**September 29. 2017**

**RECORD OF TELEPHONE CONVERSATION for SCOTT’S MILL HYDROPOWER PROJECTS, P-14425**

Conference Call Participants

Scott Smith – Virginia Department of Game and Inland Fisheries (VDGIF)

Alan Weaver – VDGIF

David Sutherland – US Fish and Wildlife Service (USFWS)

Jessica Pica – USFWS

Brett Towler – USFWS

Greg Allen – Alden Research Laboratory (Alden)

Steve Amaral - Alden

Wayne Dyok – Consultant for Scott’s Mill Project Licensing

**Agenda**

1. Overview of Alden Fish Passage Report
2. Status of James River American Shad Stocking
3. Short-term Fish Passage Approach
4. Longer-term Fish Passage Approach
5. DOE Fish Passage Funding Opportunity Announcement
6. Scott’s Mill License Application Status

**Summary of Discussion**

Before the participants discussed the agenda, David Sutherland asked if the applicant had filed the last conference call notes with FERC. Wayne Dyok responded that they would be included in the consultation record, but if the agencies preferred, the record of conversation could be filed on its own. He suggested that it might be better if both those notes and the notes from the ensuing conversation be filed at the same time. The call summary notes will be filed with the FERC following the review of this summary.

1. Overview of Alden Fish Passage Report

Alden provided an overview of their September 21, 2017 Hydro Fish Passage Initial Assessment report that they had prepared for the Scott’s Mill Hydropower Project. Alden considered American Eel, Sea Lamprey, American Shad and other riverine fish species.

Wayne was asked if FERC had agreed to the increased head that Scott’s Mill is proposing for the project by adding either 2-foot high flashboards or a 2-foot high cap. Wayne explained that the applicant has not discussed this in detail with FERC, but plans to propose the spillway cap/flashboards to essentially maintain similar upstream water levels to what are experienced today and to increase annual generation. Applicant proposes to maintain a constant water level just below the proposed crest elevation of 516.4 feet until the hydraulic capacity of the plant is reached (i.e., about 4500 cfs). Under existing conditions, water levels during flows of 3200 cfs are about 1 1/2 feet above the dam crest and under low flows about one foot. (Applicant will provide a table comparing pre- and post-project water levels in the license application and how the change affects flooding and fish passage.)

Alden described the American eel and sea lamprey upstream passage approach to use a ramp with substrate and pegs for smaller eel, which could be used at the project.

The participants discussed examples of sea lamprey passage on the west coast and in Ireland. Alan Weaver noted that Bosher’s dam passes large numbers of sea lamprey. Data on passage is contained in a thesis prepared by a Virginia Commonwealth University student. **Action Item.** Alan will send a digital version of the thesis and provide to Alden and the rest of the group. David Sutherland noted that Turner’s Falls fishway on the Connecticut River has quite a few lamprey. Wayne agreed that the license application will discuss the need for lamprey passage.

Scott observed that the middle James River has eels in the 180 mm range with the smallest being about 130 to 140 mm. Alan added that the eels at Bosher’s range from 6 to 9 inches (150 to 230 mm).

Greg Allen stated that a key consideration in passage of American eel and sea lamprey would be where to site the ramp. It was noted that American eel and sea lamprey are not great swimmers. How Sea Lamprey release and reattach will also be a passage design criteria as well as a suitable substrate to accommodate passage of both species.

Steve Amaral commented that sea lamprey passage experience is limited, but Steve believes that current eel ramps have been functioning in a manner that facilitates sea lamprey passage. Brett Towler noted the design work that the U.S. Army Corps of Engineers has been doing with lamprey on the west coast. Pacific Lamprey (Lampetra tridentate) are not exactly the same as Sea Lamprey (Petromyzon marinus) so we need to be sure that design is based on our east coast Sea Lamprey’s ascending ability. Wayne said that Alden would work with the agencies on a ramp design as soon as agreement could be reached on how best to move forward with fish passage.

Alden then summarized the design approach for riverine and anadromous fish passage. A vertical slot fishway was found to be the best option, but could be 520 feet long to accommodate potential dam elevation changes. Alan suggested that the Alden design was conservative compared to the Bosher’s design which has a 0.75 foot drop per pool with 13 pools 10 feet by 12 feet long and a slope of 6.25 percent. Slot width is 16”. Alan felt that Bosher’s was effective in passing fish, specifically noting that Bosher’s passed as many as 4000 gizzard shad per hour. Greg responded that Alden had used the new guidelines from the US Fish and Wildlife Service, resulting in a more conservative design than at Bosher’s dam. Participants acknowledged that if the Bosher’s design criteria were to be used the estimated $5 to $10 million cost could be reduced.

Greg also noted that a vertical slot design was preferable to a Denil fishway, because of the number of species to be passed. Wayne cautioned the group that Alden’s design was a high-level approach based on the guidelines and that if this option were selected, the applicant would work with the agencies on the specifics of the design.

