



Molly J. Ward
Secretary of Natural Resources

COMMONWEALTH of VIRGINIA
Department of Game and Inland Fisheries

Robert W. Duncan
Executive Director

July 20, 2017

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE, Room 1A
Washington, DC 20426

RE: ESSLOG #35246
Mountain Valley Pipeline FEIS
FERC CP16-10-000
DEQ 16-194F

Dear Secretary Bose:

The Virginia Department of Game and Inland Fisheries (VDGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over those resources, inclusive of state or federally listed species, but excluding listed insects. We are a consulting agency under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and we provide environmental analysis of projects or permit applications coordinated through the Virginia Department of Environmental Quality (DEQ), the Virginia Marine Resources Commission (MRC), the Virginia Department of Transportation (DOT), the Army Corps of Engineers (ACOE), the Federal Energy Regulatory Commission (FERC), and other state or federal agencies. Our role in these procedures is to determine likely impacts upon fish and wildlife resources and habitat, and to recommend appropriate measures to avoid, reduce or compensate for those impacts. We have reviewed the proposed Mountain Valley Pipeline (MVP) project Final Environmental Impact Statement (FEIS) and associated documents, and offer the following comments regarding wildlife species and resources under our jurisdiction.

In Appendix AA (FERC responses to comments submitted during public review), the FEIS includes only the Virginia DEQ's 4-page cover letter which references *Attachment A: Recommendations for the Supplemental or Final EIS* and *Attachment B: Detailed Comments from Reviewers*. The FEIS does not include the 26 pages of summarized recommendations provided as Attachment A, nor the 341 pages of specific Virginia agency comments provided to FERC as Attachment B. VDGIF provided 22 pages of recommendations to DEQ in our November 10, 2016 review of the DEIS, followed by two additional pages of recommendations in a December 21, 2016 email, submitted to DEQ for submission to FERC.

Because the FEIS does not include Attachments A or B, neither does it provide specific responses to DGIF concerns contained in Attachments A or B. Instead, the FEIS simply responds that (p. 3118), "The Commonwealth of Virginia's comments on the draft EIS are noted. The final EIS has been revised as appropriate". This response, while accurate regarding at least some issues, does not fully reveal or review the significant and diverse issues that were addressed in the VDEQ Attachment A or respective agency comments. The only specific issue addressed is to refer readers to the FEIS response to the USEPA's comments regarding forest impacts (p. 3118; FA15-5). While we do not aim to minimize the significant interagency coordination that has occurred during project surveys and design, and DEIS review, nor the significance of the additional FERC recommendations to address these issues that are included in the FEIS, we are concerned that these issues were not fully revealed, discussed, or documented through this DEIS review and FEIS.

Thus, to ensure that major issues we discussed in our November and December 2016 comments to VDEQ are documented, we wish to reiterate them here; recognizing that they continue to be addressed through interagency coordination between appropriate Virginia agencies and the project consultants.

First, we reiterate that significant linear footage of forested habitat will be lost to early successional habitat. Although conversion from forested habitat to early successional habitat is not always harmful to wildlife, it does require perpetual maintenance and is likely to result in significant forest fragmentation across the Commonwealth. It is clearly understood that forest fragmentation results in loss of interior forested habitat, allows invasive species to colonize, and introduces new predator/prey relationships along the corridor and within adjacent habitats. We urge FERC to consider these long-term impacts and urge the applicant minimize them to the greatest extent possible by co-locating the pipeline within already-disturbed utility corridors and early successional habitats. VDGIF is represented on the interagency Virginia Forest Conservation Partnership (VFCP), a group of topic experts who collaborate on large utility projects to ensure consideration of significant forest loss across the landscape. The VFCP developed a novel approach to quantifying fragmentation impacts upon core forests in the Commonwealth. We support the results of this analysis and recommendations made by the VFCP regarding ways to avoid, minimize, and mitigate for forest loss across the Commonwealth.

Second, the MVP consultants have developed an invasive plant management plan for the pipeline corridor that generally describes the equipment washing and decontamination, herbicide use, soil segregation, and other measures to be implemented. The list of potentially occurring invasive plant species is substantial, but we nonetheless recommend coordination with regional (e.g., MAPAIS: the Mid-Atlantic Panel on Aquatic Invasive Species) and state (Virginia Invasive Species Workgroup / Department of Conservation and Recreation / Division of Natural Heritage) authorities to ensure inclusion of all appropriate plant species. The invasive species plan also must address potential animal invasive species such as zebra mussels, found near the pipeline corridor in West Virginia, that potentially could be spread into Virginia on construction equipment, personal vehicles, personal equipment, or in water used for construction or hydrostatic testing. The applicant should consult with the USGS Nonindigenous Aquatic

Species resources, MAPAIS, the Virginia Invasive Species Work Group Advisory Committee, VDGIF, and VDCR-DNH to construct the appropriate list of invasive species of concern in Virginia. The applicant should carefully review BMPs and standards established by the USFWS, BOR, NOAA Fisheries, and ACOE (to name just a few federal agencies with such guidelines), and adopt an appropriate set of construction, maintenance, monitoring, and inspection/decontamination standards for the entire pipeline project. When the applicant adopts a specific set of standards for implementation project-wide, whether by choosing an appropriate agency standard or standards of their own development, those standards and operational practices should be submitted for public review as part of the NEPA/FERC project review process. We also note that for such projects, USFS has stated to FERC that the project operator will be responsible for invasive species management on the pipeline corridor across Forest Service properties for the life of the project; a standard that should also be considered for other public or recreational lands, if not for the entire project corridor. We recognize that specific treatment measures may be determined in the field, or after future surveys are conducted, but we must feel confident in the foundations of the MVP protocols and BMPs to presume their acceptability *a priori*.

Third, while we recognize the applicant's experience with pipeline construction and attendant sediment and erosion controls, and we recognize that some site-specific construction details are best resolved during post-NEPA permit review, we are nonetheless concerned regarding potential for serious events including slope failures, instream sedimentation, washout of fill materials, and compromise or contamination of sensitive biological or hydrogeological features such as trout streams, Endangered or Threatened Species Waters, major stream crossings, publically-owned conservation lands, or sensitive karst resources. Construction accidents, unanticipated geological conditions, or severe weather can, and have, precipitated catastrophic impacts upon sensitive fish and wildlife resources in the past: it is the applicant's responsibility to ensure that they not only are prepared to minimize adverse environmental impacts under anticipated construction conditions, but that they have seriously considered and prepared for "unanticipated" severe weather or other project conditions that may be encountered. These contingency plans should be submitted for public review as part of the NEPA/FERC project review process.

Finally, we must reiterate that review of some issues such as the MVP Migratory Bird Plan, specific stream crossings, and other project details continue through discussions with MVP consultants, and we may therefore modify or supplement our recommendations as more details emerge regarding this major project. In our efforts to protect Virginia's sensitive fish and wildlife resources and habitats, we have been coordinating with the applicant and consultants for Mountain Valley for well over a year, reviewing their corridor alternatives, fish and wildlife research and survey proposals and reports, and construction and restoration protocols for the proposed project. For example, we anticipate significant further discussion regarding such issues as migratory birds, trout stream and endangered species protection measures, stream crossing practices, contingency planning for environmental emergencies, and invasive species management and control. Our coordination in this regard is ongoing, and our field biologists and headquarters staff are in frequent contact with the project consultants and with Virginia's regulatory agencies

Secretary Bose

July 20, 2017

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regarding this project. To recap our involvement to date, we are attaching our previous formal comments, as they were provided to VDEQ for submission to FERC during review of the DEIS for this project.

