



Freshwater Habitat and Fish Passage Meeting

Albemarle-Pamlico National Estuary Partnership

11:00pm - 3:00 pm

November 30, 2016

NC Wildlife Resource Commission Office Headquarters

NCSU Centennial Campus

1751 Varsity Drive, Raleigh, NC 27606

MEETING NOTES

Attendees: Jeremy McCadro, FFWCC, Bennett Wynne, FFWCC (retired), Fritz Rhode, NOAA Fisheries, Fred Tarver, NCDEQ, Matt Butler, Sound Rivers, Roger Rulifson, ECU, Mac Currin (retired), Casey Knight, NCDMF, Shane Staples, NCDCM, Wilson Laney, USFWS, Julie DeMeester, TNC, Jesse Fischer, NCSU.

APNEP Staff: Coley Hughes, Jimmy Johnson, Bill Crowell, Stacey Feken

Dr. Coley Hughes, Albemarle-Pamlico National Estuary Partnership (APNEP), welcomed the group and thanked everyone for attending. She asked everyone to introduce themselves and mention a project they were currently working on. There were no attendees that joined by phone or webinar.

Coley Hughes then gave a presentation an overview of the purpose of the meeting, explaining that this team had met last in May 2015 and APNEP was reconvening the team. She provided an overview of the APNEP region explaining it includes 6 river basins including the Chowan, Neuse, Tar-Pamlico, Pasquotank, Carteret County portion of the White Oak, and the Roanoke below the dam. She reviewed the APNEP mission and history of the program. She explained that her presentation and information from the meeting would be shared in the team's Google Drive folder.

Coley discussed APNEP's management approach, which relies on partnerships, ecosystem based management, a watershed approach, the inclusion of applied science initiatives and adaptive management. She noted that this group is comprised of experts in the field and we need their help to work through the issues.

Coley gave an overview of the organization of the [Comprehensive Conservation and Management Plan](#), which can be located on the [APNEP website](#). The plan is required by the Environmental Protection Agency of all NEP's. It covers a ten-year horizon from 2012-2022. There are 58 actions in the plan, and action teams are being convened to implement the CCMP. This team has 7 actions, as noted on the agenda.

She reviewed the APNEP advisory structure, which includes a Policy Board, Science and Technical Advisory Committee, and will ultimately include an Implementation Committee once the action teams have been convened. In general, APNEP is currently at capacity with the teams that are already up and running until new staff are hired.

Bill Crowell added that there will be a representative from each team on the Implementation Committee which will oversee funding of projects. He said APNEP has a pot of funding for implementation actions. Some actions may not require any funds or can be achieved without APNEP funding. Wherever possible, APNEP would like to try and leverage funding and work with partners to apply for grant opportunities such as Coastal Recreational Fishing License Grants, EPA 5 Star Grants, etc. If a team proposes to use non-APNEP funds to implement an action it would not need to be routed to the IC for approval.

Stacey Feken provided a brief overview of the Education and Engagement Action Team which met in November for the first time since March 2015. Coley noted that other recent meetings included Ecological Flows—the team agreed to fund a contract to ECU to do a data compilation and discussed developing an action plan, which is a topic we hope to discuss for this team today. The Decision Support tools team convened for the first time in July.

Coley then began reviewing to goals for this team and that it was important to note the outcomes associated with each action in the CCMP.

Jimmy Johnson reviewed the actions

Discussion of TNC tools

Wilson Laney asked if SAFL covers the watershed and Julie said she would have to check if it covers the Roanoke Basin. He mentioned that Eric Martin? Casey only works on the southern border.

Jeremy McCargo mentioned the [NC Wildlife Action Plan](#) and noted that freshwater mussels were a priority. It is organized by river basin and there is a plan for VA as well. The plan is an integrated protection strategy.

Jimmy turned to Action B2.4 and mentioned there were discussions in Hyde County and a need to open up drainage ditches. The question is how long has it been that way, canals out of the lake. There was a meeting held the night before where there was discussion of dredging to the boundary of Mattamuskeet.

