TINKER CREEK CHEMICAL SPILL NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION (NRDAR) CASE: A SUMMARY

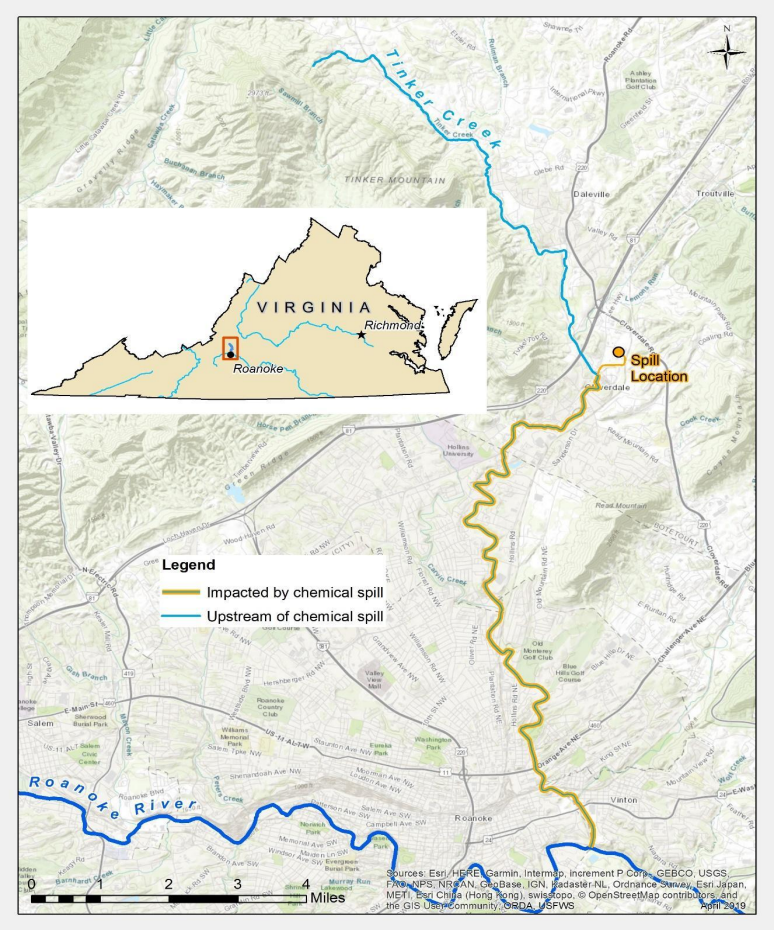
TINKER CREEK CHEMICAL SPILL NRDAR CASE

On July 29, 2017, approximately 165 gallons of an agricultural-use chemical (Termix 5301) leaked from a container at the facility of Nutrien Ag Solutions (formerly Crop Production Services) into Tinker Creek near Cloverdale, VA

- Impacted an 11-mile reach of Tinker Creek in Botetourt and Roanoke counties
- Caused death of >51,000 fish
- Resulted in a 14-day closure of Tinker Creek for fishing and other recreational use

Trustees entered into a cooperative agreement with the potentially responsible party in February 2018 for injury assessment and evaluation of potential restoration projects through the Natural Resource Damage Assessment and Restoration (NRDAR) process

TINKER CREEK CHEMICAL SPILL LOCATION



Tinker Creek Chemical Spill NRDAR: A Summary

OVERVIEW OF NRDAR

Goal: Trustees lead the restoration, replacement, and/or acquisition of the equivalent of injured resources and lost ecosystem services on behalf of citizens, without taxpayer expense

- Trustees –agencies authorized by law to act on behalf of public (U.S. Fish & Wildlife Service, VA Dept. of Environmental Quality), advised by other agencies (e.g., VA Dept. of Game & Inland Fisheries)
- Resources – land, water, fish, wildlife, etc.
- Services – functions performed by natural resources, including human use (e.g., fishing and other recreation)

NRDAR is… a legal and scientific process (as defined in federal regulations) to determine the amount and type of restoration to offset injuries; conducted parallel to and continuing after, spill response

NRDAR is NOT… punitive (a fine, penalty, or enforcement action), part of response or removal actions (cleanup), mitigation, or compensation for economic losses

PROPOSED RESTORATION PROJECTS

A *settlement agreement* was reached with Nutrient Ag Solutions and the draft Restoration Plan and Environmental Assessment (RPEA) was released to the public on March 18, 2020

The *draft RPEA* includes evaluation of four alternatives: 1) natural recovery, 2) propagation & restocking of fish, 3) recreational fishing improvement, and 4) in-stream habitat improvement

Two alternatives do not meet restoration objectives:

- Natural recovery will not compensate for injured resources
- Propagation and restocking has high uncertainty of success for many native fishes and is least cost-effective

Preferred alternatives:

