noted that catching the juvenile American Shad during their outmigration is like trying to find a needle in a haystack.

Jeremy noted that Roger Rulifson had done some sampling using a push net but developing that technique would require a new project. Jeremy noted that he had to leave for another meeting.

Peter noted that we had Matt on the call now, and he could give his sturgeon report.

Atlantic Sturgeon Sampling

Matt noted that they have not been able to sample a lot. They are fishing 3-6, and 10-16-inch mesh. They caught one subadult fish and did put an acoustic tag in it. They had to get their larger boat down to Albemarle Sound. They skipped last week due to the fuel shortage. They are sampling in Bachelor Bay. Matt noted the capture of the 7-foot fish up the river above Weldon. Someone else got an image of another adult sturgeon, several miles up the Roanoke. Matt noted that the temperature right now is 22 C, so a good temperature for them to begin leaving, so the timing is good.

John Ellis confirmed that the image was taken at the downstream end of Devil's Gut, right above the boat ramp.

Matt noted that if they don't succeed sampling downstream this year, they will move operations upriver next year. Also, they plan to do sidescan in mid-to-late April next year. They can sample a 70-m swath so that would be good. All the sampling protocols are improving with Covid letting up, so they hope to be doing more sampling next year.

Peter showed the sonar image which was detected, and it appears to be a sturgeon.

Justin asked if there was a historical spawning population on the Roanoke River.

Matt indicated that there was a spring run, and we know that there is a fall run due to Hightower's work.

John Ellis reported to us that he just got a text from a guide who just saw another large image on his screen. He will share that information with Matt.

Matt noted that they will be sampling where Michael Loeffler had sampled, off Mackay's Creek. Matt noted that the one he caught previously was in the middle of Bachelor Bay. He hopes to catch at least one fish. Any they catch will get an acoustic tag. He noted that the water is very fresh, so that his electronarcosis equipment needs salt to be able to work. He noted that he hoped he will have that problem, because it is a good problem to deal with.

Peter asked Matt if he hears any random tags, which could be from eels, to please let him know.

Matt will send the tag ID for that one Atlantic Sturgeon to Peter.

Peter noted that all the ones they sent to VEMCO came back as false detections.

Matt noted it would have been nice to pick up some tags from sturgeon tagged in other systems or offshore.

John Ellis reported that large fish detected today was also in the Jamesville area.

Matt noted that their sampling site today is a very pleasant area. They will sample until 7:30 p.m. or so, then be back out tomorrow. Matt noted that the weather can change really fast in the Sound. He was humbled and scared very quickly in March when they were out there. They were using a 19-foot Smith-Root, but now they are using a 27-foot Carolina Skiff. At least they won't sink if they go under water.

Matt noted that he hoped they would get a fish today.

Peter noted that he could either hang on or drop off.

Matt indicated that he would stay on, but muted, because he had listened to the interesting American Shad discussion.

Peter moved back to American Shad. He asked if we had been able to look into the historical haul seine data on the Roanoke.

Holly indicated that she had done a little but hadn't uncovered much.

Wilson noted that Jim Armstrong had looked at a lot of the small communities and newspaper accounts when he was conducting his MS at North Carolina State University. He suggested that a visit back to some of the areas where the haul seine fisheries were located, and/or check with their families, might be productive in possibly turning up one or more "day books" from those fisheries. The day books were the records kept by the individual fisheries, and provided a complete count of all the American Shad captured.

Holly noted that she had followed that strategy. She did find a booklet on the fisheries of eastern NC, that did talk about some of the haul seine fisheries. That had some information in it on fisheries from the late 1800s.

Wilson noted that there is an ECU MS thesis as well that he needs to track down, which addresses the history of fisheries in eastern North Carolina. It was done in a different department than Biology and Wilson thought that Roger Rulifson was going to try to secure a copy.

John Ellis noted that Mike Wicker had visited the NC Archives but John thought that he had only looked at the Greenfield Fishery data.

Wilson indicated that he would try to make a visit and see what might be there.

Peter noted that the Alosa Task Force for VA/NC has been meeting. Garman/Gowan (1999) has intake guidance criteria. There is a Policy Committee developing Tidal Freshwater Intake Mitigation Guidance Document targeting new intake design criteria. Peter is on the committee. They have a bulleted list right now. Clint Morgeson is also on it and is running the committee. The committee noted that regulations for Hickory Shad may benefit American Shad. One question that came up regarding the Roanoke was the bycatch of American Shad in the Roanoke recreational fishery for Hickory Shad. There was a call that Peter was on. He will keep abreast of what is going on and will let us know. He asked for any questions or input.

