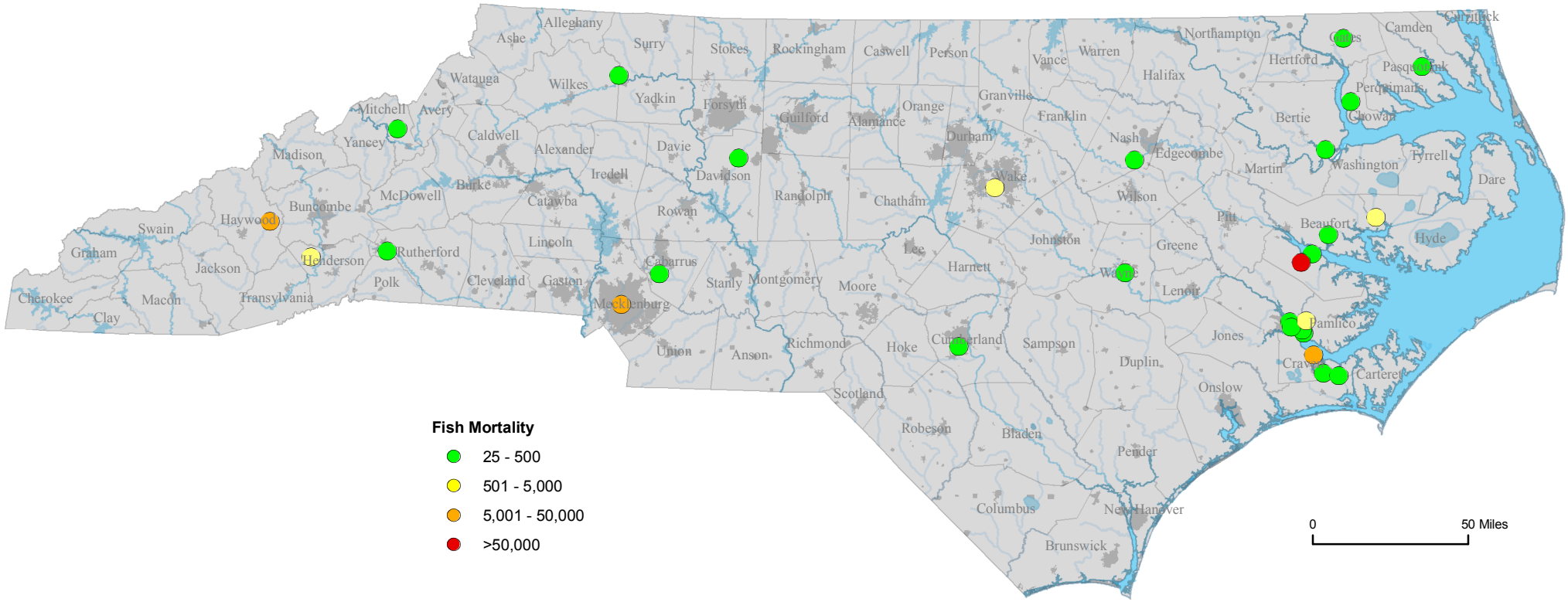
# Fish Kill Events Reported to the North Carolina Division of Water Quality - 2007



# 2007 Fish Kill Events (by County)

**Total 2007 Fish Kills: 29**

**Total 2007 Fish Mortality: 137819**

| Date | Kill Number | Waterbody | Location | Mortality | Comments |
|---|---|---|---|---|---|
| **Beaufort** | | | | | |
| 5/29/2007 | WA07003 | Pamlico River | Crystal Beach | 31 | Upon investigation PRRT staff discovered over 30 badly decomposed mullet, bream and striped bass in a canal near the mouth of Nevil Creek and Crystal Beach Community Campground. Decomposition suggested these fish died during the weekend. This area sees large numbers of recreational fishermen, especially during memorial day weekend. Staff notice the bream heads were cut off. There were no net marks visible. Real-time data near the area showed some drops in dissolved oxygen, but none for a long period of time. PRRT staff agrees that these fish most likely died as a result of some aspect of recreational fishing. |
| 8/11/2007 | WA07009 | Blounts Creek | above Cotton Patch Landing | 100000 | Fish kill was reported by PTRF Riverkeep Heather Jacobs August 11th, 2007. PRRT's pager system was faulty and were not notified until August 13. On site, Riverkeeper 1st recorded multiple species fishkill along a 2 mile stretch in the headwaters of Blounts Creek adjacent to the Cotton Patch Landing. PTRF official total numbers were from 50,000-100,000. Their data indicated very low DO (2 mg/L) and salinities near 6%. PRRT staff arrived on scene 2 days later,August 13, approximately 10:45 a.m. Species affected included juvenile menhaden (80-200mm), striped bass (350 mm), shad, catfish (350 mm), mullet (300 mm), bluegill (200 mm), and perch (100mm). Water levels had dropped nearly 6-8 inches since the weekend. Fish were observed lying on shoreline banks. Count was not performed since most fish had decayed or were consumed within past days. PRRT transect data on August 13th showed salinities spanning from 3 % (headwaters) to 6 % (near Cotton Patch Landing). DO levels were from 3 mg/L (surface) to near 0 (bottom). An algae bloom was observed along the stretch of the kill area, however DO% saturation values were highest further upstream. Bloom samples were collected and sent to ESS for further evaluation. The kill event coincides with a previous strong wind and rain event in the area. The storm event exhibited north winds up to 65 mph gusts, and large amounts of rainfall. Real-time data near Channel marker 5 indicated surface salinity changes from 12 % to 0 % coinciding with DO drop to zero and a water level increase of 5 feet in less than 12 hours. These Northerly winds may have pushed waters levels up into Blounts Creek, while rainfall caused a pulse of freshwater in the system. Low DO and a sudden drops in salinity were cited as factors in the event . Water samples submitted to ESS showed a dense bloom of the raphidophyte flagellate Heterosigma. |
| 10/19/2007 | WA07016 | Tankard Creek | at Hunter's Bridge | 60 | The Pamlico Rapid Response Team investigated a fish kill that occurred in the headwaters of Bath creek (Tankard creek) on Friday October 19th. The kill extended 1.2 miles up Tankard creek from Bath creek. The fish, mostly freshwater, averaged 150 mm in length, consisted of catfish, crappie, perch, bluegill, and sunfish. Some of these fish were partially eaten and appeared to be at least 48 hours old. No lesions were observed. Chlorophyll A, nutrient and phytoplankton samples were taken in the kill area, as a remnant algal bloom surface film was evident. The current drought conditions most likely created higher salinity conditions (12-14 ppt) than typically observed in this area. Saltwater stress and low dissolved oxygen readings (0.8 mg/l surface and 0.5 mg/l bottom) combined to create stressful conditions for these resident freshwater fish. Water samples indicated there was a bloom of the dinoflagellates Karlodinium and Peridiniella at the site. Both algal taxa are common in the state's coastal estuarine rivers. Karlodinium is known to produce toxins but it is not known to kill fish in the open waters of North Carolina. |