Thank you for the opportunity to provide input on the proposed natural gas pipeline project. We look forward to receiving updated project maps, project documents, and permit applications, when available. Upon receipt of such information, we will provide additional comments and recommendations, as needed. Please contact me or Ernie Aschenbach at (804) 367-2733, Ernie.Aschenbach@dgif.virginia.gov, if you have any questions or need additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Raymond T. Fernald', written in a cursive style.

Raymond T. Fernald, Manager
Environmental Programs

RTF/EFA
Attachments

Cc: Angela Navarro, Deputy Secretary of Natural Resources
Bettina Sullivan, VDEQ
Tom Smith, VDCR
Tony Watkinson, VMRC
Greg Evans, VDOF

From: Fernald, Ray (DGIF)
To: [Sullivan, Bettina \(DEQ\)](#); [Wellman, Julia \(DEQ\)](#)
Cc: [Whitehurst, David \(DGIF\)](#); [Aschenbach, Ernie \(DGIF\)](#); [Bulluck, Jason \(DCR\)](#); ["Troy Andersen"](#)
Subject: Additional VDGIF comments on MVP
Date: Wednesday, December 21, 2016 12:37:00 PM
Attachments: [DGIF_MusselGuidelines2015.pdf](#)
[35246 MVP_DGIFLtrToDEQ_RTF20161110.pdf](#)

Bettina and Julia;

As we anticipated in our previous comments to DEQ of 10 November 2016, DGIF continues to receive new information from the MVP consultants, and to discuss issues of mutual concern with those consultants and other interested parties. We offer the following additional comments to supplement our previously submitted project review. For your convenience, our previous comments and the referenced attachment are appended to this email.

The MVP consultants have developed an invasive plant management plan for the pipeline corridor that generally describes the equipment washing and decontamination, herbicide use, soil segregation, and other measures to be implemented. The list of potentially occurring invasive plant species is substantial, but we nonetheless recommend coordination with regional (e.g., MAPAIS: the Mid-Atlantic Panel on Aquatic Invasive Species) and state (Virginia Invasive Species Workgroup / Department of Conservation and Recreation / Division of Natural Heritage) authorities to ensure inclusion of all appropriate plant species. The invasive species plan also must address potential animal invasive species such as zebra mussels, found near the pipeline corridor in West Virginia, that potentially could be spread into Virginia on construction equipment, personal vehicles, personal equipment, or in water used for construction or hydrostatic testing. The applicant should consult with the USGS Nonindigenous Aquatic Species resources, MAPAIS, the Virginia Invasive Species Work Group Advisory Committee, VDGIF, and VDCR-DNH to construct the appropriate list of invasive species of concern in Virginia. The applicant should carefully review BMPs and standards established by the USFWS, BOR, NOAA Fisheries, and ACOE (to name just a few federal agencies with such guidelines), and adopt an appropriate set of construction, maintenance, monitoring, and inspection/decontamination standards for the entire pipeline project. When the applicant adopts a specific set of standards for implementation project-wide, whether by choosing an appropriate agency standard or standards of their own development, those standards and operational practices should be submitted for public review as part of the NEPA/FERC project review process. We also note that for such projects, USFS has stated to FERC that the project operator will be responsible for invasive species management on the pipeline corridor across Forest Service properties for the life of the project; a standard that should also be considered for other public or recreational lands, if not for the entire project corridor. We recognize that specific treatment measures may be determined in the field, or after future surveys are conducted, but we must feel confident in the foundations of the MVP protocols and BMPs to presume their acceptability *a priori*.

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While we recognize the applicant's experience with pipeline construction and attendant sediment and erosion controls, and we recognize that some site-specific construction details are best resolved during post-NEPA permit review, we are nonetheless concerned regarding potential for serious events including slope failures, instream sedimentation, washout of fill materials, and compromise or contamination of sensitive biological or hydrogeological features such as trout streams, Endangered or Threatened Species Waters, major stream crossings, publically-owned conservation lands, or sensitive karst resources. Construction accidents, unanticipated geological conditions, or severe weather can, and have, precipitated catastrophic impacts upon sensitive fish and wildlife resources in the past: it is the applicant's responsibility to ensure that they not only are

prepared to minimize adverse environmental impacts under anticipated construction conditions, but that they have seriously considered and prepared for “unanticipated” severe weather or other project conditions that may be encountered. These contingency plans should be submitted for public review as part of the NEPA/FERC project review process.

Finally, we must reiterate that review of some issues such as the MVP Migratory Bird Plan, specific stream crossings, and other project details continue through discussions with MVP consultants, and we may therefore modify or supplement our recommendations as more details emerge regarding this major project.

Thank you for consideration of our comments, and please feel free to contact me if we may be of further assistance.

Ray

Raymond T. Fernald (Ray)
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COMMONWEALTH of VIRGINIA
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November 10, 2016

Bettina Sullivan, Manager
Office of Environmental Impact Review
Department of Environmental Quality
629 East Main Street
Richmond, VA 23219

RE: ESSLOG #35246
Mountain Valley Pipeline
Docket number CP16-10-000
DEQ 16-194F

Dear Ms. Sullivan:

We have reviewed the proposed Mountain Valley Pipeline (MVP) project Draft Environmental Impact Statement and associated documents, and offer the following comments regarding wildlife species and resources under our jurisdiction known from within 2 miles of the pipeline centerline (project area).

We have been coordinating with the applicant and consultants for the Mountain Valley Pipeline for over a year, reviewing their corridor alternatives, wildlife research and survey proposals, and construction and restoration protocols for the proposed project. We have not yet submitted comprehensive recommendations regarding the project, primarily because the corridor alternatives continue to be revised, and the numerous resource reports and wildlife/habitat surveys are just now being finalized. Our field biologists and headquarters staff, however, are in frequent contact with the project consultants and with Virginia's regulatory agencies regarding this project.

Our primary issues of concern regarding the Mountain Valley Pipeline pertain to upland forest fragmentation, stream crossings, endangered species, essential hibernacula for bats, trout streams, Virginia's Species of Greatest Conservation Need, crossing of karst geologies, stabilization of steep slopes during and after construction, and potential for corridor invasion by exotic species upon project completion. We will gladly share our comments with you upon their submission to FERC and to Virginia's Department of Environmental Quality and Marine Resources Commission.

The Virginia Department of Game and Inland Fisheries (VDGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises law enforcement and regulatory jurisdiction over those resources, inclusive of State or Federally *Endangered* or *Threatened* species, but excluding listed insects. We are a consulting agency under the U.S. Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*), and we provide environmental analysis of projects or permit applications coordinated through numerous state and federal agencies,

including the Federal Energy Regulatory Commission. Our role in these procedures is to determine likely impacts upon fish and wildlife resources and habitats, and to recommend appropriate measures to avoid, reduce, or compensate for those impacts.

The MVP would involve constructing and operating about 301 miles of 42-inch-diameter pipeline; 3 compressor stations totaling about 171,600 International Organization for Standardization (ISO) horsepower (hp); 4 meter and regulation (M&R) stations; 5 pig launchers and receivers; and 36 mainline block valves (MLV). Mountain Valley is currently proposing two taps for the MVP: one tap to serve the Roanoke Gas Company, LLC (Roanoke Gas) and one tap at the Webster Interconnect. The MVP includes four interconnections or tie-ins with facilities operated by Equitrans, Columbia Gas Transmission LLC (Columbia), and Transcontinental Gas Pipe Line Company LLC (Transco). The MVP facilities would be designed to transport about 2.0 million dekatherms per day (Dth/d, equivalent to about 2.0 billion cubic feet per day [Bcf/d]) of natural gas (DEIS, p. 50). The MVP project is not located in any Coastal Zone Management Areas (DEIS, p. 464).

