

Public Waters Pollution Caused Fish Kill Investigation Reporting Form

CTS# _____
(EPD use)

Investigation Summary

1 Water Body Chattooga River
 2 County Chattooga
 3 Nearest City/Town Trion
 4 Major River Basin Coosa
 5 Estimated Start of Kill June 26, 2024
 6 Date Investigation Started June 28, 2024 Investigation Ended June 28, 2024

	Latitude	Longitude	
7 Upper Kill Extent	34.5446	-85.30976	degrees
8 Lower Kill Extent	34.52173	-85.29644	degrees
9 Length of Kill (stream)	2.38 miles		
10 Area of Kill (lake/pond)	NA acres		

11 Pollution Source ("x" all that apply)

<input type="checkbox"/> Municipal	<input checked="" type="checkbox"/> Industrial	<input type="checkbox"/> Agricultural	<input checked="" type="checkbox"/> Transportation
<input type="checkbox"/> Construction	<input type="checkbox"/> Residential	<input type="checkbox"/> Dumping	<input type="checkbox"/> Commercial
<input type="checkbox"/> Mining	<input type="checkbox"/> Recreational	<input type="checkbox"/> Other (Describe): _____	

12 Pollutant or Factor (ex. low DO) Anhydrous ammonia, acute toxicity

13 Threatened or Endangered Fish Species Killed Yes No If "yes", see Table 2 for species.

Number of Fish Killed 13,946

Value of Fish Killed	\$57,944.24
WRD Investigative Costs	\$2,828.39 +
GRAND TOTAL COST	\$60,772.63

14 Fish Count Method Complete Count Sub-Sample

15 Assessed magnitude & extent of fish kill using methods outlined in Southwick & Loftus 2017 Yes No

	Name	Title	Phone
16 WRD Investigator(s)	Chris Smith	Fisheries Biologist 2	(706) 295-6102
	John Damer	Fisheries Biologist 3	
	Mark Bowen	Fisheries Technician 3	
	Collin George	Fisheries Technician 3	
	Emily Losasso	Fisheries Technician 3	

Prepared By
Chris Smith
Fisheries Biologist 2



This investigation was supported with state and federal funds allocated to the Georgia Department of Natural Resources, Wildlife Resources Division, Fisheries Section.

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Initial Report

Chattooga River

(Chattooga Co.)

	Name	Affiliation	Phone
17 WRD Staffer Reported To	Emmi Losasso	WRD	(706) 295-6102
18 Reported By	Brad Taylor	citizen	(706) 676-0667
19 Date/Time Reported	6/28/2024	Time	0815 hours

20 Information Provided
 We were first made aware of the kill by a call from Brad Taylor to our Armurchee Fisheries office. Mr Taylor stated he noticed more than 40 dead fish in the Chattooga River while fishing near the Mount Vernon Mills plant. He said there were dead Striped Bass, bream, carp, minnows, etc..He provided WRD with photos and videos of the dead fish.

	Name	Phone	Time Contacted
24 SOC Operator # (ex. 132)		1-800-241-4113	0817 hours
25 EPD Duty Officer (ERT)	Ethan Boyd	(470) 547-3053	0841 hours
26 EPD On-Scene Coordinator	Will Jacobs	(470) 270-9604	0915 hours

Investigation

27 Describe body of water characteristics (flow, water level, color, residues, odors)
 The river was at normal flow levels and there was no abnormal discoloration of the water. The only noticeable odor was decaying fish through the entirety of the kill zone.

