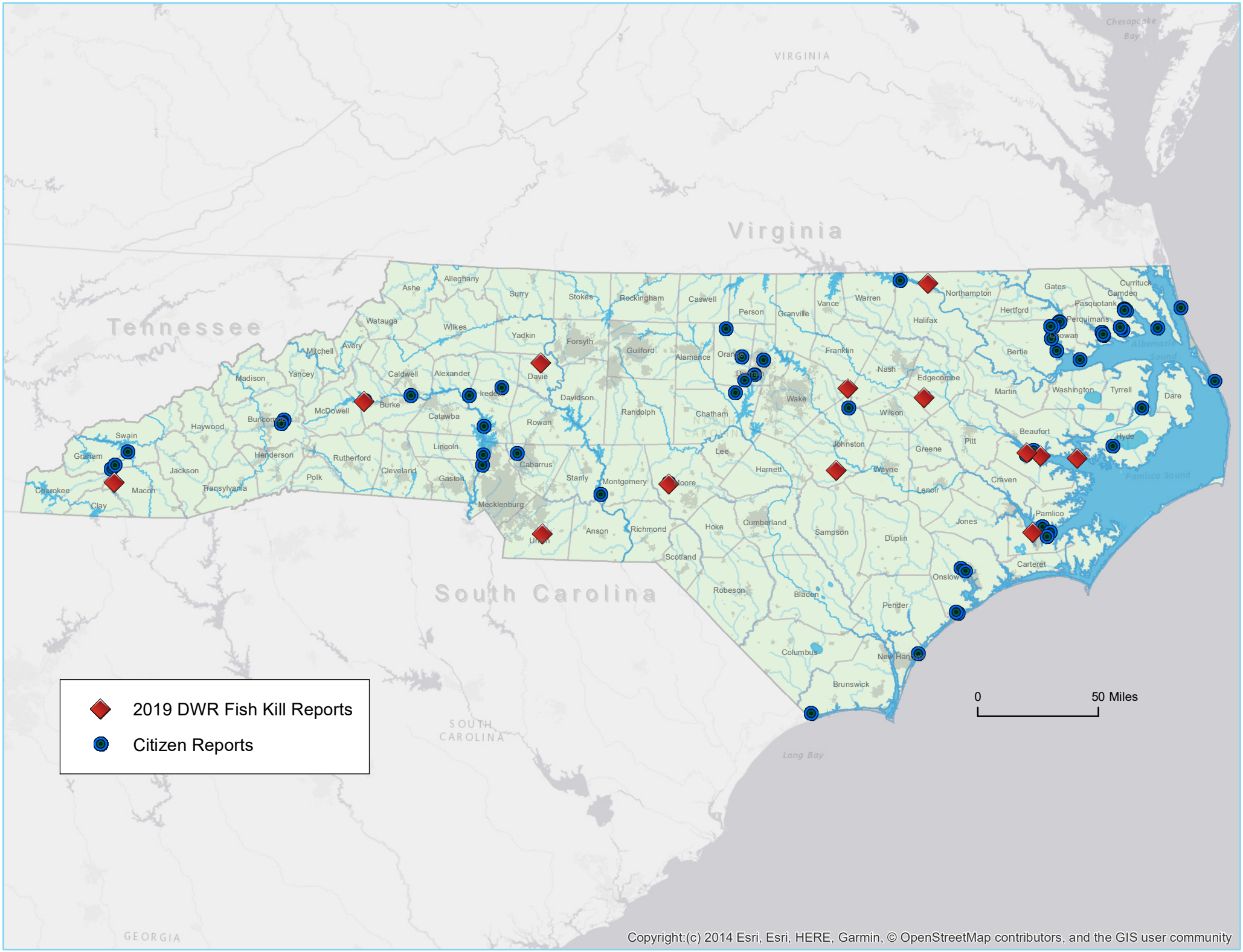
2019 DWR Fish Kill Reports
Citizen Reports
0
50 Miles
Virginia
Tennessee
South Carolina
SOUTH CAROLINA
GEORGIA
VIRGINIA
Chesapeake Bay
Albemarle Sound
Pamlico Sound
Long Bay
Ashe
Alleghany
Surry
Stokes
Rockingham
Caswell
Person
Granville
Vance
Warren
Northampton
Gates
Currituck
Camden
Pasquotank
Perquimans
Hertford
Halifax
Watauga
Wilkes
Yadkin
Forsyth
Guilford
Alamance
Orange
Durham
Franklin
Nash
Edgecombe
Bertie
Mitchell
Avery
Madison
Yancey
Caldwell
Alexander
Davie
Iredell
Davidson
Randolph
Chatham
Wake
Wilson
Martin
Washington
Tyrrell
Dare
Hyde
Beaufort
Pitt
Greene
Johnston
Lee
Harnett
Wayne
Lenoir
Craven
Jones
Pamlico
Carteret
Onslow
Pender
New Hanover
Brunswick
Columbus
Bladen
Robeson
Scotland
Hoke
Cumberland
Sampson
Duplin
Richmond
Anson
Union
Mecklenburg
Gaston
Cleveland
Lincoln
Catawba
Rowan
Stanly
Montgomery
Moore
Cabarrus
Burke
McDowell
Polk
Rutherford
Henderson
Buncombe
Haywood
Transylvania
Jackson
Swain
Graham
Macon
Clay
Cherokee
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Total 2019 Fish Kills: 13