| | | | | | **Total Kills for County: 3** **Total Mortality for County: 100091** |

| Date | Kill Number | Waterbody | Location | Mortality | Comments |
|---|---|---|---|---|---|
| **Bertie** | | | | | |
| 5/29/2007 | WA07004 | Private Pond | near Sans Souci | 500 | Upon investigation PRRT staff discovered several homeowners that have routinely dumped in copper sulfate in the pond for years to kill algae. This year the owners also noticed emergent, floating duckweed (lemna spp) and considered it to be a nuisance plant and were further considering eradicating it. PRRT staff pressed no dumping of herbicides into the pond since there is no natural outlet except evaporation. PRRT also suggested the owners consult with their local Agricultural Extension County Agency to document and clarify appropriate measure of herbicidal application. Over 500 fish species were killed, most likely as a result of chemical and biological oxygen demand increasing and ultimately diminishing any available dissolved oxygen. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 500** |
| **Cabarrus** | | | | | |
| 9/24/2007 | MO07003 | Coddle Creek | Near Concord | 150 | DWQ/MRO was not notified of the fish kill until 9/24/2007 at 10:43 a.m, (almost three days later). Instream dissolved oxygen (DO) and total residual chlorine (TRC) levels were measured by DWQ-MRO staff. TRC levels ranged from 66 ug/l (upstream of the PVC pipe) to 88 ug/I (directly below the location where the kids were playing and the majority of the dead fish were observed). In addition, DWQ-MRO staff did not detect any "bleach" odors. The instream DO levels ranged from 5.71 mg/l (same upstream TRC sampling site) to 5.9 mg/l (same downstream TRC sampling site). DWQIMRO staff performed a site inspection at the facility that owned the irrigation pipe. The facility was a pool chemical supplier with bulk sodium hypochlorite and sulfuric acid storage tanks (inside the building). A stormwater drain was observed at the loading/unloading area for these chemicals. The concrete driveway (adjacent to the stormwater drain) exhibited evidence of previous discharges/spills. Strong odors of sodium hypochlorite were detected in the stormwater drainage ditch (from the loading dock area) that discharges directly to Coddle Creek. The substrate in Coddle Creek adjacent to the outlet of the stormwater drainage ditch appeared dark red of unknown origin and was only observed in this immediate area of the creek. In addition, the soil throughout the stormwater drainage ditch was still damp from the previous discharges. Note: No discharges were observed to Coddle Creek by DWQIMRO staff during this site investigation. This Office will perform a follow-up inspection at this facility to ensure corrective actions have been incorporated. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 150** |
| **Chowan** | | | | | |
| 12/18/2007 | WA07017 | Bennetts Millpond | near dam | 400 | Students and staff with The Science House monitor Bennett's Millpond on a weekly basis. On 12/12 prior to the rainfall event, dissolved oxygen 10.0 mg/L and pH was 6.8 at 1600 hrs. The rain event occurred on 12/16. On 12/17, dissolved oxygen levels were 4.9 mg/L and pH was ~ 5.5 at 1600 hrs. With the low water level due to the current drought and a rainfall event after a long dry period, these factors likely contributed to oxygen depletion and a sudden drop in pH in the millpond. Due the cumulative stressors of low water, low dissolved oxygen, sudden pH change and low water temps, fish of different species and sizes either succumbed or were in distress because of the natural conditions. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 400** |