28 Climactic conditions
 Low 73°F and high of 93°F, sunny with clear skies

29 Condition of dead fish
 Dead <48 hours Dead >48 hours

30 Were fish still dying
 Yes No Distressed fish symptoms: none

31 List non-fish species killed
 none observed * No monetary value assigned.

32 Describe how kill occurred
 WRD staff Chris Smith, Collin George, Emily Losasso, and Will Jacobs with EPD made initial observations of the Chattooga River at the Trion Recreation Department at 0950 hours on 6/28/24 (Figures 1 & 2). We first observed dead fish at the Fourth Street Bridge just downstream of Mount Vernon Mills (MVM). At approximately 1100 hours we walked over to MVM and met with Amber Browning (Human Resources Manager, ph. (706) 734-4808), Ronald J. Beegle (Corporate Director of Environmental Affairs, ph. (707) 734-4714), and one other MVM employee. Mr. Beegle stated that an anhydrous ammonia spill occurred near storage tanks on the east side of the MVM facility on 6/26/24 at approximately 2200 hours (Figure 2). The spill incident continued until approximately 0200 hours on 6/27/24. Mr. Beegle said the spill was due to a pump malfunction on an Airgas, Inc. truck delivering anhydrous ammonia to the MVM facility. He stated that it took around 2 hours for the anhydrous ammonia to fully bleed-off from the delivery truck. In that time multiple fire departments responded and applied water to the leak. Will Jacobs estimated that 180,000 to 360,000 gallons of water was applied during the incident. This water and ammonia mixture spilled into an unnamed tributary of the Chattooga River (Figure 2, Photo 1). Mr. Beegle said that during the spill incident, MVM staff recorded elevated pH values in the Chattooga River up to 10.8 for a 2-hour period. Since anhydrous ammonia is a basic chemical, this elevated pH level would suggest that the spilled anhydrous ammonia did enter the Chattooga River. Mr. Beegle went on to say that the D.O. and pH levels were back to "normal" levels the next morning (6/27/24), both near the site of the spill and downstream at Penn Bridge Road crossing over the Chattooga River. This was consistent with pH levels collected by WRD personnel on 6/28/24 at all three water chemistry sites (Table 1). Mr. Beegle stated that they observed no dead fish at any point. According to the Material Safety Data Sheet (MSDS), anhydrous ammonia is acutely toxic to fish. WRD staff observed the first dead fish just downstream of the unnamed tributary where runoff from the incident location entered the Chattooga River. Live fish and no dead fish were observed in the Chattooga River upstream of the confluence with this unnamed tributary. Likewise, live fish and no dead fish were observed by WRD staff in the Chattooga River at the Penn Bridge Road crossing. It was determined the fish kill began at the Fourth Street Bridge in Trion, Georgia and extended 2.38 miles downstream to a location just upstream of Penn Bridge Road crossing (Figure 1). WRD investigators noted that dead fish in the upper extent of the fish kill zone tended to be distributed on the left river bank (looking downstream) of the Chattooga River downstream of the unnamed tributary, consistent with the anhydrous ammonia entering the Chattooga River on the left bank. The fish kill was characterized as "severe" and affected both game and non-game fish species, including many large Striped Bass (Photos 2-6). Based on their state of decay, the fish appeared to have been dead for at least 24 hours. Basic water chemistry measurements taken during our field investigation were satisfactory for fish survival (Table 1), but these data were collected almost 48 hours after the incident occurred.