Total 2019 Fish Mortality: 200,075

2019 Fish Kill Events (by County)

Date	Kill Number	Waterbody	Location	Mortality	Comments
Beaufort					
5/20/2019	WA19001	Wrights Creek	Near Pamlico Beach	370	DWR EMT staff received a call from river keeper Forest English that fish were dying in the area of Wright's Creek, a tributary of the Pungo River. EMT staff arrived 1 hour later to find 6" menhaden in distress, few fish were dead. Most were swimming just under the water and were very lethargic. All of the fish in the area affected were menhaden that had sores. Oxygen levels in the area were normal, other fish were seen that were in good shape in the same area.
7/24/2019	WA19003	Pamlico River	Core Point	3,880	EMT staff visited the Pamlico River shoreline near Core Point on the south side of the River at 1045 7/24/19. Staff observed dead fish along a 0.75 mile strech of shoreline. A majority of this kill congregated along sandy beaches and ramps. Approximately 3,880 finfish were counted along this stretch, while other dead finfish were observed floating approximately 25 - 50 yards from the shoreline. These fish were likely being blown around from several bulkheads located intermittently along the sandy beach. No lesions were observed. Staff recorded hypoxic areas below the phontic zone near Core Point during regular ambient monitoring on 7/17/19. The weather had been extremely hot during the month of July and very little precipitation allowed the migration of the salt wedge further upstream. Thus keeping the bottom waters devoid of oxygen for weeks at a time. Late afternoon on 7/23/19 there were heavy thunderstorms and winds from the southwest for several hours until early the next morning. It is likely that this extreme weather caused a large upwelling of hypoxic waters on the south side of the Pamlico River. Physical data recorded near the kill area on 7/24 indicated DO range of 6 mg/L and DO%95. The salinity of this area indicated a slight flip-flop of the surfacewater/bottomwaters- with higher salinities on top of lower salinities in the first meter of surfacewater. No samples were collected.
10/1/2019	WA19004	Pamlico River	Blounts Bay	150,000	On 10-01-2019 EMT Staff responded to a fishkill in Blounts Bay on the Pamlico River. 5 transects 40' wide running east to west were performed.Approximately 150,000 Menhaden were calculated to have died in Blounts Bay. All dead fish had lesions and staff observerd swimming Menhaden with visible sores. Water quality parameters measured at time of investigation were within normal ranges. No live fish were able to be collected for analysis. Water samples were sent to DWR WSS Lab.
				Total Kills for County: 3	**Total Mortality for County: 154,250**
Burke					
8/8/2019	AS19002	Catawba River	Lake James Tailrace	300	Estimated mortality at 300 forage fish (shad species). Natural occurrence due to temperature/dissolved oxygen squeeze within Lake James. Similar past incident on September 14, 2016
				Total Kills for County: 1	**Total Mortality for County: 300**

2019 Fish Kill Events (by County)

Date	Kill Number	Waterbody	Location	Mortality	Comments
Craven					
5/22/2019	WA19002	Neuse River	Carolina Pines	3,000	EMT staff resonded to fish in distress around the area of Carolina pines. Atalntic menhaden were observed in the area swimming with sores and acting lethargic. Fish samples were collected and sent to Dr. Mac Law (NCSU). Nutrient, fecal, Chlor. A, and Phytoplanton samples were collected and sent to the WSS Lab in Raleigh. Physical Data from the meter readings during the time of investigation were normal. Event was noticed from Flanners Beach to just down stream of Carolina Pines. Fish pathology results showed ulcerative lesions predominantly centered around the anal pore of the submitted Atlantic menhaden specimens are consistent with the lesions seen in large numbers (hundreds to thousands) of menhaden involved in similar fish kill/lesion events in the late 1990's. At the time, most of the menhaden lesion events in several Atlantic coast states were thought to be caused by the highly invasive oomycete (motile, fungus-like "water mold"), Aphanomyces invadans. Fish collected from the present event have similar oomycete hyphae, as well as variable amounts of bacterial colonization and some deep protozoal cysts consistent with Kudoa sp. When large numbers of juvenile menhaden are crowded into creeks and subjected to warm water temperatures and low dissolved oxygen, it is likely that their immune systems (especially mucosal immunity; i.e., the slime/mucus coating on the skin that serves as a barrier against pathogens) are somewhat compromised and, thus, more susceptible to invasion by microbes such as oomyctes (Aphanomyces, and possibly Saprolegnia) and bacteria such as Aeromonas sp.
				Total Kills for County: 1	**Total Mortality for County: 3,000**
Davie					
4/2/2019	WS19001	Cedar Creek Lake	near Mocksville	300	Investigators reported only one species of fish affected. Water quality readings were not obtained due to meter malfunction. Pond turnover was suspected as a cause for the event.
				Total Kills for County: 1	**Total Mortality for County: 300**
Edgecombe					
5/22/2019	RA19002	Farm Pond	near Pinetops	16,500	No injuries or disease observed on fish. Low DO measured below surface. Other water quality parameters within normal range.
				Total Kills for County: 1	**Total Mortality for County: 16,500**