| Date | Kill Number | Waterbody | Location | Mortality | Comments |
|---|---|---|---|---|---|
| **Craven** | | | | | |
| 7/20/2007 | WA07006 | Neuse River | Carolina Pines | 6600 | The investigation was prompted by NRRT staff review of water quality data from the channel marker 11 real-time water quality monitor. Data from the channel marker 11 monitor indicated an upwelling event had occurred during the early morning hours. The upwelling event was characterized by a considerable decrease in dissolved oxygen (DO) and increase in salinity in surface water at the monitor location. The observed drop in DO (down to 0.7 mg/L) created hypoxic conditions favorable for a fish kill. NRRT staff discovered the fish kill upon arrival to the Carolina Pines area at approximately 09:30. The fish kill extended approximately 3/4 of a mile and included spot, croaker, menhaden, silver perch, trout, flounder and needlefish. Team members estimated 6,666 fish were killed during the event. There was no indication of an algal bloom and no lesioned fish were observed. The fish kill appeared to have taken place approximately 12 hours prior to NRRT arrival, coinciding with the observed upwelling event. Physical parameters were measured with a Hydrolab MS-5 equipped with an optical DO probe. Additionally, water quality samples, including phytoplankton, nutrients, and chlorophyll, were collected during the investigation. Measured DO concentrations were 7.1 mg/L at the surface and multiple species of fish were observed swimming in the vicinity of the fish kill during the investigation. Data from the Carolina Pines NCSU real time water quality monitor was utilized by NRRT staff following the onsite fish kill investigation to corroborate data from the channel marker 11 real time water quality monitor. Samples showed algal assemblages typical for summer and resembles the Neuse River samples collected earlier in the month during the ambient monitoring run. The dominant taxa were the flagellated chrysophyte Paulinella, the filamentous bluegreen Cylindrospermopsis, and the flagellated raphidophyte Heterosigma. |
| 7/23/2007 | WA07007 | Private Pond | near Fairfield Harbor | 52 | The groundskeeper at Fairfield Harbor contacted the Neuse River Rapid Response Team (NRRT) on July 23, 2007 regarding a fish kill in a private pond located at Fairfield Harbor. NRRT staff responded and counted 42 dead fish ranging in size from approximately 8" to 24". The fish kill consisted of multiple freshwater species including gizzard shad, grass carp, bluegill bream, yellow perch, largemouth bass, channel catfish, and american eel. During the investigation, pond water was blue/green in color and cloudy. Physical parameters were measured and did not indicate an algal bloom was in progress. Water samples were also collected for phytoplankton, chlorophyll, and nutrients. Fish appeared to have been dead at least 48 hours. It was difficult to establish the reason for the fish kill due to the state of decomposition and time lapse between the kill and the investigation. |
| 7/29/2007 | WA07008 | Fairfield Harbor Canals | | 98 | Mr. Mark Klipinger, resident of Fairfield Harbor, reported a fish kill on July 29, 2007 in the canal system at Fairfield Harbor. NRRT staff responded and counted 98 dead fish ranging in size from approximately 8" to 24". The fish kill consisted of three freshwater species; channel catfish (accounting for 91 of 98 dead fish), bream, and yellow perch. Dead fish associated with this fish kill were observed throughout the canal system although the majority were located in the northwest portion of the canal system (winds were out of the Southeast). Several species of estuarine