Initial Report

Chattooga River

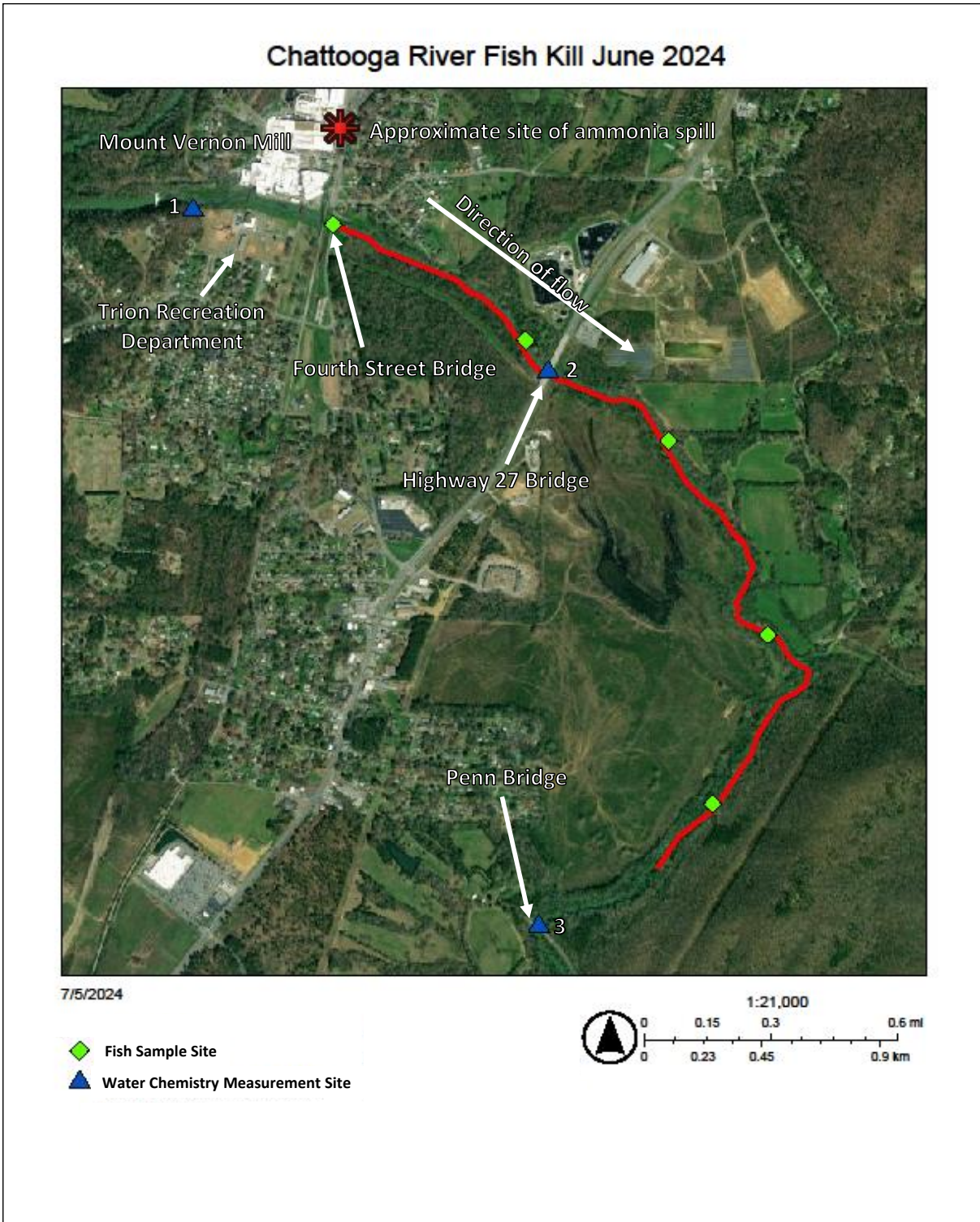
(Chattooga Co.)

33 Investigator's conclusion

Given the presence and location of dead fish within the affected river reach, the data collected and my field observations during the investigation, I can reasonably conclude that the fish kill was the result of the anhydrous ammonia spill. No other natural or pollution source was identified that would have caused the extensive fish mortality observed during our investigation.