Shane Staples said he sees these review inquiries in permits, there is a meeting that will soon be held with DMF, there is discussion of keeping it open with no flood gate. The area is designated as a primary nursery with no upstream boundary, for juvenile shrimp and blue crabs. There are not many applications, there is no organization amongst the farmers. The VMA designation is a hurdle.

Julie asked if these had been mapped out and if not, was that something this group could do? Jimmy said that was a good question and asked Casey if DMF had mapped the VMAs.

Roger Rulifson said during sampling hickory shad in Contentnea Creek, a tributary of the Neuse, they noticed the area had been clearcut for timber, which is a concern in an area still covered by large trees, they are not seeing as many fish upstream. It is the most dramatic alteration he has seen recently. This appears to be a criminal act and he wonders how it was allowed to happen. Due to the surrounding wetlands and flowing water, it is a prime spawning area. Julie noted that if it didn't drain, if wetland, can log it, it's not ideal but it does happen?

Fred Tarver wondered if the Neuse buffer rules apply in this area. Bill said no, there were forestry and agricultural exemptions in this area. Bennet Wynn???

Wilson Laney said he would love to see the team take on B2.1, which overlaps with B2.4. The team could produce a map at the sub watershed level and identify the status, freshwater habitat, diadromous species, whatever categories they want to look at down to the smallest scale. We could look at what was done for the salmonids which is similar for the APNEP geography? [who did???] The USFWS has been working on how to deal with artificial canals and diadromous species for a long tie. FH? Person? Peninsular history there were no drainage canals. They have worked with NMFS, Larry Self? Diadromous, blueback herring, fish use and spawning, artificial management systems. The Corps turns the water on and off, which could create anoxic conditions. Speculate. Reproductive effort lost eggs, larvae not survive, or get stranded when water levels drops. This team could identify systems they think are a priority for restoration and conservation which need to be kept open vs. those where there are no objections. Been plugged? Attractive nuisance? Conditions may be better now. He reiterated that this was a possible action the team could include in an Action Plan.

Roger noted there were issues with wood in coastal streams and asked whether they need a permit. Creates its own ecosystem evolve around taking the dam out, does anyone know the status in NC? Shane replied that he has seen several log removal permits, he does his best to make sure fish habitat is recognized. Most are at a smaller scale, a 20-16 ft. skiff can get one or 2 logs. He tries to give recommendations such as limiting a depth greater than 6 ft or loose logs only, not disturbing anything that is buried, pick up loose sticks. Anadromous fish moratorium? He said if he receives an application asking for 6 miles of stream he asks them to be more concise, and can include permit conditions. There is no commercial level logging.

Fritz said it was pretty well regulated in this spot, you see time of the year. He said in the NE Cape Fear ?? watershed it's regulated, greater than 10 years ago. Jimmy Johnson said in the late 90s/2000 it became an issue.

Shane said in Hyde County species need lower oxygen levels, sudden worry about pumps/active pumps tied to storm events, want to control water levels, holding water back create anoxic conditions and there are issues with pesticides.

Wilson noted the ditch system in eastern NC, aside from the WQ issues and aquatic life, there were also cultural aspects that need to be considered and this applies to the whole state. In Pitt County, PL5 66 = more projects / provision in Congress. drainage projects / straight channel, may so old have removed/ sense?? Soil conservation service over dredging channels/ Fine is plenty of water but as soon as there is a drought, say water table too low, inflatable dams raise water table. Map good idea. He noted this is where integration with the Education & Engagement Team could come into play, if there was outreach needed such as the services? What is being done at Mattamuskeet, engage farm bureaus, NRCS, etc. Not just concern about aquatic resources, there are also concerns about agricultural impacts.

Mac Currin asked Jimmy if we have maps of Mattamuskeet, Casey said yes, Bill said the last LIDAR maps were done in 2010.

Wilson mentioned Doug Newcomb, comprehensive map covering the APNEP geography, not sure. Casey mentioned the National Wetlands Inventory includes ditched and drained areas, low regulation though. Julie mentioned that the Carolina Wetlands Association might have more information or be interested, Coley agreed and noted that APNEP staff had been participating in discussions and CarWA committees, and it could be an opportunity to collaborate with them. Bill said APNEP could follow up, he thinks a good one may exist.