fish were observed swimming in the canals during the investigation. Physical parameters were measured and did not indicate an algal bloom was in progress. Water samples were also collected for phytoplankton, chlorophyll, and nutrients. Fish appeared to have been dead at least 48 hours as evidenced by the state of decomposition. The algal assemblage in water samples was typical for the lower Neuse River during summer. The dominant algal groups were small chrysophyte flagellates, chain forming diatoms (Aulocoseira, Chaetoceros), and dinoflagellates (Karlodinium, Scrippsiella). |

| Date | Kill Number | Waterbody | Location | Mortality | Comments |
|---|---|---|---|---|---|
| 8/13/2007 | WA07014 | Hancock Creek | above Cherry Point MCAS | 118 | The Neuse River Rapid Response Team received a report of a fishkill at the headwaters of Hancock Creek on Monday August 13, 2007. Upon investigation, team staff found 118 dead catfish and panfish in an area encompassing approximately 0.6 river miles. Fish appeared to be 48-72 hours old and highly decomposed. At the time of investigation, dissolved oxygen (DO) concentrations were low, measuring 1.0 mg/L at the surface and 0.2mg/L at 1 meter bottom depth while salinity was relatively high, measuring 4.7 ppt at the surface and 11.7 ppt at 1 meter bottom depth. Water color and clarity were indicative of an algae bloom although pH and DO measurements were not characteristic of an active bloom at the time of investigation. Weather may have contributed to this fish kill event as a period of strong north winds and heavy rains coincided with the estimated time of the fish kill. Physical measurements recorded at the real-time water quality monitor at Channel Marker 9 indicated an increase in water level that would likely have created a rise in salinity in the headwaters of Hancock Creek. High salinity combined with low DO concentrations and high water temperatures provided stressful conditions that likely led to the fish kill. |
| 8/23/2007 | WA07010 | Neuse River | Marker 38 | 59 | During routine maintenance of the Neuse River CM38 continuous water quality monitors, Mr. Maverick Raber of the NRRT observed dead gar in the vicinity. Upon completion of maintenance activities, Mr. Raber and Mr. Ryan Rassmussen of the USGS investigated the area and discovered a total of 59 dead fish, primarily longnose gar, that had been dead 24-48 hours. Conditions at the CM38 water quality monitors did not indicate the presence of an algal bloom and several species of fish were observed swimming in the area. The kill area covered approximately 0.75 river miles. |
| 8/30/2007 | WA07012 | Neuse River | Hwy 70 Bridge | 36 | While commuting from the CM9 to CM38 continuous water quality monitors, Mr. Maverick Raber of the NRRT and Mr. Ryan Rasmussen of the USGS observed a total of 33 dead gizzard shad and 3 dead longnose gar just downstream of the Highway 70 Bridge in the Neuse River. Fish had been dead approximately 24 hours as noted by the state of degradation. The fish kill appeared to be the result of net fishing activities as net marks were observed on several of the fish. |
| 9/3/2007 | WA07013 | Upper Broad Creek | near Lee's Landing | 2200 | Live fish observed in the fish kill area appeared lethargic and a few may have been dying. None of the fish observed in the fish kill had lesions. Algal bloom samples were collected in the area of the fish kill although there were no signs of an active bloom. Recent drought conditions combined with strong northeast winds during the previous few days has resulted in relatively high salinity concentrations in the headwaters of Broad Creek. The drought has caused higher salinity waters to move farther upstream than normal. The northeast winds created a wind-generated tide that "pushed" higher salinity waters even farther upstream. NRRT team staff measured salinities in the fish kill area as high as 13 ppt, or nearly half the strength of sea water. Additionally, measured dissolved oxygen concentrations in the fish kill area were low, ranging from 0.4 mg/L to 1.6 mg/L. High salinity concentrations combined with low DO concentrations created highly stressful conditions to freshwater fish species and are the likely cause of this fish kill event. |
