

Investigation of Potomac River Fish Kill

July 03-July 05, 2026



Maryland
Department of
the Environment



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Maryland Department of the Environment

Water and Science Administration

Field Services Program

Potomac River Fish Kill Investigation Report

Investigation Dates: July 4–5, 2026

A summary of results is on Page 12

Background. The MDE after hours fish kill biologist received three fish kill reports on the morning of 07/04 which initiated an investigation.

Report #1 0644 AM: Approximately 260 dead fish at Violette's Lock and an additional 200 dead fish on the Virginia side of the river at Sharpshin Island, 1.6 miles upriver from Rileys Lock.

Report #2 0915 AM: An uncounted number of dead fish in the river at Seneca Breaks.

Report #3 1208 PM: Approximately 50 dead fish at Ten Foot Island, upriver of Sharpshin Island.

An internet data search revealed that the USGS gauging station has flow and gauge height as well as continuous monitoring for Temperature, pH, and Dissolved oxygen at the Little Falls gauge. At the time, the stream flow was 2,070 CFS which is half of the historic seasonal mean for this location. Daily water temperatures were rising, and overnight lows were over 31 C = 87.8 F. Daytime highs were approaching 34 C = 93.2 F. pH was fluctuating between 8.2 and 9.0 throughout the diurnal cycle. These all represent stressful conditions worsening in the river. See attached graphs at the end of this document. Dissolved oxygen (DO) was fluctuating between 7 and 12 mg/l. The DO was never below State standard of 5.0.

Field Investigation by J. Carter

Date: July 4, 2026

Violette's Lock

Time: 3:00 PM

Observations

- Large fish floating in the middle of the Potomac River. Estimated 75 dead fish observed from land over 100 yards. River view obscured by island. Estimated equal number on opposite side of island. Therefore 150 fish over 100 yards of river length.
- Fish were too far from shore for positive identification.
- Healthy minnows observed.
- Vultures and herons were actively scavenging dead fish.
- It appeared that several larger fish were milling at the surface in the distance.

Surface Water Quality

Parameter	Result
Dissolved Oxygen (DO)	12.27 mg/L
% Saturation	173.5%
Temperature	34.66°C
pH	8.67
Conductivity	362.2 μ S/cm
Salinity	0.17 ppt

Riley's Lock

Time: 3:30 PM

Observations

- Dead fish floating in the middle of the Potomac River. Estimated 250 dead fish observed from land over 400 yards of river length.
- Fish were too distant for positive identification.
- Possible smallmouth bass and catfish, but fish were 25 yards away or further.

Sycamore Landing Road

Time: 4:00 PM

Observations

- Large concentration of dead fish floating in the middle of the river.
- Estimated approximately 1,300 over 700 yards of river length.
- Healthy minnows were also present at the shoreline.

Point of Rocks

Time: 4:35 PM

Observations

- No dead fish observed.
- Healthy minnows were present throughout the area.

Field Investigation by J. Carter

Date: July 5, 2026

Point of Rocks

Time: 1:40 PM

Observations

- No dead fish observed.
- One dead crayfish located near the boat ramp.
- Numerous healthy minnows observed swimming throughout the area.

Surface Water Quality

Parameter	Result
Dissolved Oxygen (DO)	7.67 mg/L
% Saturation	102.4%
Temperature	31.16°C
pH	7.96
Conductivity	351.2 μ S/cm
Salinity	0.16 ppt

White's Ferry

Time: 2:57 PM

Observations

- Several dead fish floating in the middle of the river. Estimated 100 dead fish observed from land over 200 yards of river length.
- Talked to several local fishermen.
- Fishermen reported hundreds of dead fish upstream of Whites Ferry.
- They indicated that most of the affected fish were Golden Redhorse Suckers. Also, a few catfish.
- Fishermen also reported observing smallmouth bass struggling at the water surface earlier this day. No struggling fish observed by MDE.