Wilson noted that the two river herring initiatives spearheaded by ASMFC and NMFS are ongoing, and he will report anything of interest to the DFRTAC. He, Fritz and Roger Rulifson all are serving on the River Herring Strategic Habitat Plan Steering Committee for NMFS and ASMFC, and there is also an Atlantic Coast River Herring Collaborative Forum, in which anyone interested in those species may participate (see the website, <https://www.fisheries.noaa.gov/new-england-mid-atlantic/habitat-conservation/atlantic-coast-river-herring-collaborative-forum>).

Bob asked for the status of the river herring lawsuits against NMFS. He noted that the courts had remanded the first listing decision (not warranted) back to NMFS.

Bjorn indicated that litigation is still ongoing. NMFS had decided again NOT to list the species.

Peter asked if members wanted a break. Fritz did. Peter asked us to break until 11:30 a.m.

Justin and Heather both left the call. Justin indicated that he is looking forward to comments on their report.

11:21 a.m. The DFRTAC recessed until 11:30 a.m.

11:31 a.m. Peter reconvened the meeting. He verified that the audio was working.

Upstream Eel Passage Numbers

Peter gave us an update for the first quarter of the passage system. The first update was for the Roanoke Rapids traps. As of last week, they have had 9,069 total, with 8,610 from the North, 359 from the South, and 100 from the Tailrace. The Skimmer Gate is still out of operation and Peter asked Corey for an update. Peter noted that the design has been completed but he doesn't know when it will be implemented. He noted that the absence of flow from the Skimmer Gate affects the South Eelway catches.

The crew that was working on Gaston was able to come down and get the Roanoke Rapids North Eelway back up and running and are doing more work as time allows.

Peter showed us the graphic for Roanoke Rapids. The catches have been relatively low thus far, but there is a lot of time left for the rest of the year. Bjorn asked about outages, and they are keeping a record of those. They work closely with operations. Usually there are leakages, or flow issues, and they try to keep those from happening.

Gaston Eel Passage Status and Studies

Peter moved to the South Gaston Trap. He showed us the new building and hoped that we would get to tour it in September. The pumps for the attraction flow are shore-mounted. He showed us where the intake lines are located. They switch from one pump to the other during the course of the season to keep wear even. He showed us a close-up of the ramp substrate. He explained how the attraction flow is configured. He showed us a photo of the plumbing for the attraction flow system and photos of the building interior. He noted that the tank intakes are screened to keep the eels from escaping back into the reservoir. He noted that he hopes it will all make more sense when we see it in person. The CWT equipment is also in the house.

Bob asked how many gallons the tank holds.

Peter had that information in his notebook and will provide that number to us. He indicated that the fill level is 210 gallons.

Bob thought that was pretty good.

Peter said that should be able to hold 73,000 eels. He can't imagine seeing that many in the tank. The same size tank will be used on the North side.

Thus far, they have captured 1,004 eels. All have been CWT-tagged and released in Gaston. They have had no mortalities this year to date. They captured two CWT tagged eels in 2020. They began operations March 5th and captured 240 last week. He asked for questions and there were none.

Peter showed us a table with the highest monthly catches highlighted. May this year might turn out to be the highest catch for any May so far.

At North Gaston, a lot has happened, and Peter has been updating us via email. He noted that Gaston was in an outage, and the spilling didn't allow for in-water work. Most recently, there has been some erosion along the shoreline where the trap is to be installed. The road is complete to the North Eelway. There is a new undercut portion which they need to repair and redesign so that it doesn't happen again. 2018 was the first time that water has been spilled at Gaston, so they need to make sure that they get it built correctly. The Project Team has had to do some redesign so the site can take more waves and velocity. They are working through the redesign right now. The eel ramp is built, and the structures are ready to go, they just need to get the grounds prepared.

Peter showed us some videos of the spill, which was with two gates open and 22-25,000 cfs going through. The velocity was pretty high. When they were designed, they didn't have a lot of information on flow to use.

Peter noted the original design called for a floating dock, from which the pumps would be suspended; which was cause for concern. They want to make sure that the anchor point for the dock will be secure. They would have had to drill through rock, and that is expensive and involved. They are revisiting the lateral load stressor, and how those will affect the dock and the joints. Peter showed us the drawings of the dock itself and noted that they are revisiting the engineering of the shore mounts. They want to make sure that it just doesn't break away and go downstream.

Bjorn asked about putting an energy-dissipation device in the system to absorb energy before it gets to the eelway.

Peter noted that had been considered. He noted that the gates operated first are the middle ones. The ones closest to the eelway are usually only used for catastrophic flows, Bob confirmed.

Corey noted that the issue with putting a weir out from the wingwall, to protect the dock, would require some additional assessment of how the dam would be affected. In the end, they decided to just engineer the dock to withstand the pressure from the waves.

