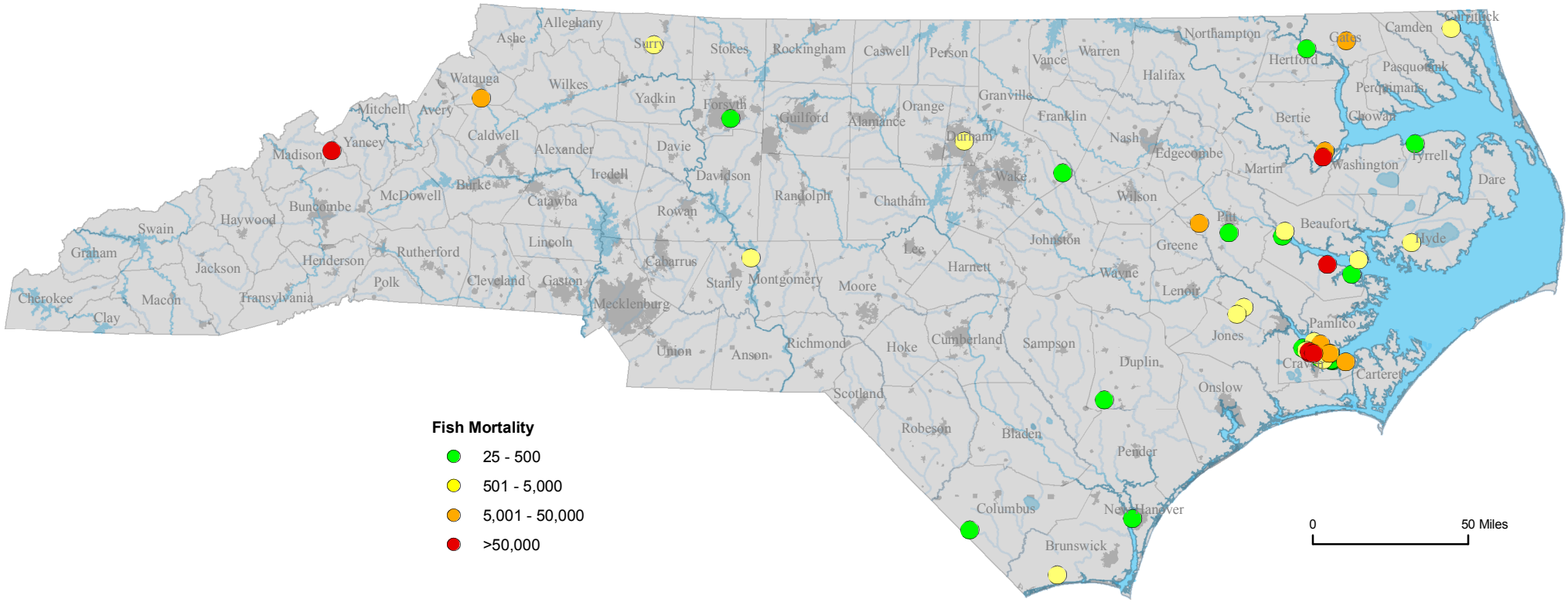
Fish Kill Events Reported to the North Carolina Division of Water Quality - 2003