Surface Water Quality

Parameter	Result
Dissolved Oxygen (DO) (Bottom was fine silt. Likely depressed the DO reading)	6.26 mg/L
% Saturation	76.7%
Temperature	33.43°C
pH	7.58
Conductivity	405.8 µS/cm
Salinity	0.19 ppt

Edward's Ferry

Time: 3:33 PM

Observations

- Five dead Golden Redhorse suckers observed.
- Several larger dead fish floating in the middle of the river. Estimated 50 dead fish observed from land over 700 yards of river length.

Water Quality

Parameter	Result
Dissolved Oxygen (DO)	10.66 mg/L
% Saturation	152.6%
Temperature	35.38°C
pH	8.41
Conductivity	365.7 μ S/cm
Salinity	0.17 ppt

Field Investigation by C. Luckett and J. Lynch

Date: July 5, 2026

Seneca Creek outlet/ Riley's Lock

Time: 1:50 PM

Observations

- Identified 160 fish from mouth of Seneca to southern end of Sharpshin Island. 1.60 miles covered = 2800 yards. These fish were not used in the total mortality extrapolation because they could have been counted during J. Carters July 4 investigation.
- 145 Golden Redhorse, 8 Flathead catfish, 3 Smallmouth Bass, 3 Walleye, 1 Quillback. Reports of numerous dead carp appear to be misidentifications of Golden Redhorse (look similar). No dead carp, sunfish, minnows, darters, channel catfish or eels observed (all are plentiful in the river). Several fish were photographed. The freshest suckers were floating belly up and had minor reddening near the vent and ventrally, but otherwise appeared to have no lesions prior to death. All were one to two days dead.
- The vast majority of fish were washed ashore on the Maryland side; a small number were still floating in the middle of the river. The Virginia shoreline could not be assessed due to a law enforcement river closure. It is assumed that accumulations on the Virginia shore were comparable to the Maryland shore. NO moribund fish were observed at any time.
- Interviewed NRP officer Jerimie Craig who was captaining a patrol boat with USCG and US Secret Service aboard. He reported not seeing any moribund fish (fish in distress) all day today. He reported speaking to other NRP patrol officers yesterday who reported that there had been dead fish in the river in Frederick County on 07/03. And reported an officer seeing dead fish at both White's and Edwards Ferries on 07/04. All three locations are upstream of Seneca. Officer Craig disputed the early reports that the fish were concentrated on the Virginia side of the river. He said that there were many fish on 7/04 throughout the entire river, all dead and flowing in the current.

Surface Water Quality near mouth of Seneca Ck (2:15)

Parameter	Result
Dissolved Oxygen (DO)	9.90 mg/L
% Saturation	137.0%
Temperature	32.60°C
pH	8.51
Conductivity	400 µS/cm

Surface Water Quality, 1 mi. upriver from mouth of Seneca Ck (2:33)

Parameter	Result
Dissolved Oxygen (DO)	10.40 mg/L
% Saturation	145.0%
Temperature	32.90°C
pH	8.50
Conductivity	403 µS/cm

Water Quality, midchannel, 0.5 mi upriver from mouth of Seneca Ck (3:15)

Parameter	Result	Result	Result
Depth (m)	0.25 m	1.0 m	2.0 m
Dissolved Oxygen (DO)	12.60 mg/L	12.50 mg/L	12.40 mg/L
% Saturation	177.0%	175.0%	173.0%
Temperature	33.20°C	33.20°C	33.10°C
pH	8.70	8.70	8.70
Conductivity	388 µS/cm	389 µS/cm	389 µS/cm

Fish Density and Distribution Calculations

1. Fish estimated to have died* (21,243)

*In order to not double count fish, J. Carters fish counts and estimates were used to extrapolate the total mortalities. We used the July 4 counts at three downstream stations (Sycamore Landing, Rileys Lock, and Violette's Lock) and July 5 counts were used at the two upstream stations (White's and Edwards Ferries). The mean of these densities was extrapolated over the affected portion of river to arrive at a total number of dead fish involved. This is a conservative estimate and does not include anecdotal or unconfirmed sightings upriver from White's Ferry.