2019 Fish Kill Events (by County)

Date	Kill Number	Waterbody	Location	Mortality	Comments
Halifax					
7/16/2019	RA19003	Roanoke Rapids Lake	Roanoke Rapids	25	On July 15, 2019 at approximately 0930 hours, Dominion Energy Services received a notification from Aquatic Biological Monitoring Services, of approximately 25 fish floating in Roanoke Rapids Lake upstream of the skimmer gate. Periodically, the stations at Roanoke Rapids and Gaston are placed into outage to perform maintenance to the station equipment. During an outage, all or some of the station equipment is temporarily placed into a non-operational state. On July 6th, 2019 a substation near the Gaston Dam experienced a fire which tripped the station and caused Gaston to enter an outage. Gaston Dam was forced to spill via the spillway gates until the substation was repaired on July 12th and Gaston returned to normal operations at that time. Given the brief nature and extent of this observed fish kill and the conditions recorded at the station and operations at the dams, no cause was determined.
				Total Kills for County: 1	**Total Mortality for County: 25**
Johnston					
1/20/2019	RA19001	Farm Pond	near Bentonville	50	Dead fish first noticed around 1/3/19. Dead fish exhibited white fungal growth on various locations of body. Pond was clear at time of investigation with water quality parameters in normal range.
				Total Kills for County: 1	**Total Mortality for County: 50**
Moore					
5/14/2019	FA19001	Seven Lakes	Near Eagle Springs	200	Dissolved Oxygen and ph measurements all within normal range. Cause unknown.
				Total Kills for County: 1	**Total Mortality for County: 200**

2019 Fish Kill Events (by County)

Date	Kill Number	Waterbody	Location	Mortality	Comments
Swain					
7/29/2019	AS19001	Nantahalah River	near Topton	250	The fish kill was caused by the release of warm water over the top of the Nantahala Lake dam into the bypass reach. Duke Energy's turbine stopped working due to mechanical failure and Duke began releasing water over the dam to comply with FERC, provide recreational flows, and maintain a safe lake level on July 23, 2019. Fish were reported as behaving erratically on Saturday July 27, 2019 to NCWRC, who contacted NCDWR. The Nantahala River was investigated Saturday from the base of the dam to Fontana Lake by a NCWRC Game Warden and one dead fish was observed in this reach. NCWRC did not request any assistance or a site visit from NCDWR based on these observations. Between Sunday, July 28, 2019 and Monday, July 29, 2019, fish mortality increased and affected approximately 246 NCWRC stocked brook (80%) and rainbow trout (20%). This number was determined from direct observations by Duke personnel (18 dead fish observed) and extrapolated values. 4,500 fish had been stocked by NCWRC in the Nantahala River on July 23, 2019. Duke Energy stopped releasing water over the dam in response to the fish kill on Sunday July 28th. The generator unit was repaired on Sunday afternoon and cold water flow was resumed. An estimated number of 246 fish were killed in this incident. Follow up discussions will occur between Duke, the resource agencies, and stakeholders to update Duke's Hydro Project Maintenance and Emergency Protocal (HPMEP) for the Nantahal Project to minimize the ecological impacts during future unplanned outages.
					Total Kills for County: 1 **Total Mortality for County: 250**
Union					
6/3/2019	MO19001	Lake Lee	Monroe	200	Elevated ph and temperature observed during investigation. Water was green color with high amounts of solids. Low DO measured below water surface. Investigators suspected event caused by low DO levels related to high temperature and possible algal bloom.
					Total Kills for County: 1 **Total Mortality for County: 200**
Wake					
12/31/2019	RA19004	Bunn Lake	near Zebulon	25,000	Investigators estimated 25,000 fish were below the dam in the pool and downstream throughout about 300’ of Moccasin Creek. Fish may have been trapped in the spillway area and succumbed to lack of oxygen in the shallow, stagnant water there. Many small fish (primarily Lepomis sp.) were still alive and actively gasping at the surface. Because no water was flowing out of the lake, the spillway pool below the dam and the creek were both stagnant with zero flow. At the time of the inspection, the lake appeared full. No dead fish were observed in the lake itself. It may be possible a large pulse of water was released from the lake at some point.
					Total Kills for County: 1 **Total Mortality for County: 25,000**