2003 Fish Kill Events (by County)

Total 2003 Fish Kills: 43

Total 2003 Fish Mortality: 3694053

Date	Kill Number	Waterbody	Location	Mortality	Comments
Beaufort					
1/24/2003	WA03001	Pamlico River	from Blounts Creek to Pungo Creek	2000	Investigators reported extremely low water temperatures. Areas of Pamlico R. reported frozen over. Low temperatures were cited a cause of kill.
6/30/2003	WA03008	Bond Creek	near Aurora	300	Original report was for 10,000 dead clams floating on surface, fish eatting them. At the time of investigation only 300 clams counted . Clams reported floating about 36 hrs prior. Areas of low DO and warm surface water temps. Algae bloom also found in area. Clams were Macoma species.
7/2/2003	WA03009	Durham Creek	Bogus Pt.	148000	An estimated 148,000 clams were found mostly washed up in wrack lines on the shore along a 1.5 mile stretch of Durham Creek from Bogus Pt. down to Horse Pt. at Porter Creek. Low dissolved oxygen levels on the bottom of the water column are suspected as the cause of this kill.
7/23/2003	WA03012	Pamlico River	near Pamlico Beach	1000	Water quality meter readings at Pamlico Beach were within normal level, fish dying outside of Pamlico Beach area and being pushed by SW wind. Investigators reported 95-100% of fish had lesions.
10/1/2003	WA03023	Pond	off Hwy 17	86	Kill caused by low DO levels resulting from an influx of swamp water and organic matter following Hurricane Isabel. Some remaining fish found swimming in pond at time of investigation
					Total Kills for County: 5 **Total Mortality for County: 151386**
Bertie					
9/26/2003	WA03022	Cashie River	Windsor	22243	Kill caused by low DO levels resulting from an influx of swamp water and organic matter following Hurricane Isabel. Dead fish were found from Windsor to the mouth of the river and all DO readings were less than 0.5 mg/l. The heaviest concentration of fish was from the San Souci ferry crossing downstream to the mouth. Some of the fish appeared to be several days old and others were seen actively gasping at the surface. This kill was one of many reported in the aftermath of Isabel.
					Total Kills for County: 1 **Total Mortality for County: 22243**
Brunswick					
6/26/2003	WL03002	Palmer Lake	Shalotte	1400	Investigators observed discolored water from green to brown according to owner.Most probable cause of kill - extremely high water temperatures coupled with low DO resulting from an algae bloom and subsequent die-off.
					Total Kills for County: 1 **Total Mortality for County: 1400**
Columbus					
4/22/2003	WL03001	Lake Tabor	near Tabor City	400	Lake is heavely infested with vegetation, watermilfoil, bladderwort, filamentous algae, alligatorweed. Fish kill possibly caused by vegetation decomposing on the lake bottom and 7 to 10 days of prior cloudy weather preventing effective photosynthesis. Low dissolved oxygen levels measured below lake surface.
					Total Kills for County: 1 **Total Mortality for County: 400**

Date	Kill Number	Waterbody	Location	Mortality	Comments
Craven					
4/23/2003	WA03003	Core Creek	near Cove City	1200	Kill likely caused by spill of chlorpyrifos. Analyses showed levels as high as 5.1 ppb in water samples. Acute Toxicity tests using Ceriodaphnia (48 hr) showed an LC50 concentration of less than 20% after 21 hours. Investigators reported no signs of chlorpyrifos use in the area at the time of the kill.
5/3/2003	WA03004	Grape Creek	near Cove City	2000	The kill was reported on 5/3/03 by a local citizen after noticing a white substance in a pile in the stream. The substance was sampled for pesticides. The substance was toxic to aquatic organisms killing all aquatic fauna in the affected area. Three organophosphates were identified : chlorpyrifos, fenamiphos(a highly toxic organophosphate), and malathion.
7/15/2003	WA03011	Neuse River	Cherry Branch	288	NRRT counted 288 Atlantic menhaden on the beach at Cherry Branch. This kill appears to have occured during the morning of 7/15. 95-100% of the fish had lesions and were juvenile. The area where the fish were found was shallow and hot which may have caused severe stress. There was an algae bloom at the time of investigation. Since no fish were dying at the time of investigation it is not known if this bloom played a role.
7/17/2003	WA03014	Neuse River	Cheery Point MCAS	400	Kill was reported at the waterfront along the seawall of Cherry Point. Team members tried to respond but could not due to weather and the investigation was carried over untill the morning of 7/18/03. Upon investigation 400. Menhaden were counted on the beach and wash zone over and area of a half mile. About 95-100% of the fish had lesions. There were other live fish in the area and physical readings were within range to sustain fish activity. No chemical samples were taken.
7/30/2003	WA03015	Neuse River	near moth of Hancock Creek	3500	NRRT discovered deaf fish along the bank and water surrounding the mouth of Hancock Cr. All fish appeared to have been dead for at least 18 hours. Most fish were juveniles, and none showed any lesions. Conditions in the area had been stratified for several days, with very low dissolved oxygen levels near the bottom. Low oxygen levels and high temperatures are believed to have killed the fish that were found in the shallow water area surrounding the mouth of Hancock Cr.
7/30/2003	WA03016	Neuse River	Cherry Branch	200	NRRT investigated a fishkill at Cherry Branch Ferry Terminal basin upon report from the Neuse River Foundation. Investigation was made at first light due to the late hour of the first notification. NRRT observed approximately 200 dead fish of various species in the ferry basin and outside of the breakwater surrounding the basin. No lesions were observed on any of the fish. Very hypoxic conditions were present at the time of investigation, and ferry staff reported observing large and small fish swimming along the surface gasping. The basin is roughly 7-10 feet deep and has limited circulation. In situ monitors nearby showed signs of an algae bloom and a mixing event of the stratified water column the evening prior to the kill. Severely depressed dissolved oxygen levels caused by high temperatures, algal bloom activity, and poor mixing of the water column within the ferry basin are believed to have casued this event. ESB staff determined no algal bloom was present from phytoplankton samples submitted.
8/18/2003	WA03017	Neuse River	near Carolina Pines	74500	Kill was reported at 0800 on 8-18-03 by a resident of Carolina Pines. Resident was on the beach the night of 8-17 and did not see anything, the next morning found fish along the beach and waters edge. Monitors in the area show a DO crash the night of 8-17-03.The fish were lesion free and the majority were spot (65%), with croaker (15%) and pinfish (10%). The balance of the total consisted of flounder, menhadden, crab, shad, silver perch and striped bass. Automated monitors in the area indicated that there had been a turnover event and a DO crash late the night before and in the early morning. Physical readings taken during the investigation were all within normal parameters and there were healthy fish in the area.

