Dominion Energy, Diadromous Fish Restoration and Technical Advisory Committee (DFRTAC)
American Shad Working Group
27 October 2020
Conference Call Scheduled from 0900-1000

Final Meeting Minutes

Present (Conference Call Attendees):
Dominion Energy - Peter Sturke, Corey Chamberlain
NMFS - Fritz Rohde, Twyla Cheatwood, and Kevin Mack
UFSWS - John Ellis
NCWRC - Jeremy McCargo
NCDMF – Holly White
VDWR - Dan Michaelson and Scott Smith

Pete started the meeting asking for updates to sampling from North Carolina Wildlife Resources Commission (NCWRC) and North Carolina Division of Marine Fisheries (NCDMF) due to Covid. NCWRC did not sample Roanoke in 2020 and NCDMF halted IGNS survey on 2/12 due to issues with ITP. NCDMF halted the majority of anadromous efforts for 2020 including the tagging in early spring however, NCDMF has been able to conduct their essential juvenile sampling for 2020 from June to October for River Herring and Striped Bass. American shad commercial landings highest since 2014, with seasonal restriction, at 116,000 lbs.

Bypass reach sampling was able to continue during Covid, ensuring data collection for the bycatch reach and ichthyoplankton data.

Purpose of meeting

Make decisions on Trap and Transport as focus and then discuss bypass flows, if time allows.

Pete reviewed the bypass electrofishing results for 2020.

More American Shad than Striped Bass with a peak in late March. The bypass flows during the prescribed anadromous flows are depicted as vertical bars in the figure. Hickory Shad Catch Per Unit Effort (CPUE) was back down to historic averages along with River Herring. Hickory Shad and River Herring appear to be utilizing the bypass but not reaching the base of the dam as indicated by their absence in Electrofishing results. It was a record year for Striped Bass and American Shad CPUE and totals.

Ichthyoplankton results for 2020

Pete showed the overall collections from 2020 ichthyoplankton sampling and noted the highlighted boxes were collected and confirmed American Shad larvae in 3 different weeks (April 8th, 16th, and 22nd. The grey rows indicate the week of elevated (1067 cfs) flows during which one American Shad fry seems to have been spawned and hatched. Pete showed a picture from Dave Hopler who identified the American Shad larvae as 9mm Total Length and surmised that it was probably around 4 days old. He noted that the preservative was isopropyl because ethanol was so hard to get during Covid. He mentioned that this is the first year that we have had American Shad larvae collected and verified. A

larvae identified in 2019 as American Shad ended up being a Hickory Shad. Pete asked Jeremy about the possibility of genetics on the fish considering the preservative.

Genetics

Jeremy mentioned that he talked with Heather Evans and given it is only 3 she would be happy to run them. She does not know if samples preserved with isopropyl would retain enough genetic material for a viable run. Heather Evans was with the North Carolina Museum of Natural Sciences (NCMNS) and is now an official employee of NCWRC as in-house geneticist but maintains access to the NCMNS laboratory for genetics work. She will not just be working on fish but also other genetics programs.

Action-Pete to contact Heather to set up exchange.

2019 STB genetic results from bypass samples

Jeremy relayed to the group that 15 fin clips from Striped Bass were collected in the Bypassed Reach electrofishing efforts (ABMS). One of the 15 was a recapture and 13 of the 15 were determined to be stocked fish in either Lake Gaston or Roanoke Rapids Lake. All were smaller Striped Bass consisting of two separate year classes about 2 and 3 years old. Jeremy suggested in 2021 have ABMS to take finclips from all. Seem that high flood pulses are pulling Striped Bass out of reservoirs and into bypass reach. Dominion contract samplers (ABMS) did collect some fin clips from Striped Bass in 2020.

Jeremy noted that what we do not know is if the larger 300-400mm Total Length Striped Bass are pushed out or if they come out as smaller fish recently stocked and just hang out in bypass.

Pete continued review of ichthyoplankton results

Pete reviewed the Hydrograph from the 2020 season and the bypass flows were about 8-9,000 cfs as we approached the anadromous season. Flows were decreased to the 500/750 during the anadromous season with a week long increase to 1067cfs in April. Pete noted that the y-axis is CPUE (fish per 100 cubic meters of water) to standardize comparisons. He continued going through species specific results for American Shad, Hickory Shad, and River Herring. American Shad ichthyoplankton CPUE seemed to peak in late March than again in mid April with a few larvae collected. Hickory Shad ichthyoplankton collections seemed to peak in late March and early April while River Herring egg collections peaked in mid April of 2020. Pete noted that the observations of eggs and larvae downstream in the bypass seem to indicate the anadromous fish are utilizing the bypass reach for spawning while the electrofishing efforts directly below Roanoke Rapids dam did not observe River Herring or many Hickory Shad.