Julie said the [Eastern Forest Environmental Threat Assessment Center](#) with the US Forest Service, here at NCSU, maps temperature and climate change and correlate with the amount of water in streams at the HUC 12 level. NC could be a test area, think about what a resilient system looks like to the best of our ability. Wilson said the Roanoke River Bi-State commission prep starts next week, and it's good to know those sorts of projects exist. Julie said they show projections and patterns.

Bill said that for Action B2.4, a meeting between DCM and DMF would be a good starting point. Shane said there was a small workgroup that originally met back in November. Casey said the Corps became involved. In Hyde County they found they had to be more organized. Shane said they would have to get Braxton Davis up to speed as well.

Wilson said they would have to review existing policies to make sure we do not reinvent the wheel. The further inland you get, the more work may be needed on the policy side. Fritz said they have a contractor working on all species not just anadromous. Casey said it was not a priority in the last CHPP, and was included as a research recommendation to assess flood control in primary nursery areas. CRFL funding may be available next year. Fred Tarver said that DWR also has a water resources [grant program](#) that may fit, Amin Davis is the contact.

Shane said the construction window was a big issue. Roger mentioned the Highway 17 bridge, pile driving and impact on anadromous fish. Wilson mentioned there were additional plans for the integrated freshwater habitat protection strategy he is working on with Bennet & Fritz for the Roanoke. Fritz will send it out to the group after it is filed with FIRC. It could be a model for a comprehensive plan within the APNEP geography.

Jimmy moved to Action B2.5 and noted that with new marina sightings, he could see the need picking back up for facilitating protection of designated primary nursery areas. Wilson said there should be maps, the DCM shoreline structure layer has good coverage. Casey said DMF has shellfish growing area closures. Bill asked if the definitions that DCM and DMF use are consistent. Casey said they were in the process of updating it, DMF says greater than 10 slips, DCM says 10 or more. Roger asked if pump out facilities were included. Jimmy said we could check with the Clean Marina Program. Shane said some have information available. Bill clarified that this action relates to inland primary nursery areas which have a different standard. Wilson said the coastal BMPs were different.

Fritz mentioned a scoping meeting, to determine if minimizing impacts or redirecting sighting elsewhere could be a better way to approach it. Wilson said there can be a body of literature to work from to develop recommendations.

Mac asked how far along they were with identifying inland PNAs. Jeremy said existing ones were in a database, Shane has some, there is some overlap with his areas for Pamlico and South Shores. Shane said there is a list of DMF sampling areas but it is not recent. Wilson asked if it was being looked as part of the CHPP? Bennet said DMF identified them, came to WRC and asked for designation which was done for inland waters. There were less sample sites and the pool of funding was smaller so they haven't been sampled recently. Casey said the Wildlife Federation has petition DMF's rulemaking and asked that all of Pamlico Sound be designated as PNA to get the trawlers out. They called DMF's approach to designating PNAs into questions. Wilson clarified that were seeking regulating the degree of bottom disturbance / amount and size of gear. Casey said there are questions about the area, they haven't sampled in a while, need to review the rule book, there are different areas they are trying to bring into alignment as well.

Fritz said they were identified based on juvenile abundance and species diversity. Mac said the sites were selected based on the characteristics where good habitat exists. Shane said everything inside the inlet was designated PNA and he tries to get in what he can during the permitting process.

Fritz mentioned it was Essential Fish Habitat as well and sometimes NMFS has to be called in for the big stick. Wilson said the SAFMC advisory council which covers NC-FL keys has noted that there is no EFH map for the region and this team may consider working with NMFS to develop one.

Wilson asked if a map had been produced of the when permits for relic logging came in. He said we have maps of inland freshwater habitat and were there any efforts in NC to put together in one place and compile the information? If not that is a potential action for this team. He said we have the side scan sonars. Casey said we do have for oysters. Coley mentioned that APNEP had received a NWF grant to fund continued research for SAV with ECU. Fred Tarver said limited work had been done on the Tar River in Greenville. Wilson said there was data for sturgeon in the Roanoke, Pee Dee, and Cape Fear Rivers, which hadn't been compiled and could be another potential action for this team.