Peter noted that the flow from the gates moves counter-clockwise, and circles back toward the South Eelway, but there is some counter-flow that goes the other way. He noted that the engineers are reviewing everything, and we should have some answers soon. Peter noted that FERC has been advised of the delays. Dominion originally asked for a delay to May 1, 2021 for the install in the October 2020 submittal to FERC. They want to get it in the water ASAP, but they don't want to rush any decisions. They had hoped to have it in by May 1, but there isn't much they can do.

Peter would like to propose to FERC that they get everything in, NLT March 2022. They ideally would have it in place before then, but they don't have a crystal ball. That is what he wants to propose. He knows it isn't ideal.

Fritz noted that it is already nearing the month of May, and all they have is a road, so it would likely be the fall before they could get it in, anyway, and he would rather see it properly done.

Peter noted that any design changes could conceivably change the permit application, but that is all beyond his wheelhouse. He noted that they are trying to be safe and get it done as soon as possible.

Bjorn noted that it is good this happened now, instead of next year, since you might have lost the entire system. It would be good to have it operating for the small fall run, but certainly by next year.

Todd noted that he doesn't have any issues with the proposal. They want to see it done safely as well.

Peter noted that they want to send a letter to FERC and let them know that they discussed it with all of the agencies.

John Ellis was okay with it.

Dan and Scott were also okay with it as well.

Peter noted that they would try to get the letter out to FERC next week. He noted that construction is not his territory. He lets the experts do their job. He noted that Corey is also glad that this happened now, instead of after the eelway was put in place.

Peter noted that they are completing an eelway operations manual for Gaston, and that will go in once it is completed. They do have effectiveness studies that have been started on the South Gaston Eelway. Recaptures occurred in May and June last year. One was at large for 350 days, and the other for 3 days. The distribution studies have started. No eels were captured during the April sampling. They saw a whole family of Cottonmouths up there. Peter showed us a map of the sampling sites. He noted that they have seen some nice Largemouth Bass, so the eels have to run a gauntlet of predators. The next sampling is scheduled for July. Peter showed us the signs that have been put up at the public boat launches, requesting notification of any American Eel captures. The signs have only been up for a few months. This will hopefully help us to keep track of where the eels go, upstream.

12:08 p.m. Peter noted that's all he had for the report. He noted that the AFS meeting is coming up in Baltimore, and AKRS has submitted two abstracts, one on the habitat study, and the other on the telemetry. The resident sampling studies for fish and mussels will be coming up this summer, in July 20-21. He invited anyone to come with them. The Gaston effectiveness and distribution studies are coming up and reports are due Jun 30.

Wilson encouraged everyone to exercise caution regarding Cottonmouths that might be in the Bypass Reach. He and John Ellis noted that their USFWS colleague Alice Lawrence was bitten by a Cottonmouth while underwater doing a freshwater mussel survey in Georgia, and spent nearly a week in the hospital. It bit her underwater, through her wet suit.

Peter and Bob discussed some aspects of the Bypass Reach sampling. Peter noted that some VCU folks would be helping with fish IDs.

Fritz indicated that it would be okay for them to text him photos of fish, but he isn't going back into the Bypass Reach again.

Wilson noted that it isn't a pleasant place to sample, slippery with large rocks.

John Ellis speculated that the Hydrilla in the Bypass Reach might have been knocked back, due to the high flows.

Bob indicated that he would be willing to go back in the Bypass Reach with Peter and flag the sampling sites.

Bjorn noted that the last time he was in there, there wasn't much Hydrilla.

Peter asked us to provide any conflict dates for September or October.

He noted that they did get their Incidental Take Permit (ITP) for Atlantic Sturgeon at the Chesterfield Station, so they would be doing sampling for those. Lynn Lankshear was the POC. The permit is for a five-year period through December of 2025.

Peter noted that Matt has some VEMCO receivers in the river, so they should know when the mature adult Atlantic Sturgeon are in the river. They are also looking at a holographic imaging camera, to see if they can identify larval Atlantic Sturgeon without having to take them. The idea is that you would put the camera in line with the entrainment sampling, to allow them to be identified without being put in a net and counted, then they would be routed back to the river.

Bob explained that it would be in a flow-through tube.

Peter explained that it would be sampling a certain volume of water. PNNL/Florida Atlantic University are slated to be testing it next month, in June. Peter hoped that it would come to fruition and that they will be able to share the information.

On the Roanoke, it will be interesting to see where the acoustically-tagged sturgeon go.

Peter indicated that they would copy us with the letter to FERC.

The meeting adjourned around 12:15 p.m.