Segment 1, Violette's Lock	150 fish over 100 yards
Segment 2, Riley's Lock	250 fish over 400 yards
Segment 3, Sycamore Landing	1300 fish over 700 yards
Segment 4, White's Ferry	100 fish over 200 yards
<u>Segment 5, Edward's Ferry</u>	<u>50 fish over 700 yards</u>
Totals	1,850 fish over 2,100 yards

Total number of fish observed in representative segments 1,850

Total yards of river in representative segment 2,100

Density of fish in river (Fish/yard) $1,850/2,100 = 0.881$ fish/yd

Total yards in affected portion of River 13.7 miles = 24,112

Extrapolated number of affected fish $0.881 \text{ fish/yd} \times 24,112 \text{ yds} = \mathbf{21,243 \text{ fish}}$

2. Species Distributions calculations

Species observed	Number observed	% of total	Total number of each species dead. % times extrapolated total (21,243 fish)
Golden Redhorse Sucker	145	90.6	19,245
Flathead Catfish	8	5.0	1,062
Smallmouth Bass	3	1.9	404
Walleye	3	1.9	404
Quillback	1	0.6	128
TOTALS	160	100%	21,243

Summary



- Conservatively, the impacted area spans approximately 13.7 river miles between Whites's Ferry and Violette's Lock (Red Line on Map). There are anecdotal reports that could extend the affected area by more than double. However, several firsthand observations by MD-DNR fisheries biologists indicate that mortalities in the upper river are far less abundant.
- Over 21,000 fish (mainly Golden Redhorse Suckers) were killed.
- Golden Redhorse Suckers are sensitive to high water temperatures as this species has a highly lethal water temperature threshold of about 91° F.
- The temperature range in this stretch of the Potomac was 88.88° - 95.69° F with higher temperatures occurring downstream.
- The highest temperature was recorded at Edward's Ferry on 07/05 and it likely a new record high water temperature in the Potomac River. (95.69° F).
- These temperatures are highly stressful to many endemic fish species. The most stressed fish become susceptible to explosive infections of pathogenic bacteria and parasites which ultimately kill the fish.

- MDE and DNR resource biologists will continue to monitor the situation and share information.
- It is likely that some of the gamefish that were involved were catch and release mortalities. Fish which fight being hooked and caught have a low probability of survival after being released into very warm water.



Photo 1, underside of a flathead catfish with golden redhorse sucker at shoreline.



Photo 2. Golden Redhorse sucker floating in mid river.



Photo 3. Quillback Sucker floating in mid river.



Photo 4. Golden Redhorse Sucker floating mid river.



Photo 5. Smallmouth Bass floating mid river.



Photo 6. Flathead Catfish floating mid river.