Bennet said it could be a long term goal to map out all anadromous fish spawning areas. Roger agrees with him and that it would be good to identify habitat by lat/long, add a general description of the habitat, sediment, water velocities. There is a Delphi technique used in Colorado which identifies the best habitats for spawning. Wilson said there is a joint habitat suitability index model developed by Joe Hightower, and the Corps has models / variables. Fritz said there was work done by Epperly that correlates fish abundance with Rosgen stream classifications, and publications by Hackney that contains hot spots.

Wilson said that he was excited about the collective expertise of the group and is psyched to see what they can accomplish together!

Lunch Break

Jimmy turned to Action C4.1 and said that APNEP would not be installing fish ladders but looking to partner with those who are doing this work. Wilson said that the ASMFC recommends with large structures using existing tools.

TNC has tools and developed a prioritized list for what needs a ladder or eel way, we would work with partners such as TNC, American Rivers, the focus may be more on removal than passage.

Julie asked if the issues was addressed when hydropower facilities were permitted through FIRC. Wilson said most had been addressed, but that American eel was still an issue. Mac asked if they can get past the Roanoke Rapids dam. Wilson said Casey Seely and Bob Graham found silver eel while electrofishing Nov 10 and sent to Dr. Fischer for review, it is 410 mm. It is the first silver eel found as a result of passage over Roanoke Dam installed 2009. They started sampling in 2005, it might be a good field trip for this group to see the eelways, the first one in the reservoir is 8-9 years old. He suggests looking at the existing database and coming up with a prioritized list. Fritz said he has a list of dams in the lower part of the system that could use passage, the group could go out and look at the them.

Roger asked about the coastal water control structures. Wilson went back to the point made earlier, where we want access vs. where we want to keep fish out of. For example, Alligator River National Wildlife Refuge draining system around the farms, we should not encourage putting critters in those field ditches and artificial draining system. Roger said there was historic passage around Lake Phelps. Wilson said it did not have the proper design specs. Jeremy said it was not functioning properly, the park service was renovating the canal / culverts and had tried to get permits and funding. Wilson said there was a fish lift near Emporia on the Meherrin River which flows into the Chowan that had not been designed properly.

Wilson suggested convening a subcommittee and coming up with a list. We could get assistance with fishway design. Fred asked if they could get over could they get back down? Wilson mentioned Bob Graham, there is a settlement agreement with the electric power research institute, it was the best available technology available at the time. They recommended nighttime shutdowns, they do not know when silver eels migrate in the southeast. He has a colleague that has tried to catch them but hasn't yet.

Casey said Karin Mosher had revisited ? up north, had changed out culverts.

Wilson mentioned that Mike Wicker's group had worked with DOT to develop design criteria. Fritz said they had a number of meetings but the effort died. They need to get clarification on why, think money is a big impediment. Jimmy said there was an example with Atlantic Salmon discussed at ASMFC where they took existing culverts out. Coley clarified whether they were suggesting revising the guidelines for culvert removal. Wilson said they need an adequate opening, natural substrate, dry habitat for terrestrial passage.

Jimmy said there was an agreement in the early 2000's between DMF/DOT when they come up for replacement, they will be designed to allow for the passage of anadromous fish. Casey said there were no plans to retrofit existing structures. Shane said there was a similar agreement when they widen or replace bridges. They have seen a great deal of action recent in Beaufort County, and expect a scoping document at the beginning of the year.

Mac said they should be reminded about the agreement, and asked when hurricanes and storms wash out a number of culverts and bridges, is anyone making sure DOT takes the opportunity to retrofit? Shane said many are authorized through emergency permits. Roger agrees that it would be good and said much of the infrastructure in the Albemarle-Pamlico peninsula was built in the 30s. Roger asked if Mike Wicker has literature which evaluates how well the flap gates around Mattamuskeet work. There is no literature but they do work well, they had a graduate student study that looked at what happens when the stop blocks are in, they noticed effects on other species such as needlefish which are surface oriented, they do not dive down. They disappear when you remove the stop blocks. There are side swing gates which allow for a full vertical window when open, similar to embayments, allow for the passage of river herring. 3 adult blueback were sampled, there is another round of sampling in November.