<u>County in VA</u>	<u>Mileposts</u>	<u>total length section (miles)</u>
Giles, Virginia	196.3 – 216.8	20.4
Craig, Virginia	216.8 – 218.5	1.7
Montgomery, Virginia	218.5 – 238.1	19.6
Roanoke, Virginia	238.1 – 246.5	8.4
Franklin, Virginia	246.5 – 283.9	37.4
Pittsylvania, Virginia	283.9 – 303.4	19.5

Total in VA

107 miles

* Source: Biological Assessment. Table 2 **Length of Proposed Pipeline by County**. pp. 33-34.

During our review of this project, we considered not only the protection and management of wildlife species and resources under our jurisdiction, but also our ability to continue effective management of our lands and to serve our constituents during construction and long-term operation of the proposed pipeline.

Listed Species:

The following listed species have been documented from the project area in Virginia:

- **Federally Endangered/State Endangered (FE)**
 - Gray bat (*) The MVP does not overlap the counties in which gray bats and Virginia big-eared bats are known or are expected to be found; and no further surveys are required for these species (DEIS p. 420).
 - Indiana bat
 - Virginia big-eared bat
 - Clubshell mussel
 - James spinymussel
 - Snuffbox mussel

- Roanoke logperch
- Federally Threatened/State Threatened (FT)
 - Bog turtle (listed Threatened due to similarity of appearance to the federally Threatened northern population (DEIS p. 421)).
 - Northern long-eared bat
- Federal Species of Concern (FS)
 - Candy darter
 - Orangefin madtom
 - Atlantic pigtoe
 - Yellow lampmussel
 - Ellett Valley millipede
- Federal Potential Candidate (PC) species for federal listing
 - Candy darter
 - Green floater (mussel)
- State Endangered (SE)
 - Gray bat
 - Indiana bat
 - Little brown bat
 - Northern long-eared bat
 - Tri-colored bat
 - Virginia big-eared bat
 - Roanoke logperch
 - James spinymussel
 - Snuffbox mussel
 - Bog turtle
- State Threatened (ST)
 - Loggerhead shrike
 - Peregrine falcon
 - Ellett Valley millipede
 - Orangefin madtom
 - Atlantic pigtoe mussel
 - Green floater mussel
 - Pistolgrip mussel

We understand that a number of species surveys and assessment activities are currently underway and planned for the near future. Several minor route variations to avoid potential impacts to karstic geology areas and associated wildlife resources are under consideration and remain to be finalized. A number of these areas have not been surveyed based on pending changes to the existing alignment and lack of access. Mountain Valley is examining route realignments that may avoid Slusser's Chapel Cave and Old Mill Cave, and is continuing to coordinate with VDGIF and the USFWS (DEIS p. 425). We are coordinating these activities closely with the applicant's environmental agents and are making additional recommendations regarding protection of listed

species, as appropriate, during this coordination. We will continue to review new project materials as they arrive and provide subsequent comments to FERC, as appropriate.

We recommend the applicant perform habitat assessments and/or species surveys, with permits as needed, for any species listed above for which we have not provided specific guidance to determine whether suitable habitat for these species exists within the proposed disturbance corridors and/or whether these species may be present on site. Upon review of such assessments or surveys, we will make final determinations regarding the protection and management of these species related to the construction and operation of the pipeline. For all other species, we recommend continued coordination with us and the U.S. Fish and Wildlife Service, as necessary, to ensure avoidance and minimization of impacts upon listed species and their habitats during project construction and long-term operation. Our recommendations are consistent with FERC's recommendations provided in Section 5.2 of the DEIS (pp. 771-781).

Designated Threatened and Endangered Species Waters:

The following streams are located within the project area and have been designated "Threatened and Endangered Species Waters" due to the presence of one or more listed aquatic species, as noted in parentheses below.

Fish:

- Roanoke River (Roanoke logperch, orangefin madtom) (DEIS p. 423; TOYR)
- Pigg River (Roanoke logperch) (DEIS p. 423; TOYR)
- North Fork Roanoke River (Roanoke logperch) (DEIS p. 423; TOYR)
- Craig Creek (orangefin madtom) (DEIS p. 424; TOYR)
- Mill Creek (orangefin madtom) (DEIS p. 424; TOYR)
- Stony Creek (Candy darter a federal Species of Concern and Federal Candidate Species) (DEIS p. 424; TOYR)

There are three waterbodies (Roanoke River, Pigg River, and North Fork Roanoke River) that would be crossed by the MVP that are known to contain the federally Endangered state Endangered Roanoke logperch. Mountain Valley surveyed 42 additional streams in 2015 and 2016 to assess whether they contained suitable habitat for Roanoke logperch, and determined 11 of these streams do contain suitable habitat. Based on suitable habitat and to facilitate the development of mitigation measures, MVP will assume potential presence of Roanoke logperch within these 11 streams (DEIS p. 423). A report detailing 2016 Roanoke logperch habitat assessments in Virginia was submitted to the USFWS on October 17, 2016 (Biological Assessment p. 30).

Project consultation with the USFWS further specified crossing the streams using any method other than horizontal directional drilling (HDD) would require formal consultation under Section 7 of the ESA between USFWS and FERC. As currently designed, the proposed crossing method for the Roanoke River, North Fork Roanoke River, and Pigg River is open cut-dry ditch (Biological Assessment p. 25).

The orangefin madtom, a federal species of concern state Threatened species, is known to occur in waterbodies along the MVP in Virginia (Roanoke River, Craig Creek, and Mill Creek). Surveys for the orangefin madtom were conducted by Mountain Valley in tandem with surveys for

the Roanoke logperch in 2015. Communication between Mountain Valley and VDGIF staff in March 2016 indicated presence/absence surveys for the orangefin madtom would not be effective due to its cryptic nature (DEIS p.424).

Proposed BMP protective when both Roanoke logperch & orangefin madtom are known (concurrent TOYR): Mountain Valley has committed to adhering to time of year restrictions for crossings of these 14 waterbodies with known or assumed presence of Roanoke logperch (i.e., no instream work from 15-March through 30-June of any given year). Mountain Valley would relocate any Roanoke logperch encountered during pre-construction fish surveys at waterbody crossings, per VDGIF recommendation (DEIS p. 423). MVP has requested formal Section 7 consultation with the USFWS (DEIS p.424).

Proposed BMP protective of orangefin madtom, where Roanoke logperch is not present: In perennial tributary streams within the Roanoke River and Pigg River drainages No instream work will be performed from 15-March through 31 May of any given year (DEIS p.424).

The candy darter, a federal species of concern, is known to occur in a single stream along the MVP in Virginia (Stony Creek). Based on successive time-of-year restrictions of other special status species or fisheries of concern (such as coldwater fisheries, wild trout, stocked trout, and mussels) in addition to the candy darter within Stony Creek, the USFWS requested that Mountain Valley adhere to a time-of-year restriction of August 15 to July 31 for construction within Stony Creek (i.e., VDGIF requested that construction only occur between July 31 and August 15).

Proposed BMP protective of candy darter: Mountain Valley has agreed to assume the presence of the candy darter in Stony Creek and conduct instream work in Stony Creek between July 31 and August 15 of any given year (DEIS p.424).