| 10/23/2007 | WA07015 | Slocum Creek | near mouth | 183 | The Neuse Rapid Response Team (NRRT) responded to a report of several dead longnose gar and other species in a pile at the mouth of Slocum Creek on October 23, 2007. Upon investigation, NRRT staff counted 183 dead fish, primarily longnose gar. The fish were located above the high water mark on a 15 square meter area of beach and appeared to have been dead less than 24 hours. This fish kill is apparently the result of gill net fishing activities as net marks were apparent on several fish. Several gill nets were observed set just outside the mouth of Slocum Creek on the Neuse River. Water quality samples were not collected for this fish kill event. |

| Date | Kill Number | Waterbody | Location | Mortality | Comments |
|---|---|---|---|---|---|
| 12/20/2007 | WA07018 | Mortens Millpond | | 134 | The Neuse River Response Team (NRRT) responded to a report of several dead black drum and other species in a pile near the SR 1715 bridge at Morten Mill Pond, a tributary to Clubfoot Creek. Upon investigation, NRRT staff observed 134 dead fish, primarily black drum, in an approximate 1 square meter area approximately 3 meters from the water's edge. The initial report to the NRRT indicated the presence of net marks on the dead fish. The fish had been dead approximately seven days at the time of investigation and it was difficult to confirm the presence of net marks due to the state of degradation. A local citizen that drove by during the investigation stated he frequently fishes at the SR 1715 bridge and had observed net fishing activities upstream of the bridge during the time the fish appeared on the bank. Water conditions appeared normal during the investigation and fish activity was observed in the creek. Water quality samples were not collected for this fish kill event. |
| | | | | | **Total Kills for County: 9** **Total Mortality for County: 9480** |
| **Cumberland** | | | | | |
| 7/10/2007 | FA07001 | Private Pond | Fayetteville | 105 | Kill appeared to be due to oxygen depletion due to turnover of water column. Upon talking with landowner, it was noted that he thought the kill began after a hard rain approximately a week ago. DO was 5.3 on shallow side of pond and 3.5 on deeper side. He indicated at first that he thought the kill was due to herbicide application nearby that occured approximately a month ago. Pond was uphill of herbicide application site so it is not believed to be the cause. Live fish, turtles, and frogs were seen still alive in the pond. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 105** |
| **Davidson** | | | | | |
| 8/1/2007 | WS07001 | Lake Tom-A-Lex | near Thomasville | 225 | Fish had no signs of disease, no visible parasites, sores, tumors, etc. Two fish that were still alive were floating belly-up. Investigators did not see anything to indicate there was anything dumped. Water described as pea green, possible algal bloom. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 225** |
| **Gates** | | | | | |
| 6/8/2007 | WA07005 | Bennetts Creek | below Merchants Millpond | 400 | Low dissolved oxygen was cited as the cause and most likely due to the ambient conditions of low water, high air and water temperatures and presence of a dense mat of duckweed. During low water conditions, pools below millponds are subject to these fish kills. Nearby bridge project possibly contributed to the situation. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 400** |