Julie said that in NC/TN NC Act? Ask American Rivers to work with DOT and train them. Coley Hughes will follow up with American Rivers and see what lists they have. Wilson said he can find out the status from USFWS staff on any guidelines provided to DOT.

Jimmy moved to Action C4.2 and noted that though they were not able to attend today, there is a member from American Rivers assigned to this team which will be an asset. Some of this may have already been done through their prioritization schedule. Fritz works with them as well.

Jimmy noted that we had already touched on much of this through the other discussions. Wilson asked Jeremy if there was anything in the Wildlife Action Plan, he said the issues had been identified but did not think there was a prioritization schedule but would check.

Wilson mentioned Rocky Mount Mills / gateway / Tar? Two years ago an engineer visited and recommend fishway passage, not removal. Capital Broadcasting is looking to develop the facility, there is talk of developing a microbrewery. The area is a high priority for American eel and shad. Bennet said it may be an issue if American eel can pass, but shad can, there is still the issue of whether they can get back down. Bennet said there is nice shad spawning habitat down the river. It would require an investment, need a habitat assessment, there is an 8-mile reach between 2 major dams, however think of how much habitat you could gain. There is a research project looking at how fish move with PIT tags. It would be a two-step process of looking at the potential habitat to gain, then how to begin approaching passage. Fritz has caught eels / Wilson said it should be relatively easy for eels to scale. Bennet said in the late 70s there were massive numbers of eels, dam one middle had been breached, landowners did not have any interest at the time.

Matt has set up a meeting with Capital Broadcasting to discuss including an outfitter in their plans. They are involved with the economic development plan. Capital Broadcasting is hoping to create a complex similar to the American Tobacco campus in Durham in Rocky Mount.

Jimmy discussed Action C4.3 which deals with velocities. Wilson suggested that perhaps flows were not a big issue in the Tar, Pamlico, Chowan but was still an issue on the Neuse. The USFWS sent a letter last year to the Corps talking about diverting water supply in Raleigh to ? pool to ensure suitable flows downstream on the Neuse. Fred said that discussions regarding alternatives to the Little River Reservoir were ongoing but he was not sure what stage they were in. Wilson said no one had done a comprehensive evaluation of suitable spawning in rivers. With the WRC fund? Work had only been done with striped bass which do not have successful recruitment in those systems. There is no comprehensive evaluation of habitat suitability, current, velocities, though there are some studies that look at dissolved oxygen levels. He thinks a needs assessment is needed for C4.3.

Casey said we could look at the SHA data for regions 1, 2, 3 looking at strategic habitat factors. Get scale of how pristine habitat is, they not take water quality measure into account but it could be part of ground truthing. They should be done by spring for Region 4 which is Cape Fear to SC. Wilson said it would be a good starting point. Jimmy said you couldn't call it SHA anymore; it was changed to coastal habitat areas.

Mac said the habitat flow velocities vary, what is suitable in one area may not be in another along the length of the creek or tributary. Wilson mentioned instream flow incremental methodology, can negotiate a flow regime. Fred said to look at the Rogen classifications it depends on the shape of the channel. Wilson said it also varies depending on species where they spawn—mid channel (shad), or deposit eggs in vegetation (alewife) or deposit on rubble on the bottom (sturgeon). Spawning activity outside of the regime of power? Not sure how impacts section 7 consultation. Consult with FIRC, then Dominion for the Roanoke, for sturgeon spawning not know the effect, could be that they adhere tightly, sturgeon treat eggs they attach to each other. He asked about Santee Cooper and Fritz said it was not finished. Columbia Broad River, try to get them to modulate big peaks coming out of the dam, not know how sturgeon respond to large fluctuations in the spawning area. DNR manual tracking of sturgeon see how they respond. Wilson said there was a lot that needs to be done for this action.