Summary: We support the proposed protective measures and will consider new information as it becomes available. As previously recommended, we reiterate that any instream work in waters known to support Roanoke logperch or their tributaries adhere to a time of year restriction from March 15 through June 30 of any year. In addition, we recommend coordination with the U.S. Fish and Wildlife Service.

Mussels:

- Craig Creek (James spiny mussel, Atlantic pigtoe)
- Mill creek (*)
- Stony Creek (*)

Mountain Valley conducted freshwater mussel surveys during the 2015 and 2016 sampling seasons in Craig Creek, Mill Creek, and Stony Creek, Virginia (*). These survey reports did not document the presence of any federally sensitive freshwater mussels (DEIS p. 424).

The USFWS noted crossing of Craig Creek and other streams within the Craig Creek watershed would require formal consultation under Section 7 of the ESA between USFWS and FERC. As currently designed, the proposed crossing method for these three streams is open cutdry ditch (Biological Assessment p. 26).

Mountain Valley surveyed additional Virginia streams with drainages greater than 13 square kilometers (5 mi²) for the presence of freshwater mussels or assessed for potentially suitable habitat from April to October 2015 and April to September 2016. Of the 23 stream crossings identified during the desktop analyses and traversed by the Project, four crossings (North Fork Roanoke River¹, Roanoke River, Pigg River, and Little Creek²) yielded live mussels and two crossings (Sinking Creek² and Blackwater River³) yielded deadshell mussels only. Mussels are assumed present at one additional stream crossing (i.e., North Fork Roanoke River AR²) based on agency correspondence. The remaining 16 stream crossings assessed or surveyed did not yield live mussels or exhibit suitable habitat; therefore, no additional mussel-related surveys are proposed at these 16 locations (Biological Assessment p. 31). MVP has requested formal Section 7 consultation with the USFWS (DEIS p. 424).

Summary: We understand that the preferred alignment continues to be refined by MVP. We will continue to review new project materials as they arrive and provide subsequent comments to FERC, as appropriate.

We continue to recommend that if any instream work is proposed in streams known to support listed mussels or their perennial tributaries, a mussel survey and relocation be performed from 100 meters upstream through 400 meters downstream of impact areas. This survey should be performed by a qualified, permitted biologist, preferably no more than six months prior to the start of construction. All survey and relocation activities should adhere to the enclosed draft guidance. Any relocations should be coordinated with Brian Watson, VDGIF Region II Aquatic Resources Biologist at (434)-525-7522, and no federally listed species should be relocated without first coordinating with the U.S. Fish and Wildlife Service [USFWS (804- 693-6694)]. In addition, we recommend a time of year restriction on all instream work from May 15 through July 31 of any year in waters known to or anticipated to support Atlantic pigtoes, from March 15 through May 31 and August 15 through October 15 of any year for waters known to or anticipated to support dwarf wedgemussels, and from April 15 through June 15 and August 15 through September 30 of any year for waters known to or anticipate to support green floaters. Survey results should be made available to Ernie Aschenbach in VDGIF's Richmond office at (804) 367-2733, Ernie.Aschenbach@dgif.virginia.gov ; and Brian Watson in VDGIF's Forest Office at (434) 525-7522, Brian.Watson@dgif.virginia.gov. Upon review of the results, we will make final recommendations regarding the protection of listed species known from the area.

If the applicant prefers, they may provide us with good, representative photographs of the impact area(s) for our review. The photos should clearly depict the size of the stream, the substrate type, and the banks up and downstream of the site. Upon review of the photos, we may be able to rule out the need for a mussel survey based on the habitat available on site. In addition, we recommend coordination with the U.S. Fish and Wildlife Service.

Birds:

The peregrine falcon and loggerhead shrike are two state Threatened species known from the project area. Potentially suitable habitat for both is present within two miles of the limits of disturbance. Mountain Valley environmental agents have been in contact with DGIF Avian Biologist, Sergio Harding for guidance pertaining assessing potentially suitable habitat and surveys for loggerhead shrikes within the project study corridor, and falcon nest sites known from the

project region. We have these recommendations for minimizing potential impacts to listed birds, eagles, and migratory birds in general.

The Migratory Bird Conservation Plan for Mountain Valley Pipeline Project in Virginia and West Virginia places emphasis on evaluation of potential Project impacts on migratory birds of conservation concern (BCC). These were drawn from Bird Conservation Region (BCR) lists for Appalachian Mountains and Piedmont and through consultation with state natural resource agencies. During our preliminary coordination, emphasis was placed on the state Threatened loggerhead shrike as a state-listed species in our communications with the consultant. The 'plan is drawing from BCR lists (at least one of which (Appalachians) is out-of-date and in the process of being revised).

We recommend the Migratory Bird Conservation Plan for Mountain Valley Pipeline Project be updated, and the Final Environmental Impact Statement include an updated analysis, substituting the top 2 tiers of DGIF Species of Greatest Conservation Need (SGCN) found in DGIF's Wildlife Action Plan for selection of priority species for this project. While the BCCs summarized in the 'plan (Table 4, pp. 41-42) capture some of the Tier I and II avian SGCN with which we are concerned, American Woodcock was excluded from the list and should be included. Further, we recommend the 'plan place greater emphasis on the following species:

- Golden-winged warbler – records in vicinity of project area
- Cerulean warbler – records in vicinity of project area
- Swainson's warbler - listed in Table 4 as occurring within project area only in WV – we recommend adding Virginia. It is possible that it may occur within the pipeline area west of the Blue Ridge.
- Black-billed cuckoo – records in vicinity of project area
- Northern saw-whet owl – records in vicinity of project area
- Loggerhead shrike – we continue to coordinate with the consultant on this species, see below.
- Peregrine falcon - we continue to coordinate with the consultant on this species, see below.

The 'plan addresses Loggerhead Shrike Avoidance and Minimization (pp. 26-27). The plan mentions that vegetation clearing is anticipated to be performed outside the protective Time of Year Restriction for loggerhead shrike (e.g., TOYR = no tree clearing from 1-April through 31-June of any given year). According to the plan, if vegetation clearing cannot be done prior to the nesting season, a series of occupancy surveys will be performed during the nesting season, within a short time of clearing and construction. Fenced buffers surrounding the nest are proposed, and work in these areas would resume after the nestlings have fledged.

We understand the need for flexibility due to unforeseen construction scheduling changes or land access challenges. We support performing all tree clearing outside the customary TOYR for this species, as proposed. However, we request clarification of the timing and methodology of nest occupancy surveys proposed for situations when clearing cannot be completed prior to nesting season. Until this can be clarified to our satisfaction, we recommend that all construction activities, including but not limited to vegetation clearing, not take place during the customary TOYR within

suitable loggerhead shrike habitat. We recommend coordination with DGIF prior to all occupancy surveys to ensure surveys will be conducted according to DGIF protocols. Since the proposed route continues to be refined, we recommend continued coordination with us regarding assessments of potentially suitable habitat for this species.

