



U.S. Fish and Wildlife Service Responds to Coal Ash Release to the Dan River in North Carolina and Virginia

U.S. Fish & Wildlife Service
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What is the U.S. Fish and Wildlife Service's role?

The Service is a supporting agency to the U.S. Environmental Protection Agency Federal On-Scene Coordinator. We are providing technical assistance, primarily regarding natural resources at risk. In the incident command structure for this event, we are working most closely with the Environmental Branch, and we have had contaminants specialists, endangered species biologists, and GIS / mapping experts on site to help.

What are the concerns regarding fish and wildlife?

Our initial concern is the physical burying of the stream-bottom habitat that is important for fish, mussels and other aquatic life. The ash can coat the bottom, burying animals and their food. There may also be longer-term toxicological impacts to aquatic animals and birds from metals of elevated concentrations in ash.

What resources are at risk?

In addition to common aquatic species, there are two federally listed endangered species, the Roanoke logperch (*Percina rex*) and the James spiny mussel (*Pleurobema collina*) in the Dan River system in North Carolina and Virginia. The Dan River system supports another freshwater mussel species, the green floater (*Lasmigona subviridis*), which the Service is currently evaluating to determine if it warrants protection under



On February 2, between 50,000 and 82,000 tons of coal ash and 27 million gallons of ash pond water waste were released at Duke Energy's Dan River Steam Station (pictured above) north of Eden, N.C.; USFWS/Steven Alexander

the federal Endangered Species Act. Records for all three of these species are found upstream and downstream of the area affected by the Dan River Steam Station coal ash spill.



An endangered Roanoke logperch; Conservation Fisheries, Inc.

The Roanoke logperch is a relatively small fish, attaining a length of 5 to 5.5 inches. It lives on the stream bottom and finds insect larvae for food by flipping over stones with its snout. Because of this feeding behavior, this fish relies on loosely embedded, silt-free, gravelly stream substrates. It is found in the Chowan River basin in Virginia and the Roanoke River basin in Virginia and North Carolina.

The James spiny mussel is one of only three species of freshwater mussels in the U.S. that has spines on its shell. An adult is about three inches in length. It feeds on bacteria, algae, and other small food items which it filters from the water column, thereby helping to clean the stream water. Like most of our native freshwater mussels, the James spiny mussel requires certain species fish to reproduce. The female mussel releases



James spiny mussels; Virginia Department of Game and Inland Fisheries.



The Dan River bank with residual dark grey coal ash, USFWS/Steven Alexander.

larval mussels, called glochidia, into the water column. The glochidia must come in contact with specific species of fish, and if they encounter these species they attach to the fishes' gills and draw nourishment from the fish. After developing into juvenile mussels, they detach from the fish and drift to the stream bottom, where they will develop into adults if they land in a suitable substrate. Survival of the James spiny mussel is linked to the habitat and environmental quality requirements of its host fish species. The James spiny mussel is typically found in coarse sand and small gravel substrates, often interspersed between cobble and boulders, which help provide a hydraulic refuge. Like the Roanoke logperch, the James spiny mussel does not do well in silty substrates. It is found in the Dan River basin in North Carolina and Virginia, and the upper James River basin in Virginia and West Virginia.

Like the James spiny mussel, the green floater is a relatively small species, reaching around 2.5 inches in length. It also is typically found in relatively silt-free, sandy, gravelly substrates. Unlike the majority of our native freshwater mussels, there is some evidence that the green floater may not require a fish host to reproduce. It is currently known from scattered locations from the Hudson River system, New York, to the Savannah River system in South Carolina.

What have you observed regarding impacts?

A detailed assessment of fish and wildlife impacts has not been completed but will start now that the release is under control. We have had field crews on the water, and they have not reported any



A concrete pipe below this coal ash impoundment failed, releasing coal ash and ash pond water into the Dan River. Credit; USFWS/Steven Alexander.

sick or dead fish or wildlife. Earlier in the week, just after the spill, the water was extremely cloudy, so our observations were restricted to the water's surface and river banks. Looking at the surface water quality data collected by others, we noted exceedence of the state water quality standard for turbidity (a measure of light scattering which indicates how clear or cloudy the water is) in most samples during the first two days; we have not evaluated the data for later days yet. On Saturday, we were able to assess shoreline and sandbars between the site of the release and the Route 700 bridge. We noted ash accumulation on the shorelines and sandbars in many areas; we saw minor accumulation in many areas and up to about 5.5 inches of ash or ash-sand mix in other areas. More detailed assessments will follow when the emergency response phase is over.

What has the Service done so far?

We have coordinated with state and federal biologists in North Carolina and Virginia to synthesize information on the locations of rare species and other resources at risk. We have coordinated with biologists and toxicologists familiar with coal ash to focus response and assessment efforts. Some of that includes suggestions for sample collection methods to document habitat impacts (e.g.,

sampling throughout the water column in addition to the surface) – sampling now in progress. We have been in the field for a preliminary reconnaissance of Dan River conditions between the ash spill site and South Boston, Virginia. We have worked with the incident command on emergency endangered species consultations – expediting any response actions proposed by Duke-Energy and EPA. We have begun impact assessment discussions with Duke-Energy.

What is the Service planning to do?

We will continue to provide fish and wildlife expertise during the emergency response and remedial phases. We will work with others to determine the impacts of the spill, short-term and longer-term, on fish, wildlife and their habitat. We will be assessing conditions at the stream substrate where some of the sensitive resources reside and where the ash has been observed to accumulate.

For more information, please contact

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Green floaters from the Dan River system; NC Wildlife Resources Commission.