



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

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**Oral Comments from the U.S. Fish and Wildlife Service, Northeast Region  
Presented to the U.S. Environmental Protection Agency Science Advisory Board for  
Research on Hydraulic Fracturing and Water Resources  
April 7, 2010**

My name is Keith Hastic, and I am the Energy Coordinator for the Northeast Region of the U.S. Fish and Wildlife Service. I am providing comments on behalf of our Regional Director, Marvin Moriarty. Our region includes the States from Maine to West Virginia, several of which overlie the Marcellus Shale formation. This formation is rapidly being developed for natural gas extraction with the use of directional drilling and hydraulic fracturing.

The mission of the U.S. Fish and Wildlife Service (Service) is to conserve, protect, and enhance fish and wildlife and their habitats for the benefit of present and future generations. We do this by protecting and restoring important habitat, safeguarding endangered species, minimizing environmental contamination, restoring fish populations, and enforcing Federal wildlife laws.

In order for the Service to effectively fulfill these mandates in areas where hydraulic fracturing is being used or contemplated, we recommend the research plan currently under development include thorough analyses of the potential direct, indirect, and cumulative effects of hydraulic fracturing on the aquatic environment. We make this recommendation in light of our obligations under the Fish and Wildlife Coordination Act and the Endangered Species Act.

The streams, rivers, and wetlands over the Marcellus Shale formation provide habitat for ten species of federally protected freshwater mussels, four species of protected fish, one federally protected turtle, and one protected salamander. These waters also support numerous other state-protected species, species of concern, sport fishes, migratory birds, and other wildlife species.

Ultimately, the Service is concerned with healthy ecosystems, which are the foundation for healthy drinking water resources.

In order to accurately assess the risk of hydraulic fracturing to our water resources, the risk to aquatic species and environments must be considered. Therefore, we believe the research plan being developed should address the following information needs:

1. Characterization of the various chemicals and chemical formulations used in the drilling and hydraulic fracturing operations. This characterization should include chemical properties, quantities used, their environmental fate and transport, the identification and characterization of their degradation products, and the potential ecological toxicity of the individual chemicals and the mixtures of these chemicals as employed.

2. Characterization of the produced water, including its chemical and physical properties, the quantities produced, and its potential ecological toxicity.
3. Assessment of the use, on-site storage, transport, and disposal practices for hydraulic fracturing chemicals and waste liquids and the potential for their release to the environment.
4. Characterization and potential ecological toxicity of the effluent and biosolids from wastewater treatment plants that process waste liquids from hydraulic fracturing operations.
5. Assessment of the ecological effects of surface water withdrawals for well development and hydraulic fracturing. Factors to consider include watershed size, low flow periods, the presence of sensitive aquatic species, and cumulative effects. The study should also examine the effects of water withdrawals on the assimilative capacity of water bodies in relation to other point and non-point pollution sources.
6. Assessment of groundwater and surface water interconnectivity issues. This assessment should include the potential for contaminant migration and the potential alteration of hydrology caused by water withdrawals or subsurface disturbance.
7. Assessment of the potential introduction and spread of invasive aquatic species as a result of the movement of water tank trucks and other equipment associated with hydraulic fracturing operations.
8. Assessment of the local and cumulative effects to water quality caused by infrastructure construction (well pads, roads, pipelines, wastewater holding and treatment facilities, etc.) associated with hydraulic fracturing techniques.

Because natural gas drilling operations in the Marcellus Shale formation presents a high potential for degrading the region's water resources and potentially causing the "take" of federally protected species, the Northeast Region of the Service encourages a comprehensive examination of the environmental risks of hydraulic fracturing.

We appreciate this opportunity to comment and look forward to working with the U.S. Environmental Protection Agency and other stakeholders as we continue to address this issue.