The proposed pipeline is approximately 2 miles from Barney's Wall in Giles County, near Mountain Lake, a known peregrine falcon nesting cliff. The site has not been surveyed in over a decade; thus, whether or not it has been recently occupied by nesting falcons is not known. Cliffs suitable for peregrine falcon nesting are present at different points along the New River within 2 miles of the project. As communicated to the consultant, the most recent surveys, conducted in 2016, did not detect peregrines. However, not all suitable cliffs were surveyed in 2016, and a single bird was documented at one of the cliff sites in 2015 (surveyed again in 2016). Therefore, there is potential for peregrine falcons to nest along the New River in future years. Based on the project location relative to potential falcon nest locations, we do not anticipate operation and maintenance of the proposed pipeline to result in adverse impact to nesting falcons (e.g., nest abandonment by breeding peregrines at nest sites along the New River is not anticipated to result from operation and maintenance of the proposed pipeline). However, DGIF is concerned that loud blasting during construction could have impacts to nesting falcons, including flushing an incubating falcon from the nest, which could cause egg damage. To help minimize potential impact to nesting falcons, we recommend that prior to all blasting work, the proposed location and timing of blasting activities in Virginia be coordinated with DGIF.

Summary: In addition to the recommendations specific to avian resources above, we document bald eagle nests and golden eagles from some of the counties through which the project traverses. We recommend continued coordination with us and the U.S. Fish and Wildlife Service regarding protection of these species during project construction and long-term operation.

Reptiles:

The bog turtle (southern population) may occur along affected segments of Bottom Creek in Virginia. Bog turtles in the Appalachian Mountains (from Virginia to Georgia) are considered threatened due to similarity in appearance to the ESA-listed northern population, which ranges from western Pennsylvania up through portions of New York.

Mountain Valley conducted Phase I bog turtle habitat surveys in 2015 and 2016. The surveys completed to date indicate that there is no suitable habitat present within the MVP area. However, due to access restrictions, habitat assessments are not complete for the MVP, and Mountain Valley is continuing its surveys throughout the summer of 2016. Mountain Valley has agreed to provide the results to the FERC, USFWS, and VDGIF in the fall of 2016 (DEIS p. 425). MVP has requested formal Section 7 consultation with the USFWS (DEIS p.424).

Timber rattlesnakes occupy forests and rocky ridge tops in Virginia's mountainous regions. Therefore, we recommend consideration of possible impacts upon this native snake and its habitats resulting from construction of the Mountain Valley Pipeline. In addition, we recommend that construction workers be educated about this snake, how to avoid encounters with it, and how to address accidental encounters when they occur. These snakes should not purposefully be harmed

during any encounters. We recommend coordination with John (JD) Kleopfer, VDGIF Herpetologist at (804) 829-6703, John.Kleopfer@dgif.virginia.gov regarding such education.

Summary: We support efforts to complete the necessary surveys for this species. We will continue to review new project materials as they arrive and provide subsequent comments to FERC, as appropriate. In addition, we recommend coordination with the U.S. Fish and Wildlife Service.

Caves and karstic geologic resources:

Mountain Valley is examining route realignments that would avoid Slusser's Chapel Cave and Old Mill Cave, and is continuing to coordinate with VDGIF and the USFWS regarding potential impacts to cave resources and survey requirements for the Ellett Valley millipede a federal species of concern state Threatened species (DEIS p. 425).

- Slusser's Chappel Cave (federal species of concern state Threatened species Ellett Valley millipede)
- Old Mill Cave (federal species of concern state Threatened species Ellett Valley millipede)

Summary: We support efforts to avoid and minimize impacts to caves, karstic geology, and their associated resources. We will review new information as it becomes available and provide comments to FERC as appropriate. We recommend contacting VDCR-DNH regarding protection of karstic geologic resources. In addition, we recommend coordination with the U.S. Fish and Wildlife Service.

Mammals:

The MVP does not overlap the counties in which gray bats and Virginia big-eared bats are known or are expected to be found; and no further surveys are required for these species (DEIS p. 420).

The Indiana bat is a federally listed Endangered species, and is a state-listed Endangered species in Virginia (DEIS p. 420). The northern long-eared bat is a federally listed Threatened species, and is a state-listed Endangered species in Virginia (DEIS p. 422).

Mountain Valley would implement measures to avoid and minimize effects on Indiana and northern long-eared bats including refraining from tree clearing activities between June 1 and July 31 to minimize take of adults and non-volant young. However, loss of habitat and the clearing of maternity roosts along with general construction disturbance would affect Indiana and northern long-eared bats (DEIS p. 423). MVP has requested formal Section 7 consultation with the USFWS (DEIS p. 424).

Summary: State Endangered bats (tri-colored bat and little brown bats): Although hibernacula and roosts supporting these species have not been documented from within 2 miles of the proposed pipeline and associated facilities, we recommend consideration of impacts upon these species that may result from construction activities. We recommend close coordination with us if ongoing bat survey efforts indicate that these species may be roosting along the proposed pipeline

corridor. We recommend coordination with Rick Reynolds, VDGIF Wildlife Biologist at (540) 248-9360, Rick.Reynolds@dgif.virginia.gov for guidance.

Fisheries of Special Concern

Mountain Valley would adhere to all federal and state permit conditions regarding the minimization of impacts on fisheries of special concern including adhering to recommended work windows for in-water construction (or requesting a work-window modification, if needed). Mountain Valley would also attempt to minimize impacts on fisheries by relocating fishes from the construction areas following guidance from the VDGIF, who requested that fish be relocated during waterbody crossings in Virginia. Additionally, Mountain Valley would reduce impacts on freshwater mussels by relocating mussels in the construction zone in accordance with both West Virginia and Virginia mussel protocol documents. All fish and freshwater mussel relocations would be supervised by qualified, professional biologists in possession of pertinent federal and/or state permits. (DEIS p. 417).

Summary: We support these proposed measures.

Designated Trout Streams:

The following streams are located within the project area and have been designated as either “stockable” trout streams, indicating inclusion within our trout stocking program, or as a “wild” trout stream, those which naturally support trout (species indicated in parenthesis below). Trout, and the streams that support them, are both ecologically and economically significant resources in Virginia. The MVP would cross 12 wild trout waters and two (2) stocked trout waters (DEIS p. 411).

The MVP would cross 33 waterbodies containing fisheries of special concern; 19 in West Virginia, and 14 in Virginia. Appendix F summarizes these crossings and includes waterbody name, location, fishery of special concern, and crossing restrictions. Table 4.6.1-2 lists the dates during which in-stream construction for the MVP would be restricted for waterbodies that contain fisheries of special concern (DEIS p. 408). The project may have multiple crossings of the same stream or its tributary. The following DGIF lists show the stream name and wild trout species, once.

Wild trout streams:

- Bottom Creek & all tributaries in Roanoke and Montgomery Counties (brook trout)
- Little Stony Creek in Giles County (brook & rainbow trout)
- Green Creek in Franklin County (brown trout)
- Mill Creek (brown trout)

To best protect these valuable wild trout resources, we recommend that all instream work within these waters and/or their tributaries adhere to a time of year restriction from October 1 through March 31 of any year in waters known to support brook trout and/or brown trout and from March 15 through May 15 of any year in waters known to support rainbow trout.

Stockable trout streams:

- Little Stony Creek in Giles County

Summary: To ensure avoidance of stocking and/or angling activities during project construction and long-term operation, we recommend coordination with Bill Kittrell, VDGIF Region III Aquatic Biologist Manager at (276) 783-4860, Bill.Kittrell@dgif.virginia.gov; or Scott Smith, VDGIF Region II Aquatic Biologist Manager at (434) 525-7522, Scott.Smith@dgif.virginia.gov.

Anadromous Fish Use Areas:

Anadromous Fishes and the waters that support them are both ecologically and economically significant resources in Virginia. There are no streams located within the project area designated as confirmed or potential Anadromous Fish Use Areas.