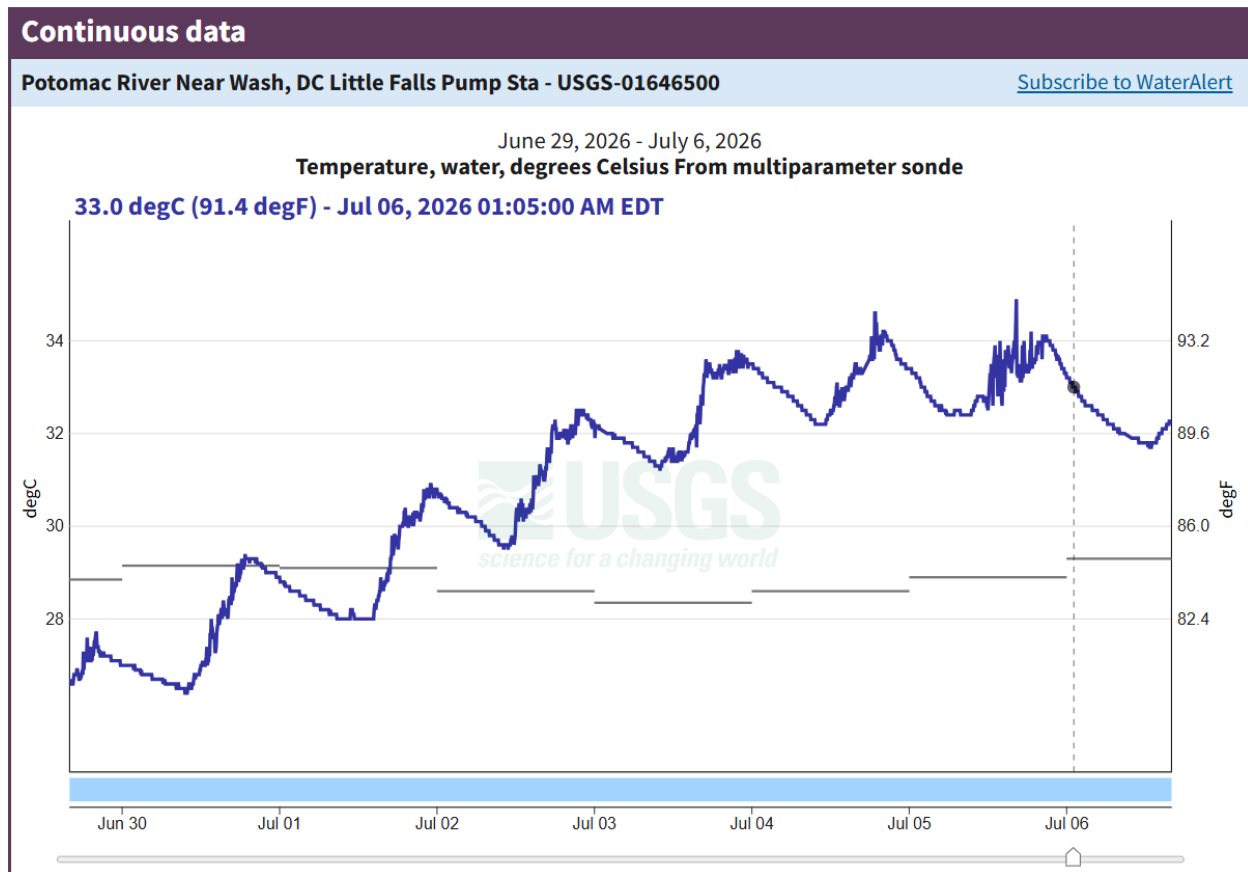


Figure 1. USGS data showing water temperature in the days before and after the fish kill. Historic median is the horizontal bars.

