

**Dominion Energy  
American Shad Working Group  
2 February 2022**

Virtual Conference Call Scheduled from 1300-1530  
MEETING MINUTES

**Present (Conference Call Attendees):**

Dominion Energy – Peter Sturke, Corey Chamberlain, Taylor Allen, Paul Vidonic, John Swenarton, Caleb Gaston, Susan Gonzalez

NMFS - Twyla Cheatwood, Fritz Rohde, Kevin Mack, Bjorn Lake

USFWS - John Ellis

NCWRC – Jeremy McCargo, Katy Potoka, David Belkoski, Kirk Rundle

NCDMF – Todd Mathes, Holly White, Josh Winger

VDWR – Scott Smith

Alumnus – Bob Graham, Wilson Laney (NCSU)

VCU/USACE – Matt Balazik

Pete welcomed the group and noted that everyone should be familiar with each other from the introductions during the eel meeting in the morning. He reviewed the agenda for the afternoon meeting and noted that we have:

**ASWG meeting**

1. FERC Reports 2022
2. License requirements for Diadromous Fish (Art 407, Art 401, Passage, etc)
3. Existing data and any data gaps
4. FERC License Timelines

Pete introduced and discussed the VA/NC Alosa Task Force and an additional policy committee that Pete and Ben Eberline (Dominion Biologist) are on, any others that are interested should think about joining.

**Atlantic Sturgeon Update**

Matt Balazik talked about the Atlantic Sturgeon work on the Roanoke system. He caught 8 adult males in late September around the rock cropping upstream of Halifax. One post spawn female was tagged. All males left Albemarle in late September. Juvenile sampling has been very good. Matt had to pull back on sampling to preserve takes. One day the catch was over 30, 300-500mm fork length ATS. Should have some genetic data soon to split the population into spring and fall fish if present. Juvenile ATS were targets to the west of the NC32 bridge. Matt followed the salt wedge to catch the juveniles. He plans to sample using trawls in the spring for juveniles in the Roanoke while adult sampling. He's hoping to do side scan sonar for Sturgeon around Williamston bridge.

Wilson added he got a call from Dr. Ike Werger (NYSU) geneticist and they talked about how there should be a future publication to encompass his sturgeon work as he nears retirement.

Fritz asked about the juveniles ATS in shallow water and how deep was Matt catching them? Matt specified in about 2 to 5 feet of water which was surprising because there were loads of catfish present deeper than 6. Opposite of the James where the sturgeon are deeper. Surprising to see them thick in the shallows.

Jeremy asked Matt about the timeframe for spring surveys, Matt said starting in mid-March. Gillnets for adults and should not have bycatch of stripers. Jeremy notes the season should be limited this year and the gillnets maybe a concern, as far as optics. Matt can adjust as needed.

### **License Requirements for Diadromous Fish**

Pete started covering the FERC license requirements related to Diadromous fish and asked the group to chime in when he's discussing because a lot of these license requirements were goals when the license was issued and he wanted the group to understand the motives at the time. He also noted that we (DFRTAC) have been talking about having an American Shad/Anadromous fish thinktank for a couple years and that this conversation is intended to be a forum for discussion for the whole group looking at the goals of the license.

#### Article 401 passage

Pete discussed that the Article 401 requirements related to American Shad include the continued delay of upstream passage due to the population status which may change if the population is deemed robust enough. He noted that the Diadromous Fish Restoration Plan (2018) said "Estimated population size potential ... for lower river is approximately 273,000 adult fish."

Bob G mentions the work in the 90s was reliant on a higher population of shad possibly. Jeremy did not agree because we didn't have a lot of data. Fritz added that the upstream transport was a NMFS prescription and we currently are not doing anything to figure it out, most of the fish returning are stocked fish, the wild fish are not returning to spawn. Wilson added that the American Shad in Kerr were not moving how we expected they would and that may have been attributable to being in a reservoir. Several behavioral aspects of fish moved upstream were less than ideal, that in conjunction with the lower population in the lower river could not support the move upstream.

Pete mentioned that moving the fish upstream also risked removing or reducing the iteroparous reproductive strategy of American Shad.

Pete covered the Article 407 bypass flows and noted that we have a number of completed tasks: 325cfs min flows, decrease of winter flows to 300cfs, and freshet flows. He also noted that Dominion still has not implemented the 300cfs winter flows. He stated that one of the projects the team needs to focus on going forward is the stepwise increases of flow in spring anadromous season up to 1000 cfs. Again, calling from the Diadromous Fish Restoration Plan "Once the optimal release is identified, upstream and downstream access to 1.5 miles of fall zone habitat contiguous with the lower Roanoke River will have been restored."