Coastal Zone Management Areas:

The MVP project is not located in any Coastal Zone Management Areas. (DEIS, p. 464).

Entire pipeline and lateral corridors:

In addition to the listed species and wildlife resources mentioned above, a number of species included as species of greatest conservation need in Virginia's Wildlife Action Plan are likely to occur, if suitable habitat exists, in and around the project area. We recommend that the Virginia Wildlife Action Plan (available through www.bewildvirginia.org) be reviewed to determine what threats are known to these species, what suitable habitat for these species consists of and how to best protect them and their habitats from harm.

We recommend conducting any in-stream activities, whether resulting in permanent or temporary impacts, during low or no-flow conditions, using non-erodible cofferdams or turbidity curtains to isolate the construction area, blocking no more than 50% of the streamflow at any given time, stockpiling excavated material in a manner that prevents reentry into the stream, restoring original streambed and streambank contours, revegetating barren areas with native vegetation, and implementing strict erosion and sediment control measures. To minimize harm to the aquatic environment and its residents resulting from use of the Tremie method to install concrete, installation of grout bags, and traditional pouring of concrete, we recommend that such activities occur only in the dry, allowing all concrete to harden and cure prior to contact with open water. Due to future maintenance costs associated with culverts, and the loss of riparian and aquatic habitat, we prefer stream crossings be constructed via clear-span bridges. However, if this is not possible, we recommend countersinking any culverts below the streambed at least 6 inches, or the use of bottomless culverts, to allow passage of aquatic organisms. We also recommend the installation of floodplain culverts to carry bankfull discharges.

In many instances, we support use of directional drill, aerial crossing, or other methods that avoid impacts upon streams, wetlands, and other unique natural resources. We understand, however, that such methods are not practicable in every situation. Due to recent examples of frac-outs leading to bentonite mud spills resulting from the directional drill method, we recommend that geotechnical analysis of all proposed sites for directional drills be performed and closely reviewed to ensure that the sites are suited for such a crossing method. Depending on the sensitivity of any given stream, we may prefer trenched crossings that adhere to our instream work recommendations or any recommendations made for the protection of listed species and/or designated wildlife resources. If a

directional drill is the chosen method, we recommend that a contingency/clean-up plan be developed to address frac-outs and/or spills in the case that they happen.

So that we may make clear recommendations, as appropriate, about any given stream or wetland crossing, we recommend that you provide to us for review a "stream/wetland crossing table" that includes the following information:

1. lat/long coordinates for each crossing site
2. name of stream being crossed
3. type of stream being crossed (perennial, intermittent)
4. description of the substrate in the stream at each crossing
5. depth and width of stream at crossing
6. pictures of each crossing site (including up and downstream photos)
7. a map depicting each crossing site and that is referenced to the stream crossing table

To minimize the adverse impacts of linear utility project development on wildlife resources, we offer the following general recommendations: avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable; maintain naturally vegetated buffers of at least 100 feet in width around wetlands and on both sides of perennial and intermittent streams, where practicable; conduct significant tree removal and ground clearing activities outside of the primary songbird nesting season of March 15 through August 15; and, implement and maintain appropriate erosion and sediment controls throughout project construction and site restoration. We understand that adherence to these general recommendations may be infeasible in some situations. We are happy to work with the applicant to develop project-specific measures as necessary to minimize project impacts upon the Commonwealth's wildlife resources.

This project is located within 2 miles of a documented occurrence of a state or federal threatened or endangered plant or insect species and/or other Natural Heritage coordination species. Therefore, we recommend coordination with VDCR-DNH regarding the protection of these resources. Further, we recommend coordination with the U.S. Fish and Wildlife to ensure protection of federally-listed species known from the project area.

It is clear, simply based on the project scope, that significant linear footage of forested habitat will be lost to early successional habitat. Although conversion from forested habitat to early successional habitat is not inherently harmful to wildlife, it does require perpetual maintenance and is likely to result in significant forest fragmentation across the Commonwealth. Forest fragmentation results in loss of interior forested habitat, allows invasive species to colonize, and introduces new predator/prey relationships along the corridor and within adjacent habitats. We urge the applicant to consider these long-term impacts and to minimize them to the greatest extent possible by co-locating the pipeline within already-disturbed utility corridors and early successional habitats. We also recommend that the applicant work with the Virginia Department of Forestry to evaluate forest loss along the project corridor and how best to avoid, minimize, and mitigate that loss, as appropriate.

According to the Draft EIS, (DEIS p. 386), Mountain Valley has developed an Exotic and Invasive Species Control Plan. However, this portion of the DEIS emphasizes nonnative and

invasive plants. We strongly recommend the Final EIS include a more robust and comprehensive invasive species control plan that fully addresses decontamination of construction machinery used during stream crossings & disinfection of personal gear worn by workers (e.g., boots, waders, etc.) to ensure that aquatic invasive species known from West Virginia are contained (e.g., zebra mussels, dydimio, hydrilla, etc.) and are prevented from spreading into Virginia waters. We recommend the applicant contact Ray Fernald, DGIF Environmental Programs Manager (& Chair, Mid-Atlantic Panel on Aquatic Invasive Species) at (804) 367-8364, Ray.Fernald@dgif.virginia.gov for guidance

Thank you for the opportunity to provide input on the proposed natural gas pipeline project. We look forward to receiving updated project maps, project documents, and permit applications, when available. Upon receipt of such information, we will provide additional comments and recommendations, as needed. We will continue to monitor this preliminary proposal and provide agency comments within the FERC process. Please contact me or Ernie Aschenbach at (804) 367-2733, Ernie.Aschenbach@dgif.virginia.gov, if we may be of further assistance.

Sincerely,



Raymond T. Fernald, Manager
Environmental Programs

EFA/RTF

CC: Tom Smith, DCR-DNH
Troy Anderson, USFWS



FRESHWATER MUSSEL GUIDELINES FOR VIRGINIA

Virginia Field Office
U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, VA 23061
804-693-6694

Virginia Dept. of Game and Inland Fisheries
4010 West Broad Street
P.O. Box 11104
Richmond, VA 23230
804-367-1000

Last Updated: 6-22-15

DRAFT

LIST OF ENCLOSURES

- 1 - Federal and State-Listed Species in Virginia
- 2 - Mussel Survey and Relocation Guidelines in Virginia
- 3 - Surveyor List for Atlantic Slope Mussels in Virginia
- 4 - Surveyor List for Upper Tennessee River Basin Mussels in Virginia
- 5 - Time of Year Restrictions (See Freshwater Mollusks)
- 6 - Map of Federally-Designated Critical Habitat for Mussels in Virginia

INTRODUCTION

These guidelines are for project applicants and consultants planning certain activities that will impact rivers, streams, creeks, or other waterways in Virginia. The guidelines provide recommendations for conducting freshwater mussel surveys and relocations for small construction projects of short duration involving non-point pollution sources and affecting no more than 100 linear feet of waterway. Larger projects that impact waters containing State or federally listed mussels may require additional coordination or permits from the Virginia Department of Game and Inland Fisheries (VDGIF) and/or the U.S. Fish and Wildlife Service (FWS). Coordination with these agencies should always be initiated to ensure compliance with Federal and State laws.

FWS is responsible for the conservation and management of *federally* listed freshwater mussel species. VDGIF is responsible for the conservation and management of *all* freshwater mussel species throughout Virginia. If it is known that federally listed species or critical habitat (Enclosure 6) are not present within a two-mile radius of a given site, coordination with VDGIF, but not FWS, is still necessary.