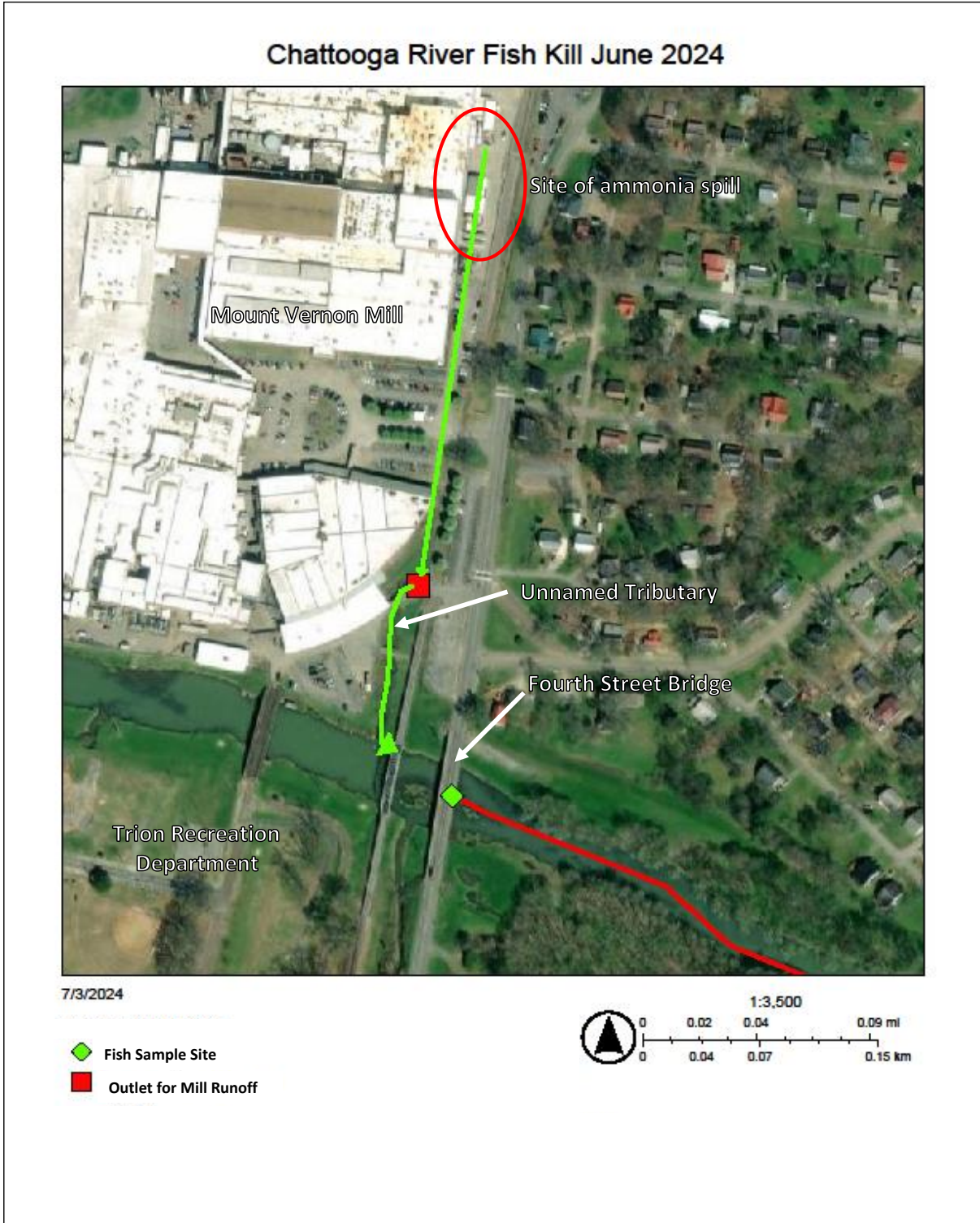
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Figure 1. Map of sites visited by WRD Fisheries personnel during a 6/28/2024 fish kill investigation on the Chattooga River, Trion, Georgia. (Chattooga Co.) Sites are identified in the report text and in Table 1. Fish kill zone is highlighted in red.



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Figure 2. Map of ammonia spill and runoff determined during a 6/28/2024 fish kill investigation on the Chattooga River, Trion, Georgia. (Chattooga Co.) Sites are identified in the report text. Fish kill zone is highlighted in red.



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Table 1. Water chemistry measurements taken by WRD Fisheries Section personnel during a fish kill investigation on the Chattooga River, Trion, Georgia. (Chattooga Co.) Site numbers are identified in Figure 1.