Pete also covered the Article 413 Bypassed Reach Flows license requirement regarding anadromous fish flows. He noted the initial study was completed by Harris and Hightower in 2006. He also mentioned that the 2020 report submitted to FERC indicated increased abundance of adults and ichthyoplankton was noted as a sign of spawning success but then reminded the group that the 2019 ichthyoplankton report showed an exceptionally high catch of Hickory Shad eggs. We talked about having a brainstorming session to establish the correct flow based on the data generated or until 2024 when data collection is complete. If the DFRTAC cannot decide on an anadromous flow regime there are offramps in the license if needed. Pete asked if he missed anything with the license conditions. Bob G added there were no numbers for targets in the license because the variability could lead to a target that may not be feasible or realistic.

Pete transitioned to a new slide which included a list of the existing information pertaining to the Anadromous fish:

- River Flows from 2005 to present. QRR started in 2016
- Dominion Energy
  - Bypass Adult Electrofishing below Rapids Dam
  - Bypass Ichthyoplankton at lower site (Dawn and Dusk)
  - Bypass Flow adjustments and passage
- NCWRC
  - Population Estimates
  - Genetics
  - Stocking quantity and location
- NCDMF
  - Adult Albemarle Telemetry
  - Juvenile Alosa Index (JAI) – Jeremy added this is not necessarily specific to the Roanoke
  - Independent Gill Net Survey
  - Genetics
  - Commercial Fishing/Limits

Jeremy added the juvenile alosa index is not specific to the Roanoke. He added that NCWRC doesn't have a good population estimate because there is no stocking ongoing. NCWRC really would have to base that on electrofishing (EF) surveys and genetics.

Wilson asked Jeremy if they have looked at the adult EF results to see if there is any gross visual correlation between the EF results in the bypass reach and the ichthyoplankton in the river to see if anything is noticed. Jeremy says there has not been a comparison made but could do that. Wilson added that maybe coefficient of variation may be too high but worth doing.

**Action Item: Dominion and NCWRC to investigate relationship between EF results.**

Pete notes the telemetry publication from Kevin, Holly, and Fritz showed the bulk of tagged fish moved up the Chowan. Holly added genetics from the fishery and the JAI, and independent gillnet survey that focuses on the mouth of the Roanoke and Chowan for adults from March to May.

Pete mentioned that the commercial fishing and limits are also another variable but this one is able to be manipulated.

Wilson notes that he was thinking along the lines of correlation between the spawning population of the river and the bypass to get to a better place to decide.

Bob G. says we should focus some effort on the habitat in the bypass. Getting an expert to review the data available to update the habitat suitability now and see if the HSI curves still stand or if people have modified them. The result of the IFIM analysis for American Shad indicated suitable habitat increased proportionally with flow up to and beyond the 1,000cfs negotiated maximum. Response in terms of electrofishing and larval/egg CPUE has not increased proportionally with experimental flow increases. IFIM assumes fish abundance is proportional to suitable habitat but that isn't always the case. [added clarification from Bob via email].

Pete added that we don't necessarily want the entire population of anadromous fish to spawn in the bypass but rather have the door open and ready if they want to spawn there.

Bob followed and said that the license goals for the anadromous bypass flows are more of a physical habitat availability requirement than a spawning success requirement...we can't force the fish to spawn there.

Wilson agrees, Pete added we need to know the habitat is there and available for spawning to occur.

Scott S. suggests a tool would be to use a simple wetted perimeter with a drone or lidar to get enough information to assess how much habitat is available at different flows.

Bob. G is concerned about capturing depth change in the bypass. Todd agreed it is difficult but it could be done with levelloggers to be used in conjunction with flow data.

Wilson mentions drones that have lidar equipped.

Scott. S. mentioned a study done at New River, relicensing at the Buck Project, AEP project as well as the Niagara Project on the Roanoke River. He mentioned there were temperature and flow models based on the min/max velocity and depth. He followed with an email including the link to: <http://www.aephydro.com/HydroPlant/Niagara> and that you'll want to look at Appendix A under the Updated Study Reports.

Wilson added the habitat suitability model was updated (maybe by Hightower?) recently and should be published. He also noted that there's an East coast model. Ashton Drew is working in NC and maybe available. Wilson has contact info if needed as well as adding that Doug Newcomb could be a good resource for this work.

Pete mentioned he has a dissertation on the Mattaponi and Pamunkey that applies as well from a W&M grad. Also shows preference in each system for different species of shad, similar to the Roanoke but also noted that there are habitat preferences of Shad. He noted he'll dig into this research more.

Wilson says he needs to run down age and growth data from Jesse Fisher. He then asked if freshwater mussels and resident fish could benefit from the data. Pete agreed and noted that Michael Fisk from NCWRC will have the Bypass Mussel Data as well.

Pete says Susan G is onboard and will be working on this project to hopefully make some headway before next meeting and will report as things develop.

Pete says we can revisit as we move along and keep the information flowing as we go.

Wilson asked about the larval anadromous fish sampled in the bypassed reach and what was decided about the Blueback and Alewife ichthyoplankton proportion coming from upstream in the reservoirs as opposed to downstream.

Kirk mentioned that the Bluebacks and Alewives are likely spawning in coves and since the eggs are semi-adhesive he thinks they're not likely to drift downstream into the Bypass.

Wilson asked about sturgeon in the bypass reach. Bob G says depth is not sufficient for spawning.

