

# Evaluation of Polychlorinated Biphenyls in Fish from Virginia Watersheds in 2021

Multiple Watersheds Statewide

VIRGINIA

September 22, 2022

Virginia Department of Health  
Office of Environmental Health Services  
109 Governor Street  
Richmond, Virginia 23219



*COMMONWEALTH of VIRGINIA*  
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September 22, 2022

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Water Quality Monitoring  
Department of Environmental Quality  
1111 East Main Street  
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Dear Mr. Darkwah,

Thank you for providing polychlorinated biphenyls (PCBs) concentrations in fish tissue for fish collected during the 2021 monitoring season. The Virginia Department of Health (VDH) has finished reviewing the results for public health implications as requested.

**BACKGROUND**

In 2021, fish were collected for two monitoring projects: annual statewide TMDL and year four of the National Fish and Wildlife Foundation (NFWF) grant. The statewide TMDL follow up collections were concentrated primarily within watersheds of the James River (Chickahominy River, Elizabeth River system, four impoundments, etc.), the New River and three impoundments in the Tennessee River drainage. Supplemental funding allowed for expanded fish collections from additional sites within the James River watershed as well as the Roanoke River watershed including several large reservoirs (Smith Mountain Lake, Leesville Lake, J. H. Kerr Reservoir and Lake Gaston). Three hundred and sixty-six fish tissue samples were analyzed for the statewide program.

Collections for the NFWF project were performed at sites located on the Dan River, Roanoke River, and the following impoundments: Lovills Creek Lake, J. H. Kerr Reservoir and Lake Gaston. Sixty-five fish tissue samples were analyzed for the NFWF grant funded project.

A total of 431 edible fillet samples were tested for PCBs during the 2021 monitoring season.

**DISCUSSION**

The 2021 fish tissue data was evaluated along with sampling data you provided from previous years (2018-2020) and tissue data of concern are in Table 1. The number of fish, size, species,

and frequency of exceedance of the screening value were considered in determining the need for issuing a new PCBs fish consumption advisory.

- The data indicate that the presence and distribution of PCBs in the segments covered by fish consumption advisories appear to follow patterns similar to results of previous sampling at these locations (see Table 1).

**Table 1. Fish species with PCBs concentrations that exceeded the Virginia Department of Health’s screening value (100 ppb).**

Sampling location	Fish species	Number of fish	PCBs concentration (ppb)	Fish length (cm)
<b>PCBs fish advisory exists</b>				
Bailey Creek near Rt. 10 bridge	Gizzard Shad	15	228.1	31.4 – 36.1
Dan River / Kerr Reservoir near State Park upper lake	Blue Catfish	1	100.6	94.1
Dan River below South Boston near public boat ramp	Carp	3	348.4	68.5 – 70.3
Dan River near Anglers Park below city of Danville	Flathead Catfish	1	305.0	109.6
Diascund Creek Reservoir	American Eel	4	223.1	45.9 – 56.1
Eastern Branch Elizabeth River near Norfolk & Western RR bridge	Gizzard Shad	11	154.4	27.9 – 33.2
James River near Buoy 147 (old Buoy 145)	Flathead Catfish	1	157.3	101.5
James River near Chippokes Pt., Buoy 71	Carp	4	131.1	72.1 – 79.0
James River near Chippokes Pt., Buoy 71	Blue Catfish	2	122.2	77.2 – 91.0
James River near I-95	Flathead Catfish	2	368.7	85.5 – 89.0
James River near I-95	Flathead Catfish	2	236.3	85.2 – 89.7
James River near I-95	Flathead Catfish	2	226.4	83.6 – 88.1
James River near I-95	Striped Bass	5	117.2	50.6 – 61.5
James River near I-95	Hickory Shad	9	114.6	33.1 – 42.9
James River near I-95 bridge	Largemouth Bass	7	162.2	32.6 – 41.6
James River near Jordan Point, Rt. 156	Gizzard Shad	12	182.7	31.2 – 37.7
James River near Pony Pasture	Blue Catfish	1	162.2	70.8
James River near Pony Pasture	Flathead Catfish	1	134.1	73.0
James River near Pony Pasture	Blue Catfish	4	127.8	46.2 – 52.6
James River near Rt. 150 downstream Boshier Dam	Flathead Catfish	2	497.2	95.0 – 103.0
James River near Rt. 150 downstream Boshier Dam	Flathead Catfish	2	201.1	91.0 – 98.0
James River Off Deep Bottom Landing	Blue Catfish	2	480.3	44.5 – 54.8
James River Off Falling Creek	Largemouth Bass	2	164.4	38.0 – 39.5
Lafayette River near Granby Street bridge	Gizzard Shad	10	252.1	28.3 – 37.3
New River near Pembroke - Rt. 623	Carp	1	189.8	72.1
Paradise Creek near Victory Boulevard, Rt. 239	Gizzard Shad	8	100.2	28.7 – 36.1
Roanoke River near Bus Rt. 29 bridge, Altavista	Flathead Catfish	1	497.6	92.5
Roanoke River near public boat ramp at Clover, Va	Carp	5	198.2	63.5 – 67.5
Roanoke River near public boat ramp at Clover, Va	Blue Catfish	3	160.1	62.0 – 71.0
Roanoke River near Rt. 746 bridge (Watkins Bridge) near Randolph	Flathead Catfish	1	459.3	104.7
Roanoke River near Rt. 746 bridge (Watkins Bridge) near Randolph	Carp	3	174.5	59.5 – 64.7

Roanoke River near Rt. 746 bridge (Watkins Bridge) near Randolph	Blue Catfish	4	171.9	60.9 – 73.1
Roanoke River near Rt. 761 bridge, Long Island	Spotted Bass	2	105.2	27.4 – 30.9
Southern Branch Elizabeth River Rt. 337 bridge (Jordan Bridge - Toll)	Gizzard Shad	10	182.2	27.6 – 36.1
Southern Branch Elizabeth River upstream I-64	Gizzard Shad	5	145.2	29.2 – 34.2
Warwick River across from Denbigh Park	Spot	2	120.7	19.0 – 24.0
Western Branch Elizabeth River near Rt. 17 bridge	Gizzard Shad	10	111.8	29.5 – 36.7

## CONCLUSION

VDH concludes that the current polychlorinated biphenyls fish consumption advisories for the 2021 waterways sampled is protective of health.

If you have any questions regarding this assessment, please email [toxicology@vdh.virginia.gov](mailto:toxicology@vdh.virginia.gov) or call (804) 864-8182.

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