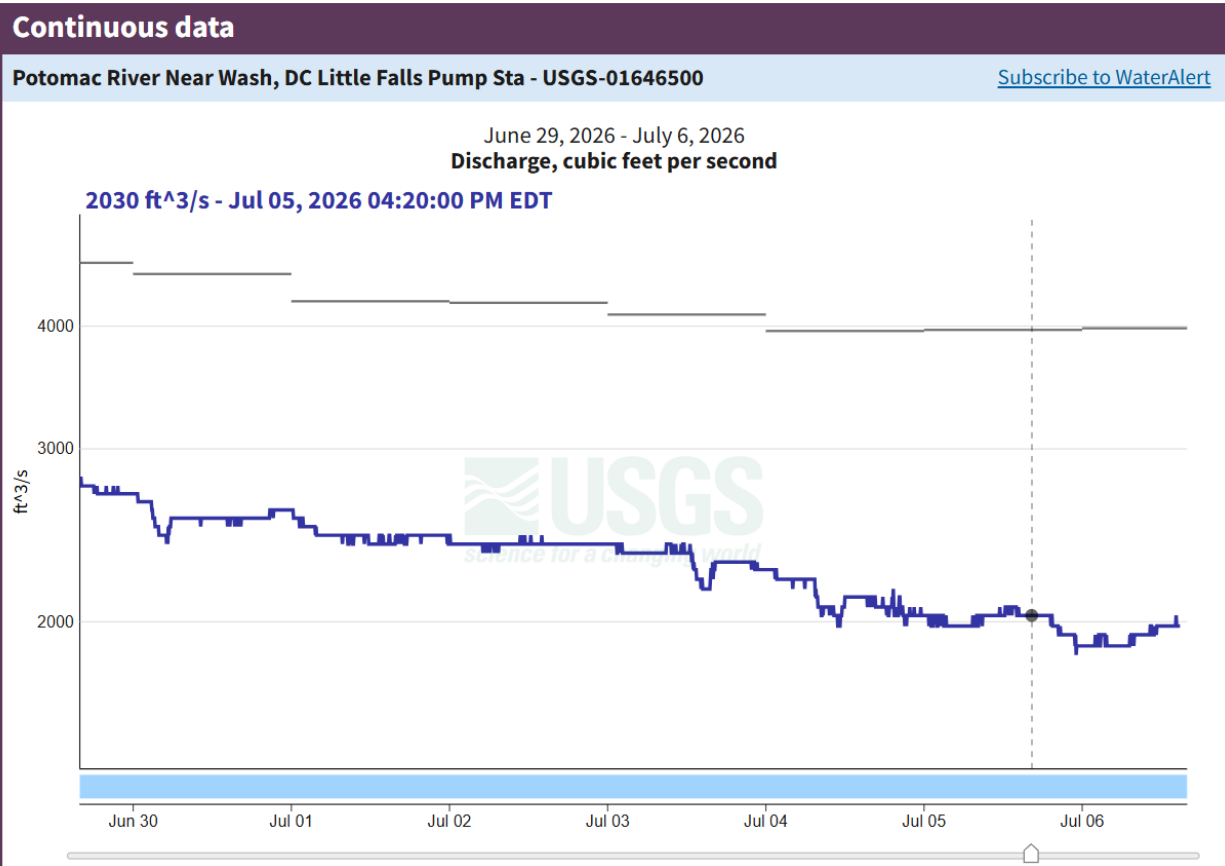


Figure 2. USGS data showing river discharge in the days before and after the fish kill. Historic median is the horizontal bars.

Continuous data

Potomac River Near Wash, DC Little Falls Pump Sta - USGS-01646500

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June 29, 2026 - July 6, 2026

Dissolved oxygen, water, unfiltered, milligrams per liter From multiparameter sonde

8.3 mg/l - Jul 04, 2026 06:45:00 AM EDT

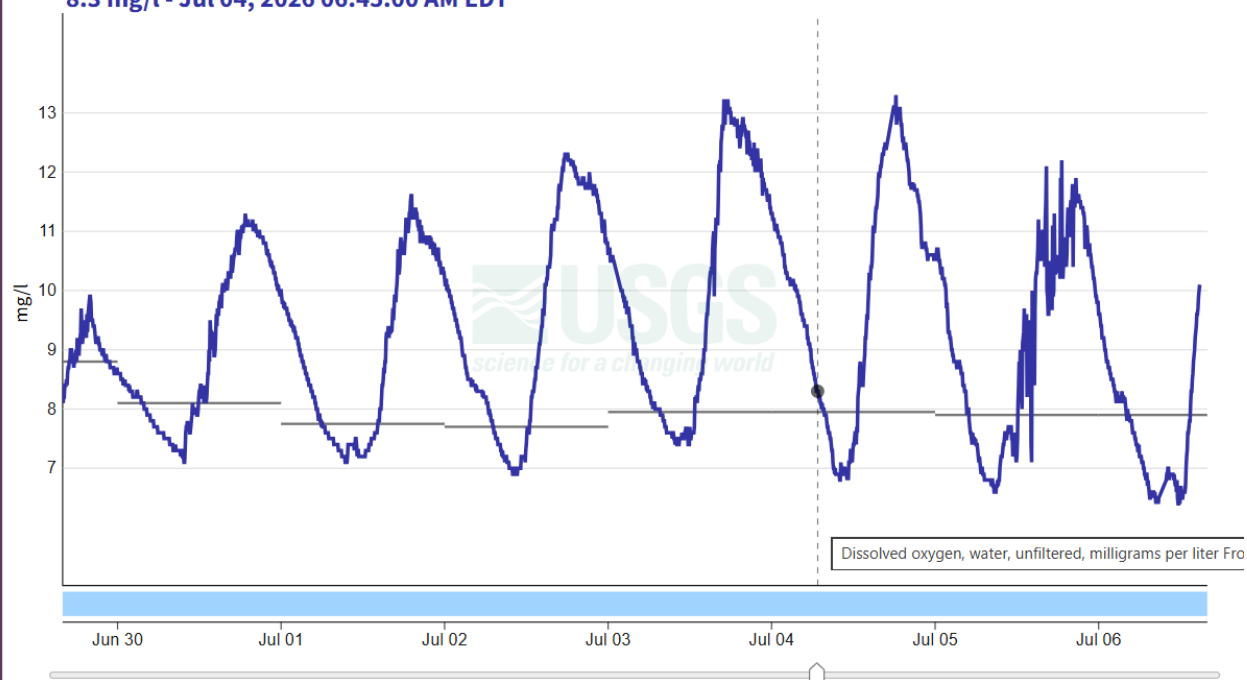


Figure 3. USGS data showing dissolved oxygen in the days before and after the fish kill. Historic median is the horizontal bars.