Trap and Transport

Pete circled back to the decision point for this meeting and discussed that Dominion is proposing to delay upstream American Shad Trap and Transport for another year, until we know more about what population is doing in response to stocking and/or broodstock collection.

The group discussed the decision by NCWRC to cease stocking efforts from 2019-2021 and asked Jeremy if NCWRC had any thoughts about restarting those efforts. Jeremy noted that NCWRC has not decided if they are going to resume stocking in 2022, 2021 will be the 3rd consecutive year. Jeremy mentioned that the 3 year duration matches previous stocking efforts in Kerr Reservoir, Lake Gaston, and Roanoke Rapids Lake in the past.

Fritz asked why did we stop stocking? Jeremy answered that the number of broodfish from river along with 60-70% hatchery contribution. Stocking stopped because we were removing nearly all the spawners and also concerns about genetics of the stock. Another way to look at it would be that they are not spawning successfully. Without stocking or removing broodfish, this gives us a chance to evaluate what is occurring without stocking as another variable.

Pete asked if the 3-year time frame was a long enough period for stocking evaluation? Jeremy said 3 years because each of the reservoir treatments were for 3 years. Still must evaluate all of those. NCWRC will be using the no stocking period as a control to the reservoir treatments.

A discussion ensued about exactly what do we (DFRTAC) need to see to encourage passage upstream? Can we create a threshold value? Something to target?

Fritz we do have triggers for shad passage, based on population numbers. No reason to move them if you can not get the juveniles out. There is still such a high hatchery contribution, why? We need to investigate that more. Possibly a function of the bypass being braided. Are we assuming that shad are only reproducing in bypass reach?

Jeremy-if all the spawning that is happening is occurring in the bypass reach then that's a sign of trouble. You would hope shad are spawning elsewhere in the Roanoke river system.

Dominion stated in a 2019 report-seems like fish are utilizing bypass for reproduction based on ichthyoplankton results.

Corey asked if there has been documented spawning occurring in Chowan and Nottoway? Jeremy said we know there is spawning in Chowan basin because it is supporting the commercial fishery. The fish that are being harvest in Albemarle, even without genetics, most likely all fish are wild spawn from Chowan basin.

Corey asked if we know for sure if the Albemarle tagged fish that run up the Chowan are hatchery or not? Yes we would know since the 2016 tagged fish were fin clipped and if there were hatchery fish, they did not enter Chowan. Further correspondence in email format from Jeremy and Holly: The Parentage Based Tagging genetic data indicate one telemetry tagged fish was of hatchery-origin (2018 Tag16-2935). Holly confirmed that this individual did not make a [spawning] run, that was detected.

Fritz and Ellis each said it seems we need to study this to determine what is occurring river wide to determine why shad are not successful.

Fritz suggested revisiting historical papers to review because now we know more than when the plan was set. Then create metric or something to develop or revise plan. He suggested that at the winter meeting, we should have a brain storming session for the future. Dominion will not be using money to trap and transport shad so perhaps we can utilize money for other studies.

Corey relayed that is always a possibility to have money budgeted however the budgets for 2021 have already been submitted. With adequate time, we could obtain additional funding. Tougher to get additional funds for 2021 but can shift funds around. We do still have funds for stocking and are using a portion for eels. Pete reminded the group that Dominion maintained the budgeted funding for the shad stocking however the group allowed those funds to be utilized to study outmigrating American Eels from Roanoke Rapids lake.

Scott Smith informed the group it may be useful to check with Alan Weaver for some ideas. The James River has been seeing the same thing, three-quarters (75%) of the American Shad run was hatchery contribution and the hatcheries could not produce enough to increase size of population. Rappahannock Shad runs have been doing great and increasing following reduction in stocking.

Meeting ran to 10 discussing trap and transport and the Pete tabled the bypass flow discussion for the winter meeting.

FERC Decision Point - All meeting participants agreed on continuing to delay trap and transport for another year, 2021. Enough information should be known from the delays to start developing an alternative plan or research objective, tabled for winter meeting.

Action - Winter meeting-'think tank' for future of a shad trap and transport. Ask additional participants that have experience with shad and/or passage but not on ASWG.