Wilson clarified the solutions so far but cannot think of a definitive criteria we could use. Pete says the flows are at 1000cfs, everything above 325 is additional habitat. He followed and said that remote sensing could help us collect some data that could be used in connection with physical data we already have.

Bob G mentions the studies so far have not generated incredibly useful data in determining the optimal flow regime and maybe the money could be better spent elsewhere (like a physical habitat study).

Pete looks up what the license requirement is for the cost of bypass anadromous monitoring and suggested that the funds used for bypass sampling may help answer our questions if spent elsewhere.

Bob G mentions the EF and Ichthyoplankton sampling about 750cfs has been difficult in the bypass when it comes to safety and may have an impact on CPUE.

Wilson speculates that the gear used for ichthyoplankton samples or other life stages, could be less effective in multiple flow levels. And this would mean our methods may have some limitations to what they can provide. Pete and Bob G agree. Wilson proposed that we could compare data from our sampling at different flow regimes and that may show an effectiveness of the gear is reduced. Again, reiterating that another habitat survey maybe warranted and more useful.

Pete asked John Swenarton and Susan about ichthyoplankton samples and how different flow rates would then be extrapolated differently if the organisms are standardized by density in the water column.

John S. and Susan G. both think the extrapolation can be done with large volumes at intake structures and could potentially be applied in the bypass. John mentioned if the sampling frequency is not set, the samples are more frequent in summer (100s) and maybe account for the flow volume.

Wilson adds a question about if John S thinks an increase in the sampling in the bypass and would that be benefit. John is unsure how the sampling was set up but supports looking into it. Pete goes into our current sample frequency and results from the past 10 years and suggests maybe flow increases or high flow events could have led to the 2019 jump in abundance.

Wilson proposed we revisit this issue after we look for additional information. Pete agrees and says we should have enough time to decide if we want to change anything prior to changes made next year in 2023.

Pete wants to continue data collection this year and Jeremy, Wilson and Fritz agree. These collections would ensure we have three years of data at the 1000cfs anadromous flows.

Fritz hesitated but noted that he thinks we may have missed the boat with the larval collections. Essentially we missed the opportunity to collect ichthyoplankton downstream as Julie Harris may have earlier on. Fritz also mentioned the collection may have been at night and that our sampling during the daylight hours, we could be missing the bulk of spawn if it happens at night.

Jeremy asked about mainstream river eggs and bypass eggs and how they could be related.

Wilson and Kevin M. added that Fritz was referencing the spawning happening at night and by the time Dominion samples, the bulk of the ichthyoplankton may have moved downstream.

Caleb also clarifies the night spawning issue and larva would be missed downstream.

Bob G added some of the samples were taken at dusk to account for this.

Pete agrees, and added that the decision was made earlier in the sampling to complete ichthyoplankton sampling in the morning as well as evening to potentially address this issue and no drastic differences were observed.

Pete mentions that hindsight is 20/20 and that's what we're trying to avoid now with the opportunity to collect more data before the license decision deadline is in front of the DFRTAC. Wilson thinks Julie Harris' method could be used in retrospect which back calculated the zone of spawn based on the age of the egg/larvae captured.

Bob G. and Pete think that would be difficult to correlate to the planned and observed flows from the bypass when combined with the station operational flows.

**Pete sums up the progress:**

- 1. Dominion will continue the EF and Ichthyoplankton collection for 2022 and 2023,**
- 2. Before the 2024 season we will meet to determine if a change is needed,**
- 3. Investigate what is feasible and needed for habitat evaluation in the bypass,**
- 4. The final decision on bypass anadromous flows in due in 2025.**

Wilson added is anybody is doing this elsewhere to reference. Peedee? Many others? This could be a literature review or reach out to others with a rewatered bypass and anadromous fish.

Pete mentioned he could reach out to Duke and see if they would share some information on the Peedee and perhaps the folks at Holyoke.

Bjorn says the exercise of finding another similar bypass could be a huge rabbit hole but examples could be found. The question for zone of passage vs ability to have entry has been a struggle for NMFS to address nationwide.

Kevin M. says the term "habitat corridor" is used because it is so important to eels attempting to pass.

Bjorn followed and said that the Bypass is valuable habitat for the anadromous fish until passage is required, then it may turn into a zone of passage where you want to encourage fish to approach and enter a fishway. He noted that is a ways off but the paths are intertwined in these situations so finding a comparable study may be challenging.

Pete thanks everyone for the productive meeting of the "think tank" of Anadromous fish restoration in the Roanoke. He followed by reviewing the schedule for 2022 field work, reports, and meetings.

Pete thanks everyone and asks for final updates:

Katy Potoka will be working at Gaston weekly and taking fin clips for analysis.

Kirk will be getting some genetics vials so the PBT work can be continued. Dominion sampling should start in March. Kirk will reach out to Carl.

Holly reported no change to sampling this year: juvenile sampling in June, Chowan shad sampling, and addition of Meherrin shad this year.

**Meeting adjourned**