| **Haywood** | | | | | |
| 9/7/2007 | AS07004 | Pigeon River | below Canton | 8000 | Kill event attributed to low flow/DO and high water temperatures brought on by ongoing drought conditions. Investigators observed numerous live fish during the investigation. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 8000** |

| Date | Kill Number | Waterbody | Location | Mortality | Comments |
|---|---|---|---|---|---|
| **Henderson** | | | | | |
| 7/27/2007 | AS07003 | S.Fork Mills River | near Mills River | 1000 | Investigators suspected event was related to pesticide application in adjacent tomato fields. DWQ water samples showed the presence of Chlorothalonil in field runoff and samples collected from the river. The event occurred after heavy rain following pesticide application. Majority of affected fish were identified as rainbow trout. Event also had significant effects on the aquatic insect population. This area of the South Mills River supports a documented population of the federally listed Appalachian elktoe mussel (Alasmidonta raveneliana), an endangered species. A follow up survey conducted on July 29 indicated that all located mussels were in good condition. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 1000** |
| **Hyde** | | | | | |
| 8/25/2007 | WA07011 | Pungo River Canal | above Leachville | 778 | PRRT staff responded August 25th. A fisherman noticed dead catfish along the Pungo River August 24th. The fish kill began north of the Leechville Bridge near the confluence of Herring Run and extended approximately 3.5 miles to where the Piney Grove Landing area connects with the Pungo Canal. Over 778 catfish were counted. Sizes ranged from 100 to 250 mm in length. These fish were estimated from 24-48 hours old. No obvious lesions were observed. Staff observed heavy organic algal film along the surfacewaters over several miles although there was no indication of an algal bloom at present. Physical water quality data closest to the upstream portion of the kill indicated salinities from 4 to 5 parts per thousand from the surface to the bottom with DO values from 4 to 1 mg/L top to bottom respectively. Downstream data seemed to be more homogeneous with consistent salinities of 5 ppt and and DO values of 3 mg/L. This area had periods of heavy rainfall on August 22nd. The cause of this fishkill may have been a combination of previous algal bloom activity, low DO, and sudden pulses of rainfall into the system. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 778** |
| **Mecklenburg** | | | | | |
| 7/25/2007 | MO07001 | Stewarts Creek | Lawton Road, Charlotte | 40 | Fishkill due to sanitary sewer overflow from industrial property. Overflow reached Stewarts Creek. Overflow contained at least one type of dye with colored the water purple/blue. The overflow was stopped at the time MCWQP arrived at the site around 9:00am and may have been ongoing for some time before 8:00am. The event occurred at 701 Lawton Road in Charlotte NC. |
| 9/1/2007 | MO07002 | Little Sugar Creek | Charlotte | 15000 | Kill event caused by runoff of degreaser (Orange Tough 90) used to powerwash concrete areas at Carolina Medical Center in Charlotte. Product was entering the storm drain system and discharging into Little Sugar Creek. Degreaser had been applied for 11 hours beginning at 10:00 PM on 8/31/07. Enforcement action initiated by DWQ Mooresville office. |
| | | | | | **Total Kills for County: 2** **Total Mortality for County: 15040** |
| **Mitchell** | | | | | |
| 5/1/2007 | AS07001 | Whiteoak Creek | near Bakersville | 250 | Sediment pesticide sample (organochlorine, organophosphorus, nitrogen) collected at most upstream site on White Oak Creek where dead fish observed. Pesticide sample collected due to Christmas Tree farm in the watershed. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 250** |

