

##### COMMONWEALTH of VIRGINIA

**Robert W. Duncan**

## Executive Director

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###  *Secretary of Natural Resources*

# **Department of Game and Inland Fisheries**

10 March, 2016

To: Scotts Mill Hydro FERC Licensing Team

RE: Scotts Mill Hydroelectric Project (FERC No. 14425)

 Application for New License

 Comments on Draft Study Proposals

Dear Scotts Mill Hydro Team:

The Virginia Dept. of Game and Inland Fisheries (DGIF) has reviewed the Draft Study Plan proposals, and offers the following comments on these proposals.

**Study 1 – Water Level Assessment**

It is unclear from the document where the staff gages will be located. Particularly downstream from the dam, the location of the gages could be critical. Additional information (planned locations) of these gages is needed to fully assess this study. Additionally, if this study is completed during the first half of 2016, it will likely only cover a relatively narrow range of potential river flows. How will water levels be assessed at unmeasured flows, particularly on the low end of the scale? Finally, it is unclear how water levels downstream can be assessed without the powerhouse in place. Water levels are likely to change substantially downstream once flows are diverted through the powerhouse.

**Study 2 – Bathymetric Survey**

We believe the bathymetric survey should extend upstream to the base of Reusens Dam, and downstream to the hydraulic control feature located immediately above the mouth of Blackwater Creek. This is the area that will be impacted by elevation changes in the reservoir and flow diversion through the powerhouse. Thus, data will be needed throughout this entire area to evaluate potential impacts from the project operations.

**Study 3 – Water Quality**

The draft proposes to use water quality data collected approximately 1.25 km below the dam to evaluate the impacts of project operations on temperature and dissolved oxygen (DO). We have concerns that, particularly in the case of DO, this may not be representative of conditions immediately below the dam. In addition, currently water flows over the top of the dam, which would change when flows are diverted through the powerhouse. Thus, DO levels below the dam may be significantly different under project operating conditions compared with current conditions. Temperature and DO data from the reservoir (particularly under low flow and high temperature conditions) are needed to ascertain the potential for downstream impacts. We would also need to evaluate the alteration of water quality parameters associated with diversion of flows to the powerhouse. Additionally, should project operations result in low DO levels, potential mitigation measures should be investigated.

**Study 4 – Sediment Analysis**

You may wish to consider adding copper to the metals analysis of the sediments, as this element has been demonstrated to be toxic to aquatic life at elevated levels.

**Study 5 – Impoundment Fish Community**

We have no additional comments on this proposed study.

**Study 6 – Turbine Entrainment/Impingement**

Given that a final design for the turbines has not been completed, we cannot provide a determination regarding the adequacy of this proposed study. Since the applicant is considering a novel design (as well as more traditional ones), there are no extant data to evaluate fish entrainment/impingement and passage survival. As such, we cannot evaluate this until a turbine design is determined. Once that has been done, we can then provide guidance as to the appropriate study design. Additionally, a literature-based study may be insufficient to evaluate impacts to aquatic resources, but we cannot determine whether or not empirical data are needed until we know what the turbine design and capacity will be. Therefore, we recommend delaying the design and implementation of this study until the engineering aspects have been completed. This would be particularly applicable should the novel turbine design be chosen.

**Study 7 – Impacts to Aquatic Habitat**

It is unclear how aquatic habitat will be assessed from the study proposal. Diversion of flows through the powerhouse will result in substantial habitat changes downstream. Given the high quality of the existing habitat, any changes will potentially have deleterious effects on aquatic life. We suggest that, in consultation with stakeholders, a PHABSIM study be undertaken in the reach between the dam and Blackwater Creek. This would include collection of pre- and post-construction data to empirically compare habitat alterations associated with flow diversion. Should these comparisons indicate changes in quantity/quality of habitat, potential mitigation measures should be evaluated as part of this study.

**Study 8 – Fish Passage**

Based upon the proposed study, we have significant concerns regarding downstream fish passage. The proposal was vague as to how downstream passage would be undertaken and coordinated, particularly among multiple dam operators. We suggest a much more detailed study design regarding downstream passage. We disagree with the statement that little habitat for migratory species currently exists between Cushaw and Scotts Mill dams. In reality, there is a substantial amount of habitat in this reach, particularly when tributaries are included. As such, we believe that fish passage (upstream and downstream) is warranted at all of these dams. Currently, the only migratory species present in substantial numbers in the project area are American Eel and Sea Lamprey. This study proposal should include provisions for passing these species (as well as resident species) around Scotts Mill Dam (upstream and downstream). Additionally, the study should examine upstream/downstream passage of American Shad and resident species in greater detail. As it is currently drafted, the proposed study does not provide sufficient information to determine its suitability, and significantly greater detail is needed.

**Study 9 – Mussel Survey**

The geographic scope of this study should be Reusens Dam to the mouth of Blackwater Creek, as this is the river segment that will be potentially impacted by project operations. Other than this, we concur with the design of this study.

**Study 10 – Wetland Assessment**

We have no additional comments on this proposed study.

**Study 11 – Terrestrial Resources**

We have no additional comments on this proposed study.

**Study 12 – Protected Species**

We have no additional comments on this proposed study.

**Study 13 – Bat Survey**

We have no additional comments on this proposed study.

**Study 14 – Recreation Resources**

We have no additional comments on this proposed study.

**Study 15 – Cultural Resources**

We have no additional comments on this proposed study.

**Study 16 – Visual Resources**

We have no additional comments on this proposed study.

**Study 17 – Decommissioning**

We have no additional comments on this proposed study.

Submitted by

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