- Improvement of fishing access, one-time trout stocking, and kids' fishing day (recreational fishing injury)
- Removal of impediments to fish passage, and associated habitat restoration, will provide long-term benefit to native species (injury to native fishes)
    - Two mid-size (10 to 14 feet high) concrete dams on Tinker Creek are major impediments to fish passage
    - Removal will allow fish movement between previously isolated stream reaches
        - Increase species distribution
        - Improve genetic diversity

HOW YOU CAN PARTICIPATE

- Review draft RPEA (select link to plan under "case documents")
  - http://www.cerc.usgs.gov/orda_docs/DocHandler.ashx?task=get&ID=5859
- Review copies of "Benefits of Dam Removal" and "Restoration of Lost Services" posters (below)
- Submit written comments to serena_ciparis@fws.gov or by mail (U.S. Fish & Wildlife Service, 6669 Short Lane, Gloucester, VA 23061, Attn: Tinker Creek Restoration Plan)

NEXT STEPS

- Submit comments by April 20, 2020
- Comments will be summarized and posted
- The RPEA will be finalized, if appropriate
- On-the-ground restoration projects will be completed

Restoration of Lost Services – Tinker Creek

Virginia Department of Game and Inland Fisheries, U.S. Fish and Wildlife Service

Tinker Creek

- Tinker Creek is a moderate size tributary of the Roanoke River located in Botetourt and Roanoke counties and the City of Roanoke.
- Over 33 fish species are known from Tinker Creek including some that are only found in the Roanoke River Drainage.

Roanoke Logperch (*Percina rex*)

Riverweed Darter (*Etheostoma podostemone*)

Bigeye Jumprock (*Moxostoma ariommum*)

- Over 15 barriers are present on Tinker Creek. Most of these are sewer line crossings and water intakes while at least 3 are dams.

Barriers on Tinker Creek

Dam Removal

- Two mill dams located on Tinker Creek:

Ardagh Mill Dam

5.7 miles upstream of Roanoke River

Mason's Mill Dam

3.0 miles upstream of Roanoke River

- Pools behind small dams are typically deprived of oxygen and only support a few pollution-tolerant fish species.
- Dams impede fish movement to upstream habitats. This is especially true of species that conduct spawning runs from the mainstem Roanoke River.

Benefits of Dam Removal

1. Promotes fish colonization
2. Restores stream habitat
3. Improves water quality
4. Flood reduction
5. Increases public safety

Jordan Point Dam, Maury River

2018

2019

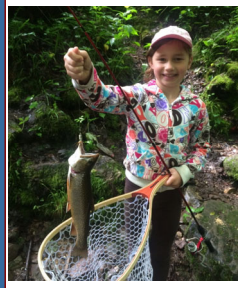
Dam Removal Process

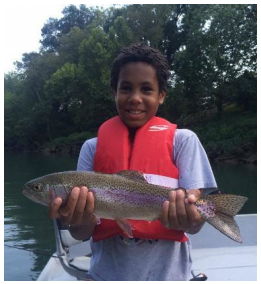
- Sediment behind the dam is tested
- Appropriate permits are acquired
- The dam is removed in stages
- A portion is left for historical interpretation
- The site is monitored

Kid's Fishing Day

- In a primarily urbanized watershed, Tinker Creek is popular to fish for stocked trout and other game species.
- Tinker Creek is stocked with 8,600 fish each year comprising 75% rainbow and 25% brook trout.

- To compensate for lost recreational activity, there will be a kid's fishing day either on Tinker Creek or a nearby site.





DEQ Virginia Department of Environmental Quality

U.S. Fish & Wildlife Service

Virginia DGIF

CONSERVE. CONNECT. PROTECT.

Benefits of Dam Removal

EXPECTED BENEFITS:

- Reestablish historic floodplain and river channel
  - Natural sediment transport and deposition is restored.
- Restore and enhance habitat for listed, at risk and sport fish and their prey
  - Removal allows fish passage and reestablishment of spawning, feeding and sheltering habitat.
- Provide public access
  - Improved or new public access at many removal sites.
- Eliminating a safety hazard
  - Dam removal eliminates dangerous hydraulics.
- Protect infrastructure
  - Downstream property is protected from uncontrolled dam failure.
- Alleviates upstream flooding
  - Upstream flood elevations decrease after removal.

Left-Veterans Memorial Park Dam (removed in 2013)
Right-Pigg River Power Dam (removed in 2016)
Below-Fish to benefit from Tinker Creek dam removal

MISCONCEPTIONS:

- It is cheaper to maintain an obsolete dam than to remove it
  - As dams age, they become more expensive to maintain. Removal is a one-time cost.
- Removing dams will leave a permanent "muddy mess"
  - Most former pool sites begin revegetating within one year.
- Dams provide flood control
  - Most dams are "run of the river" and are neither designed nor function for flood control.