Fred Tarver mentioned that the Division of Mitigation Services has a restoration project on the Cape Fear river, it might be a good opportunity to contact them to see if there are opportunities for stream restoration.

Jimmy mentioned that Mike Piehler was looking at SAV inside Lake Mattamuskeet, they were looking to find ways to enhance growth but he is not sure how.

Julie suggested talking to the Corps about restoration opportunities, also DOT can go to private mitigation bankers, just need to notify the state. Bill said much of the mitigation banking had been moved out of state government that it was all private.

Fred said they hope to get back to the legislature they have a plan to change ? and get ecological flows back into the model.

Julie mentioned that in February JarWA science behind it would come out, 3 of 4 articles have been peer reviewed and received national attention?

Bill said it was recognized that C4.4 would be a big task.

Wilson said USGS has an entire facility that does research on fish passage. Mike Wicker is looking at dam removal, maybe best way to see what is already ongoing. Coley said American Rivers may have information.

Jesse Fischer mentioned that Dominion is doing a project looking at age structure and growth rates, parasite loads.

Jimmy mentioned that APNEP could provide funding. Bill said if the group comes up with a list of priorities they could put together an RFP.

Julie mentioned an interesting technology looking at eDNA to catalog species, used at Appalachian state with hellbenders, Asian Carp in the Mississippi River, rare species, get an idea of where to look for things. There are certain limitations but there is capability perhaps on the 5-year horizon, perhaps a technology to keep an eye on. Jeremy said there were projects with shad and herring, and that we may want to talk to the Museum of Natural Sciences. There is discussed of using EDNA on the Neuse with herring, and project in Virginia. It would be a tremendous undertaking to look at the full complement of species, but it might be easier to focus on one species. Jesse said there was an issues with sturgeon and tanks. Wilson said Heather Evans at the state museum does work.

Julie mentioned the Society of Freshwater Scientists annual meeting is in June and it would be good to make connections with a broader group.

Jesse mentioned the USFWS in Warm Springs had done work on mussels.

Wilson said markers can be tricky for species of interest. Julie mentioned the DNA only lasts so long but can be an indicator of where to look for more. We could use to start to know where spawning habitat would be. Coley summarized by saying we need to determine what research is currently ongoing.

Coley turned to the last item on the agenda the topics covered under general discussion and ideas and said much of it had already been covered. She explained that Frank Yelverton had been invited and though he was unable to make it today, she was interested in having him share lessons learned from the Cape Fear.

Wilson discussed Mattamuskeet and noted there were concerns about the management of the lake and state resources. There was a MOA, the USFWS has created a collaborative team so that USFWS, WRC staff and others can work together regarding issues related to waterfowl. There is a consent decree that requires drainage outlet for agricultural lands surrounding the refuge, and there were concerns about restoring fish habitat. Michelle Moorman, John Stand, Tom Exberger are involved. There are also issues with water quality and increasing turbidity. There is potential for carp removal from the lake. Also, migratory birds and fisheries species use the lake—birds, blue crabs, mullet etc.

Bennet asked about the status of Milburnie Dam, Fritz said it was still moving forward. A monitoring plan has been developed, but they are still being ask for revisions, comments from the WRC that others made a long time ago.

Wilson said the NMFS had solicited comments about critical habitat for Atlantic sturgeon in the southeast, they should publish in May/June of 2017. Cape Fear River proposal has been extended to include habitat, same exercise with other river systems in NC.

Fred mentioned the nationwide permits had been revised to include living shorelines, he is not sure what the final wording or restrictions were.

Jesse has been involved in work on the Pee Dee river with WRC, and habitat work and fish contaminants work on the Cape Fear. He is looking at intersex fish throughout NC and propose looking at other river systems. He is looking at the impacts of contaminants on early life history, recruitment disruptors.

Wilson said there was a map of degraded habitats / fish consumption advisories on the EPA website, it does not include mercury since there is a regional advisory which covers the southeast.