GENERAL LIFE HISTORY

Freshwater mussels are often prominent in benthic stream communities where, for the most part, they are sedentary filter-feeders consuming a major portion of the suspended particulate matter. Therefore, mussel beds act as biological filters by removing inorganic and organic material from

the water column while improving water quality downstream. Individuals are typically long-lived, with particular species living for more than 50 years, while some individuals may live for more than 130 years. Because these mussels are long-lived, sedentary filter-feeders, they are prominent indicators of water quality. Freshwater mussels also serve as an important dietary component to a variety of animals, including muskrats, otters, raccoons, and some fishes.

During spawning, male mussels release sperm into the water column that females take in through their gills. The resulting larvae (known as glochidia) may be released by the female into the water column or packaged to attract fish. These larvae must attach to a fish host to survive. While attached to the gills of the fish host, development of the glochidia begins. Once metamorphosis is complete, the juvenile mussel drops off the fish host and continues to develop on the stream bottom.

Freshwater mussels are generally divided into two reproductive categories known as short-term (tachytictic) or long-term brooders (bradytictic). Short-term brooders usually spawn and release glochidia during May through July in Virginia. Long-term brooders usually spawn from August through September and release glochidia the following April through June.

SURVEYS AND RELOCATIONS

Enclosure 1 is a list of federally endangered, threatened, and candidate mussels and State endangered and threatened mussels. If a project occurs in an area that may contain suitable habitat for one of these species, FWS and/or VDGIF may recommend a survey. To determine which waterways may contain suitable habitat for State or federally-listed species, contact VDGIF for guidance (804-367-2211 or 2733). Applicants should contact FWS and VDGIF early in the planning process to determine whether federally or State-listed species or critical habitat may be impacted by the project. The effects of a project may include direct impacts from construction activities as well as downstream impacts from sedimentation and effluent discharges. If mussels were found during any previous survey/s, however old, coordination with VDGIF and FWS (where applicable) will be required. Surveys where mussels are not found (negative surveys) are typically valid for two years, after which another survey should be performed. Guidelines for freshwater mussel surveys and relocations are found in Enclosure 2. Surveyor lists are included in Enclosures 3 and 4. If listed mussels are found in or downstream of a project area, VDGIF and/or FWS are likely to recommend time of year or other restrictions to reduce impact to the mussels. Time of year restrictions are listed in Enclosure 5. If FWS determines that the project “may affect” a federally listed species or critical habitat, consultation with FWS will be required.

LAWS AND REGULATIONS PROTECTING MUSSELS

Federal Endangered Species Act (ESA) (87 Stat. 884; 16 U.S.C. 1531 et seq.; 50 CFR Part 17) Section 7(a)(2) requires Federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any federally listed threatened or endangered species, or result in the destruction or adverse modification of critical habitat. The regulations implementing this Act (50 CFR 402) require the Federal agency to review its actions

at the earliest possible time to determine whether its actions may affect listed species or critical habitat. If a Federal agency determines that its action “may affect” a listed threatened or endangered species or critical habitat, the agency is required to consult with FWS regarding the degree of impact and measures available to avoid or minimize the adverse effects.

Section 9 of the ESA makes it illegal for any person subject to the jurisdiction of the United States to “take” any federally listed endangered or threatened species of fish or wildlife without a special exemption. “Person” is defined under the ESA to include individuals, corporations, partnerships, trusts, associations, or any other private entity; local, State, and Federal agencies; or any other entity subject to the jurisdiction of the United States. Under the ESA, “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering.

Section 10 establishes an incidental take permit provision for private entities that includes the development of habitat conservation plans. This provision authorizes FWS, under some circumstances, to permit the taking of federally listed fish and wildlife if such taking is “incidental to, and not the purpose of carrying out otherwise lawful activities.” This process is also intended to be used to reduce conflicts between listed species and private development and to provide a framework that would encourage “creative partnerships” between the private sector and local, state, and Federal agencies in the interest of endangered and threatened species and habitat conservation. When approved by FWS, this regulatory procedure results in the issuance of a permit authorizing incidental take, provided such take is mitigated by appropriate conservation measures for habitat maintenance, enhancement, and protection, coincident with development.

Virginia Endangered Species Act (29.1-563 - 29.1-570) - This law provides that VDGIF is the state regulatory authority over federally or state listed endangered or threatened fish and wildlife in the Commonwealth, defining *fish or wildlife* as “. . . any member of the animal kingdom, vertebrate or invertebrate, except for the class *Insecta*, and includes any part, products, egg, or the dead body or parts thereof.” It prohibits the taking, transportation, processing, sale, or offer for sale within the Commonwealth of any fish or wildlife listed as a federally endangered or threatened species, except as permitted by the Board of Game and Inland Fisheries for zoological, educational, scientific, or captive propagation for preservation purposes. State-listed species are provided the same protection per VDGIF Regulation 4 VAC 15-20-130.

The law further authorizes the Board of the Virginia Department of Game and Inland Fisheries to adopt the Federal list of endangered and threatened species, to declare by regulation that species not listed by the Federal government are endangered or threatened in Virginia, and to prohibit by regulation the taking, transportation, processing, sale, or offer for sale of those species. Implementing regulations pursuant to this authority (4 VAC 15-20-130 through 140) further

define “take” and other terms similarly to the Federal ESA.

Federal Endangered Species Act Cooperative Agreement - Federally listed species are also protected under VDGIF jurisdiction via a cooperative agreement signed in 1976 with FWS pursuant to Section 6 of the ESA. This Cooperative Agreement recognizes VDGIF as the Virginia agency with regulatory and management authority in Virginia over federally listed or threatened animals, excluding insects, and provides for Federal/State cooperation regarding the protection and management of those species.

Enclosure 1: Federal and State Listed Mussel Species in Virginia

U.S. Fish and Wildlife Service: Environmental Conservation Online System (ECOS)
(<http://ecos.fws.gov/ecp/>)

Virginia Department of Game and Inland Fisheries: Special Legal Status Faunal Species in Virginia
(<http://www.dgif.virginia.gov/wildlife/virginiatescspecies.pdf>)

Enclosure 2: Mussel Survey and Relocation Guidelines in Virginia

There are four general assessment/survey types including:

- A. **Land-based review** - land-based site visit used to determine whether a water-based survey (site assessment, abbreviated, or full survey) is warranted. During a land-based review, the surveyor should look for obvious signs that would negate the need for additional, water-based surveys. For example, if it can be determined that the water body is non-perennial and/or contains no potential mussel habitat, it is unlikely that additional surveys would be needed or recommended by VDGIF or FWS. If it is determined that suitable habitat is present, the appropriate survey will be recommended. Photographs of the project site clearly showing instream habitat conditions, as well as a thorough site description, should be sent to VDGIF and FWS for review in lieu of the site assessment. If it is determined that suitable habitat is present, the appropriate survey will be recommended.
- B. **Site assessment** - 20 m upstream / 80 m downstream. A site assessment is recommended to determine if suitable habitat is present at a project location and may be recommended if the presence of a listed species is questionable. If suitable habitat is present, the appropriate survey will be recommended even in the absence of mussels, since the site assessment does not serve as a substitute for a mussel survey; however, the presence of freshwater mussels should be documented during the assessment.
- C. **Abbreviated survey** - 100 m upstream / 400 m downstream of project footprint.
- D. **Full survey** - 200 m upstream / 800 m downstream of project footprint.