Greg next described the nature-like fishway, which based on a 2 percent slope could require a length of 850 feet. The challenge is in finding a location for the nature-like fishway. Wayne suggested that the abandoned water supply canal could be considered if channel width could be reduced from the 20-foot design width assumed by Alden. The cost of the nature-like fishway was similar to the vertical slot and perhaps less if the US Fish and Wildlife Service guidelines are used. An agency field visit to Scott’s Mill is being considered in the next few weeks to consider passage options.

Lastly Greg described the trap and haul approach. Although the cost is similar to that of other designs, an advantage is that it could provide upstream passage at more than one dam. The agencies suggested that Alternative 2 (vertical slot) provides more bang for the buck, because a trap and haul program could be built in with that option, as well as the immediate volitional passage for all species. The agencies also mentioned that quite a bit of habitat exists between the dams (main stem and accessible tributaries). Further discussion on the preferred approach was deferred to later in the discussion.

1. James River American Shad Stocking Program

Wayne Dyok noted that Alden had provided him with a “Bay Journal” article that Virginia was halting the shad stocking program in the James River, because there were only limited signs of recovery (Karl Blankenship, Bay Journal, September 17, 2017), and the amount of money spent on shad fry stocking was not justified. It was originally thought that opening up the James River and placing a fishing moratorium on American shad would trigger a restoration, but unfortunately the long-term average was only about 200 returning adults annually through the fall zone up to and through the fishway. It was thought that passage of American shad at Scott’s Mill will not be required for some time. The Virginia Institute of Marine Science (VIMS) catch index is downriver of Richmond, but has also been well below targets. There is no total American Shad annual population estimate for the James River, only indices of abundance from the fishway count and the VIMS catch index. There is spawning habitat on the James in the fall zone below Bosher’s fishway and in several tidal miles downstream of Richmond. The total number returning to the James River annually is a much higher number than at the Bosher’s fishway. The Bosher’s count is only providing information on the numbers of Shad moving into the middle James beyond Richmond, not the number of Shad in the entire James River. While there is spawning habitat available downstream of Boshers Dam, access to all historical spawning and rearing habitat is considered to be a necessary part of **fully** restoring the James River American Shad population.

In response to a question from Wayne on what might be the cause of the low returns, it was thought that the inshore and off-shore commercial fishing, as well as loss of habitat are important factors effecting the stock abundance. Wayne asked why the Potomac American shad restoration program seemed to be doing well. David responded that the Potomac River was an unregulated river with high quality habitat and good water quality. David added that passage on the Susquehanna might also be better if the fish were better managed with the hydro turbines. It may just be a matter of time for the James River.

1. Short-term Fish Passage Approach

Wayne presented the applicant’s short-term approach. He suggested that it makes sense to immediately pass American eel and sea lamprey and the applicant is prepared to do so. He suggested that in the longer term a trap and haul program could be implemented, or perhaps a vertical slot fishway at Scott’s Mill. He expressed concern that the cost of fish passage at each dam via a vertical slot fishway may not be supported by the upstream projects, especially the smaller ones, and a project like Reusens that has about a 40-foot head would have a very large cost. He then added that the Big Island dam is key to the operation of Georgia Pacific’s mill located there. He did not see that dam being removed. He further noted that Reusens serves as a water supply reservoir for the City of Lynchburg. Scott Smith commented that Reusens is actually the secondary water supply source for Lynchburg. It is unlikely that Reusens dam would be decommissioned if the hydro project became uneconomic to operate because of a fish passage requirement. Wayne also stated that it is also unlikely for the Scott’s Mill dam to be decommissioned because it serves as an emergency water supply.

Scott noted that he had previously talked to the City engineers and they informed him that Scott’s Mill dam was not needed for operation of the emergency supply. He had previously had the same understanding as Wayne that the City needed Scott’s Mill dam for its emergency supply. **Action Item.** Wayne to verify with the City of Lynchburg whether Scott’s Mill dam is needed for the City’s emergency water supply.[[1]](#footnote-1)

David commented that the USFWS would work with all upstream dam owners to ensure passage at all dams with consideration of the economic costs associated with passage. David continued that he favored the one stage passage option (i.e., something like the vertical slot fishway that could pass all species including American eel and sea lamprey) He did not prefer the trap and transport option. He also noted it would be a Herculean task to get all participants to agree on a fish passage program now, considering that licenses expire at different times. He also said it is challenging to get FERC to open up a project license.

Alan echoed David’s thoughts. He expressed concern that if only American eel and sea lamprey are passed now, developing a trigger for non-diadromous fish passage would be problematic because non-diadromous fish that would benefit from a passage facility are already present. These local fish that spend their entire life cycle in the freshwater river still move up and down stream for spawning and feeding purposes. Additionally, if Scott’s Mill includes a vertical slot fishway then that could be used to trap fish and transport fish upstream. Wayne commented that is a possibility but the applicant either needs additional outside funding from grants or upstream dam owners, who might be inclined to participate in a trap and haul program if that avoided the high cost of upstream fish passage at their facility. He noted that Scott’s Mill will produce about 20,000 MWh annually. At about $50/MWh that equates to an annual income of $1,000,000. Adding $5 to $10 million in capital costs would almost surely render Scott’s Mill uneconomic without additional outside funding. At this time, Scott’s Mill is able to accommodate some level of fish passage, but not the full amount for a vertical slot fishway.