| Date | Kill Number | Waterbody | Location | Mortality | Comments |
|---|---|---|---|---|---|
| **Nash** | | | | | |
| 9/17/2007 | RA07002 | Tar River Reservior | Sapony Creek Arm | 500 | The drought conditions were severe in this area and played a significant role in this fish kill. The Sapony Creek arm of the Reservior is stocked in the fall-winter yearly with fish. It would be unlikely that the water body could support fish life anytime in the near future, as the Reservior is almost completely dry with little to no moving water. An algal bloom may have occurred during the low flow conditions, worsening the situation. Possible sources of agricultural chemicals and nutrients are in the area, as many farms surround the Sapony Creek, but no evidence suggest this was a primary cause of the fish kill. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 500** |
| **Pasquotank** | | | | | |
| 5/2/2007 | WA07002 | Knobs Creek | Elizabeth City | 100 | Low DO observed at time of investigation. Staff walked upstream of event taking hydrolab data. These data indicate DO levels increasing slightly, but the waters remained turbid and whitish in color. Further observation upstream indicated two prongs of this stream that split off. One prong was piped to the other side of highway 17 and seemed to have no riparian buffer and the other prong paralleled US 17 and had some buffer, although this stream 'ended' at a retention pond from Lowe's parking lot. This area is heavily urbanized. Water samples did not indicate algal bloom according to ESS staff. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 100** |
| **Rutherford** | | | | | |
| 8/29/2007 | AS07002 | Broad River | Below Lake Lure Dam | 100 | Kill was attributed to a dissolved oxygen sag below the Lake Lure dam. Event occurred following several weeks of drought conditions, hot weather and low flow. The event involved mostly suckers up to 12 inches in length. The event was first reported in the evening hours of 8/28/07. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 100** |
| **Wake** | | | | | |
| 3/26/2007 | RA07001 | Walnut Creek | Lake Johnson | 600 | Gizzard Shad kill throughout the entire lake. No other species noted. Park personnel stated water temps had risen significantly over the last few days (from 12.2 degrees C to 16.6 degrees C.) Water Temp was 18.7 degrees C at the time of investigation. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 600** |
| **Wayne** | | | | | |
| 4/24/2007 | WA07001 | Long Branch | Goldsboro | 100 | Approximately 100 fish were found piled on a hill by PRRT staff on April 24th, adjacent to the pond shoreline. These fish were mainly gizzard shad less than 20 cm in length with no visible sores or lesions. Residents revealed some bass that died and were collected and dumped on the side of the pond that was not observed by PRRT staff. The pond was around 2 acres and was apparently dug to serve as stormwater retention when the adjacent condominiums were built over 20 years ago. The pond receives baseflow in from Long Branch, which drains the southern portion of the city of goldsboro and discharges to Stoney Creek. The cause of the kill could be due to several factors. Pond overturn and strong temperature variations may have stressed resident fish. Nutrient inputs from previous northeaster may have also caused algal blooms, as instruments revealed very high DO % saturation values downstream towards the widest portion of the pond. The homeowner's association meeting indicated previous fish kills in the past and new construction is slated adjacent to the pond shoreline in the next few months. This information is being forward to SWPS' Chris Pullinger for further investigation of potential buffer violations. |
| | | | | | **Total Kills for County: 1** **Total Mortality for County: 100** |