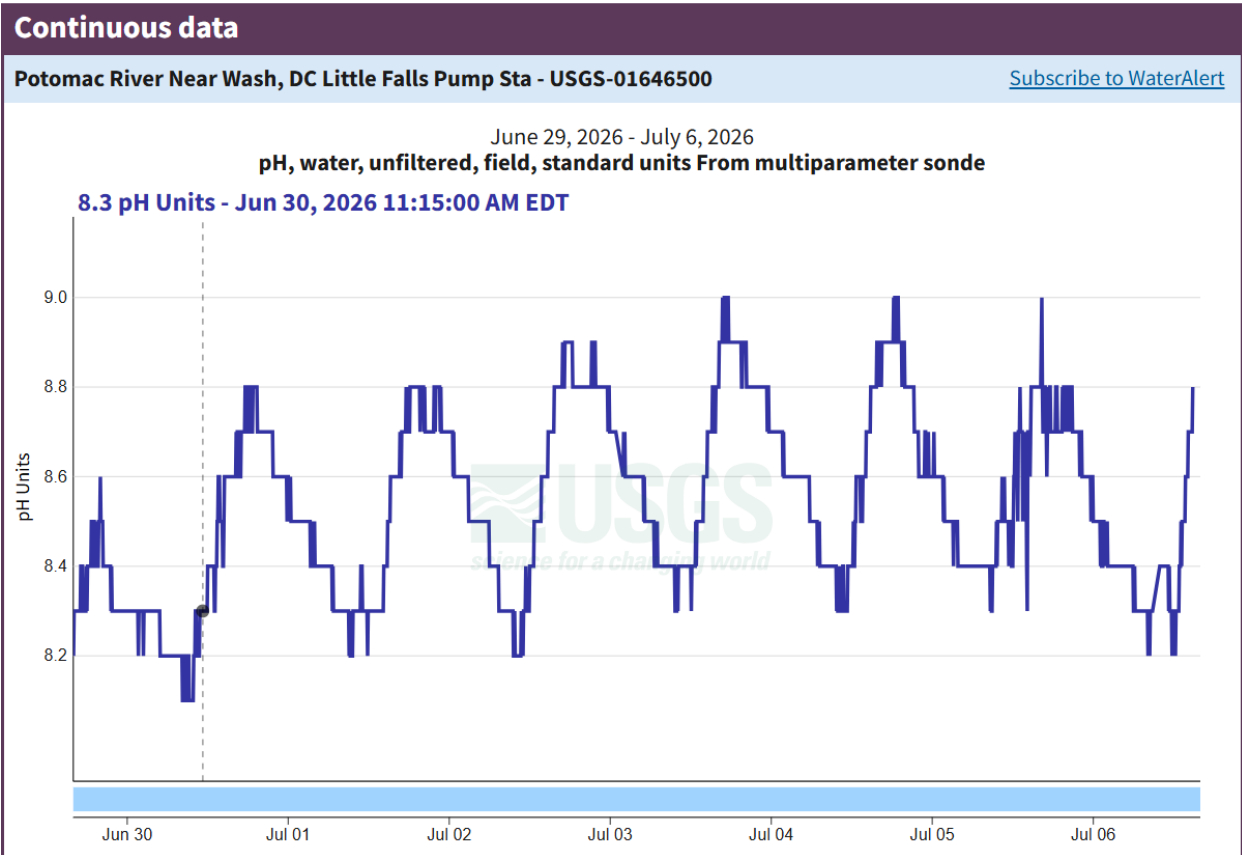


Figure 4. USGS data showing pH in the days before and after the fish kill. No Historic median is available.