Site Number	Site Description	Date	Time (military)	Temp. (C) ¹	DO (mg/l) ¹	Conductivity (us/cm) ¹	pH ²	Total Hardness (mg/L) ²	Total Alkalinity (mg/L) ²	Other
1	Chattooga River (Above fish kill)	6/28/2024	1144	20.7	8.72	207	7.5	133	137	
2	Chattooga River (Within fish kill)	6/28/2024	1245	22.0	9.72	398	7.5	157	140	
3	Chattooga River (Below fish kill)	6/28/2024	1723	23.9	9.07	378	7.5	147	120	

¹ Meter model: YSI Pro 2030
Serial #: 22D100249

² Hach kit model: AL-36B

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Table 2. Numbers and monetary values of dead fish observed during a 6/28/2024 WRD Fisheries Section fish kill investigation on the Chattooga River, Trion, Georgia. (Chattooga Co.)

Species	Est. Total Number	Total Value¹
Bass Spp.	411	\$2,133.59
Catfish Spp.	151	\$581.48
Crappie Spp.	8	\$63.48
Cyprinid Spp.	7,358	\$1,141.38
Darter Spp.	1,693	\$3,517.58
Freshwater Drum	922	\$1,449.42
Gizzard and Threadfin Shad	587	\$1,262.74
Striped Bass	193	\$20,813.23
Sucker Spp.	1,802	\$25,853.92
Sunfish Spp.	821	\$1,127.42
TOTAL	13,946	\$57,944.24

¹ Southwick, R.I. and A.J. Loftus, editors. 2017. *Investigation and Monetary Values of Fish and Freshwater Mollusk Kills*. American Fisheries Society, Special Publication 35, Bethesda, Maryland, 165pp.

Table 3. Investigative costs associated with a 6/28/2024 WRD Fisheries Section fish kill investigation on the Chattooga River, Trion, Georgia. (Chattooga Co.)

Personnel	Effort (hours)	Rate (\$/hour)	Value
Fisheries Supervisor	8.0	\$61.26	\$490.08
Fisheries Biologist 3	6.0	\$50.31	\$301.86
Fisheries Biologist 2	20.0	\$39.30	\$786.00
Fisheries Technician 3	7.5	\$43.00	\$322.50
Fisheries Technician 3	10.0	\$37.17	\$371.70
Fisheries Technician 3	10.5	\$34.54	\$362.67
Vehicle (Decal #)	Miles	Rate (\$/mile)	Value
116830	59	\$0.670	\$39.53
116831	53	\$0.670	\$35.51
135624	55	\$0.670	\$36.85
146789	52	\$0.670	\$34.84
136047	55	\$0.670	\$36.85
Chemicals, Supplies, Photocopying			\$10.00
TOTAL			\$2,828.39

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Photos taken by WRD Fisheries Section personnel during a 6/28/2024 fish kill investigation on the Chattooga River, Trion, Georgia. (Chattooga Co.)

Photo 1. Drainage outlet for Mount Vernon Mills entering into unnamed tributary of the Chattooga River.



Photo 2. WRD staff conducting dead fish survey during the fish kill investigation. Large numbers of dead fish are visible in the background.



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Photos taken by WRD Fisheries Section personnel during a 6/28/2024 fish kill investigation on the Chattooga River, Trion, Georgia. (Chattooga Co.)

Photo 3. Multiple dead fish observed during the Chattooga River fish kill investigation including two large Striped Bass.



Photo 4. Large dead Striped Bass observed during the Chattooga River fish kill investigation.



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Photos taken by WRD Fisheries Section personnel during a 6/28/2024 fish kill investigation on the Chattooga River, Trion, Georgia. (Chattooga Co.)

Photo 6. Various dead darters, minnows, chubs, and other non-game fishes observed during Chattooga River fish kill investigation.



Photo 5. Various dead game and non-game fishes observed during Chattooga River fish kill investigation.