Julie said TNC had relaunched data loggers on the Roanoke, now that they may change dam operations they can evaluate what it means for the water going back in the floodplains..what happens when you go to high water events. The loggers are \$5K each so they are writing grants for more. Gene Richter with USFWM is working on lessons learned. Wilson said he recently learned the Roanoke was only one of two rivers to have a flow region on a hydrodam. Bill suggested it would be a good topic for an APNEP Soundings post.

Roger said Hobo data loggers have a pressure sensor once water goes over the op. Jesse said they used them for monitoring in oxbows for temperature and stage. Casey said they work but have to have standards. Casey uses a sub meter GPS unit called bad elf, it was easier than using a Trimble and much less expensive, you can send with techs in the field.

Wilson encouraged everyone to share any new such technology with the team and Coley said you can share information using the Google drive.

Roger mentioned the NOAA technical expert workgroup, not have much money, there are other NOAA program and EPA has a program for large aquatic ecosystems. Bill said we the APNEP region had not been included.

Julie mentioned Enviroatlas, EPA Annie real? What layers have, combine with SALCC they may have information. Casey mentioned the NC1 map of state agency GIS data. There is also the NC Coastal Atlas. Wilson said the SALCC has the conservation blueprint. Could also talk to the Riverkeepers—Matt of Sound rivers is on the team and Jeff Turner the Blackway Nottoway Riverkeeper has been invited to participate. RENCI was mentioned as well. Coley said much of this had been discussed at the APNEP decision support Tools team meeting. She mentioned that the Ecological Flows team contract discussed earlier, this team could do a similar assessment.

Wilson mentioned the Southeast Climate Science Center, the forest Service ??

Jimmy said there may be opportunities to connect with the Southeast Aquatic Resources Partnership (SARP) and the Atlantic Coastal Fish Habitats Partnership. There may be options to submit projects to them for funding.

Bill reminded everyone that the APNEP geography includes NC and Virginia and encompasses 2 EPA regions. APNEP works with groups in Virginia and has done work in the Pasquotank and Chowan Basins, including the Emporia Dam on the Meherrin River, have worked with Eric Brittle of the Division of Inland Fisheries. Coley noted that Jeff Turner, Eric, and Brian Van Eerden from TNC were all invited to participate.

Coley then turned discussion to selecting a team leader. Wilson has agreed to help but already serves on the APNEP Policy Board and STAC so they would prefer to have someone else. The responsibilities include helping set the agenda and identify topics of conversation, and draft an action plan which will then be vetted through the team. She recognizes that everyone is volunteering their time to be here. APNEP staff are there to help provided support as well. They anticipate around 2 meetings a year. Bill added that APNEP relies on citizen involvement and wants

someone beyond staff so there is investment in the team. It is envisioned this person would also sit on the Implementation Committee discussed earlier but it could be someone else. Matt Butler agreed to serve as team leader, at least through the next meeting.

Coley reviewed the list of possible team actions identified during the meeting:

1. Develop a comprehensive map of ditched and drained areas, identify priority areas.
 2. Map inland freshwater habitat.
 3. Map anadromous fish spawning areas.
 4. Create a Sub group to create list of dams that need passage.
 5. Get DOT guidelines for culvert removal.
 6. Matt ? Rocky Mount
 7. Casey comprehensive evaluation of suitable spawning areas
 8. Assess existing research related to dam removal
 9. APNEP follow up with American rivers to see if they have a prioritized list of areas for passage, dam removal and research
 10. APNEP will pull meeting notes together
 11. Team leader to compile the list of possible actions and send to group for approval
Wilson's list:
 12. Share Cape Fear River Plan—Julie said there were 3 different websites.
 13. Wilson share SAFMC council policy on dredging
 14. Check with Mike Wicker for DOT culvert guidelines
 15. Fred Tarver to send out contract list, put on google drive
- Coley thanked everyone for attending amidst their busy schedules and adjourned the meeting.

Other Action Items found in notes:

1. APNEP to find LIDAR maps of Mattamuskeet and share with group.
2. Fritz to send the integrated freshwater habitat protection strategy after it is filed with FIRC.
3. Jeremy to check Wildlife Action Plan for relevant issues and whether there is a prioritization schedule