The assessment/survey type is based on the scope of the project, potential impacts, and known species distributions. Survey lengths are measured from the project footprint. *Survey distances have primarily been developed for projects where physical alteration/disturbance of the stream is the primary impact (e.g., bridge repair/replacement, utility line crossings, etc.). Potential impacts from projects involving activities such as point and non-point source discharges, water intakes, and mining may require greater survey lengths and different methods.*

Project applicants should contract with a qualified mussel surveyor. Enclosures 3 and 4 provide a list of pre-approved mussel surveyors. If a pre-approved surveyor is not selected, please provide the proposed surveyor's qualifications and proposed survey design to FWS and VDGIF a minimum of 30 days prior to survey initiation. Individuals who take federally listed threatened

and endangered animals must obtain a permit from VDGIF, prior to surveying. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Contact information follows:

Ms. Shirl Dressler
Virginia Department of Game and Inland Fisheries
4010 W. Broad Street
P.O. Box 11104
Richmond, Virginia 23230-1104
Phone: (804) 367-6913
CollectionPermits@dgif.virginia.gov

A plan for mussel relocations, including initial surveys, must be presented to VDGIF and FWS (where applicable) for comment and approval prior to initiation of construction. Failure to provide a mussel relocation and/or survey plan may affect review and permitting of the project by VDGIF and FWS.

The recommended time of year to conduct mussel surveys and relocations is April 1 through October 31. Surveying during the cooler months is discouraged because mussels tend to be located deeper in the substrate and a greater percentage of the population is subsurface, therefore making them more difficult to find, particularly rare species. A more specific time frame may be recommended depending on the target species. A survey conducted outside this time frame requires VDGIF and Service (where applicable) approval.

Guidelines if federally-listed mussels are not present

During the initial survey, mussel species within the direct project footprint or within imminent danger from project impacts may be relocated to suitable habitat unless otherwise directed by VDGIF. Suitable habitat typically includes an area upstream of project impacts and which also harbors freshwater mussels. If such an area cannot be found, the surveyor should determine the location of most suitable habitat. The direct project footprint shall be defined as the area of potentially disturbed substrate, any zone of heavy equipment operation, plus the distance downstream that may experience significant sedimentation from construction. If not determined prior to the relocation, the surveyor is responsible for determining the most suitable relocation area. All relocated mussels must be at least partially placed in the substrate, anterior end down. Project applicants may be required to monitor relocated mussels to determine relocation success/failure.

Standard mussel relocation protocols are outlined below. These protocols may vary based on factors such as the scope of the project and the results of the initial mussel survey. If the relocation protocols vary, VDGIF will clearly outline the appropriate protocols with the project applicant. It is the project applicant's responsibility to ensure that the proper relocation protocols are used and that the contracted mussel surveyor is aware of any modifications to the standard protocols.

The reach from which mussels are to be relocated will be at least 100 m long including the

project footprint. The standard protocol is as follows:

- The 1st relocation survey must occur within 30-45 days of instream construction activities and at least 7 days prior to the 2nd relocation survey.
- The 2nd relocation survey must occur within 30 days of instream construction activities and at least 7 days after the 1st relocation survey.
- All relocation surveys must include at a minimum, two passes. The target relocation percentage of the initial number of mussels collected is 80%. If on the 2nd pass, more than 20% of the initial number of mussels is collected, continued passes must be conducted until no more than 20% of the initial number of mussels is collected on the final pass. The target relocation percentage may be adjusted higher or lower depending on the species and numbers collected during the initial survey.
- If a state-listed species is found, continued passes must be conducted until no listed species are found on the final pass. If repeated passes result in continual collection of state-listed species, modification of the survey techniques may be required.

If relocation surveys are not possible due to natural conditions such as high water, contact VDGIF to arrange contingency plans.

The location of all relocated mussels must be accurately documented (preferably with geographic coordinates) and reported to VDGIF. All state-listed mussel species must be tagged and measured for potential future monitoring.

Project applicants may be required to adhere to time of year restrictions for mussel relocations as directed by VDGIF. If this is the case, for the long-term brooders, relocations can occur from June 16 through August 14 and October 1 through October 31. For short-term brooders, relocations can occur from April 1 through May 14 and August 1 through October 31.

All mussel survey and relocation results, including tag and measurement data, must be submitted to VDGIF for review, prior to instream construction activities. Reviews will be expedited due to the potential short timeframe between surveys and/or relocations and the start of instream work. Reports must contain, at a minimum, number of species found, number of individuals per species and their sizes, and number of individuals tagged.

Guidelines if federally-listed mussel species are present

Federally-listed mussels must *not* be relocated during the initial survey. If federally-listed mussels are found, they must remain exactly where found and all specimens should be photo documented, if possible. Coordination with FWS and VDGIF must occur to determine future actions.

If it is determined that a project may affect a federally-listed species, FWS will complete a consultation with the Federal action agency and prepare a biological opinion in accordance with the Federal Endangered Species Act. The relocation procedures for federally listed mussels will be specified in FWS's biological opinion and will be determined on a project-specific basis.

If relocation surveys are not possible due to conditions such as high water, contact FWS and VDGIF to arrange contingency plans. All listed mussels must be moved to suitable habitat upstream of any potential project impacts. Mussels may be relocated downstream if habitat upstream is determined unsuitable by VDGIF and FWS. If not determined prior to the relocation, the surveyor is responsible for determining the most suitable relocation area. All relocated mussels must be at least partially placed in the substrate, anterior end down. Project applicants may be required to monitor relocated mussels to determine relocation success/failure.

The location of all relocated federally-listed mussels must be accurately documented (preferably with geographic coordinates) and reported to FWS and VDGIF. All federally-listed mussel species also must be tagged and measured for potential future monitoring.

All mussel survey and relocation results must be submitted to FWS and VDGIF for review, prior to instream construction activities. Reviews will be expedited due to the potential short timeframe between surveys and/or relocations and the start of instream work. Reports must contain, at a minimum; number of species found, number of individuals per species and their sizes, number of individuals tagged, etc.

Project applicants may be required to adhere to time of year restrictions (Enclosure 5) for mussel relocations as recommended by FWS and VDGIF. Time of year restrictions will be specified in a letter or in FWS's biological opinion.

Enclosure 3: Surveyor List for Atlantic Slope Mussels in Virginia

Approved Surveyors in Virginia for Atlantic Slope Freshwater Mussels

(http://www.fws.gov/northeast/virginiafield/pdf/endspecies/Surveyor_Lists/PDF%20Format/SURVEYOR%20LIST%20-%20Atlantic%20Slope%20Mussels.pdf)

Enclosure 4: Surveyor List for Upper Tennessee River Basin Mussels in Virginia

Approved Surveyors in Virginia for Tennessee River Drainage Freshwater Mussels

(http://www.fws.gov/northeast/virginiafield/pdf/endspecies/Surveyor_Lists/PDF%20Format/SURVEYOR%20LIST%20-%20TN%20Drainage%20Mussels.pdf)

Enclosure 5: Time of Year Restrictions

Virginia Department of Game and Inland Fisheries Time of Year Restrictions (TOYR) Table

(<http://www.dgif.virginia.gov/environmental-programs/files/VDGIF-Time-of-Year-Restrictions-Table.pdf>)

Enclosure 6 - Federally-Designated Critical Habitat for Mussels in Virginia

Map of Federally-Designated Critical Habitat in Virginia

(<http://fws.maps.arcgis.com/apps/Viewer/index.html?appid=f6e84e675ba1461b8ae6a351adea1429>)