Wayne acknowledged the agencies desires. He reiterated his concern that the hydropower projects on the James River could not support fish passage at each dam because of the high cost. He said that he had hoped the agencies would approve a short-term plan for passage of American eel and sea lamprey, with a longer-term goal of passage for resident and other anadromous species. Given that the agencies did not want to take that direction, he asked the agencies to conference and get back to the applicant on how they would like to proceed with fish passage. **Action Item.** The agencies will discuss and amend the minutes to reflect how they wish to continue fish passage discussions or inform the applicant of their fish passage requirements and have the applicant work directly with them on the design, assuming the applicant is willing to try that approach.

David said this discussion did not cover downstream migration. Wayne agreed and said that the Scott’s Mill power plant was being designed to minimize mortality to downstream migrants to the extent possible. Further the turbines being proposed are slower rotating turbines. Since there would be flow over the dam when flows exceed the hydraulic capacity of the plant, this could also be a mechanism for downstream passage. Wayne also said that the upstream dam owners would also be required to implement downstream fish passage. Wayne recommended that a conference call be held among all dam owners and the agencies to talk about fish passage. David suggested that such a conference call was premature.

1. Longer-term Fish Passage

Because the agencies preferred a one stage alternative, the longer-term approach was subsumed in agenda item 3.

1. DOE Funding Opportunity Announcement

Wayne noted that the US Department of Energy had recently issued a Funding Opportunity Announcement for grant funding for modular fish passage designs. He asked if the agencies would be willing to draft letters of support for Scott’s Mill being used as a test site. David agreed that USFWS would be willing to support Scott’s Mill as a test site for cost-effective and safe fish passage.

1. Scott’s Mill License Application Status

Wayne said that although there is a little more work needed to wrap up the Scott’s Mill license application, the hope is to get agreement on the fish passage approach and then expeditiously wrap up the application. Wayne had hoped to get concurrence on a short- and longer-term approach and then have Alden work directly with the agencies to develop a conceptual approach for fish passage. He noted that since there is no agreement yet, the collaborative fish passage design approach would need to wait until after the agencies conferred and Wayne could talk with his client.

David asked to have the study reports provided to the agencies. **Action Item.** Wayne agreed to talk with the applicant to see if he would release the letter reports for the studies. Some are stand alone, but others are included directly into the license application, making it difficult to pull out those studies. Wayne decided that since the application needs to be filed soon because the preliminary permit is expiring, he was just planning to include the reports with the draft application.

Additional Agency Comments October 17, 2017

As requested by the applicant’s consultant in the October 29, 2017 call summary, and in light of the pending expiration of the preliminary permit application on November 13, 2017, the State of Virginia Department of Game and Inland Fisheries and the U.S. Fish and Wildlife Service (Agencies) would like to provide the following comments on the Scott’s Mill Preliminary Permit coordination leading to the draft application. The following recommendations are likely the most cost effective for the applicant and provides the most assurance for safe, timely and effective fish passage at the proposed Scott’s Mill Project. A bypass around the dam with a nature-like-fishway is still a consideration pending a site visit later this year.

1. The Agencies requested copies of the study results, but have not received most of the reports. While the freshwater mussel survey report was provided to us weeks ago, all of the other reports regarding hydrology, flow and habitat have not been provided to the agencies. The Agencies requested recommendations on fish passage must be considered preliminary in the absence of the study reports. The agencies will conduct a site visit as soon as November and look forward to our review of the studies for the hydroelectric project.
2. The Agencies first recommendation is for construction of volitional American eel (eel) and sea lamprey (lamprey) passage over the Scott’s Mill Dam and in to the headpond behind the dam. This permanent eel and lamprey passage structure, and or passage structures, may need to be removable during the winter for safety. The Agencies consider this the preferred measure for eel and lamprey passage at Scott’s Mill Dam.
3. A second recommendation is providing fish passage for American shad and non-diadromous species from downstream of Scott’s Mill Dam to the headpond upstream of the dam. This could be in the form of a vertical-slot fishway, a nature-like fishway, or a trap and transport facility. The Agencies can provide additional comments regarding the design, location, time of construction etc. of any proposed fish passage facility once the applicant determines the type of fish passage facility they wish to pursue.

1. Subsequent to the conference call Wayne spoke with Mark Fendig, owner of Scott’s Mill dam. He stated that Scott’s Mill dam is needed for the City to maintain its water right. Point of technicality here, Lynchburg does not have a “water right”, per se. They have a valid Virginia Water Protection Permit that allows them to withdraw a permitted amount of water. However, this is not the same thing as a “water right”. [↑](#footnote-ref-1)