Date	Kill Number	Waterbody	Location	Mortality	Comments
8/31/2003	WA03018	Neuse River	Carolina Pines	1300000	Upon investigation DWQ staff found dead fish along a 5 mile stretch of the Neuse River and the adjacent southern shoreline. No lesions were visible on the dead fish which were 95% juvenile. Data from US Geological Survey monitors on Channel Marker 11 showed a severe drop in dissolved oxygen for that area on the evening of 8/30. This drop in dissolved oxygen matches an increase in wind speed which most likely caused the mixing or upwelling event. This phenomenon seems to have occurred over a extensive portion of the Neuse River from Flanners Beach to Slocum Creek and extended for a period of roughly 3 hours. This change in the dissolved oxygen levels in that area may have also been worsened by algal bloom activity. Estimates for the total mortality of this kill were made by shoreline transects over the entire distance of the kill as well as open water estimates which were then added together. Three preserved algal samples were collected on 8/31 and arrived at the Environmental Sciences Branch Lab on 9/3. All three samples contained a very diverse mix of algal species commonly seen in the Neuse. Algal concentrations indicated that a fairly dense algal bloom took place between Slocum and Hancock Creeks. No Pfiesteria-like dinoflagellates were seen in any of the samples.
9/5/2003	WA03019	Neuse River	Carolina Pines	1800000	NRRT received a call from Mr Rick Dove on the evening of 9/4 concerning a massive fishkill in progress on the Neuse River. Investigation showed mostly dead menhaden from Carolina Pines to Hancock Creek (Including an area inside Slocum Creek). Estimates of dead fish were made using open water transects as well as beach transects throughout the 5 mile area of the kill. Profiles of the water column during the investigation showed mixed conditions. Data from NCSU monitors at the time of the fishkill showed an upwelling event which moved hypoxic water from the bottom into the shallow areas of the river along the southern shoreline. An increase in windspeed is believed to have created the upwelling current along the southern shoreline. Very low numbers of fish with lesions were observed. Samples were taken in the area of the kill for phytoplankton as well as unpreserved samples for analysis of bacteria. ESB staff analyses of phyto samples showed a very diverse mix of algal species commonly seen in the Neuse. Algal concentrations indicated that fairly dense algal blooms took place at both sites. Only insignificantly low concentrations of Pfiesteria-like dinoflagellates were found in the Kennel Beach sample, and no Pfiesteria-likes were found in the Slocum Creek sample.
10/9/2003	WA03028	Neuse River	near Neuse Harbor	222	NRRT received a call about a small fishkill in the Neuse Harbor neighborhood along the Neuse River. Dead fish were found along a stretch of shoreline approximately 1/4 mile long. The kill was comprised of mostly menhaden which appeared to be from 6 to 24 hours old. Adult gizzard shad were also found in the kill, as well as several larger striped bass. These larger fish were very decomposed and believed to be bycatch from a gill net in the area. The dead menhaden most likely washed ashore after dying in deeper water. NRRT was in the area several days prior to this event and observed lesioned fish swimming near the surface. Northerly winds would have pushed any dying fish onto the shoreline where the dead fish were found.
10/11/2003	WA03031	Neuse River	Flanners Beach	1010	NRRT investigated a kill which spanned the full length of Flanners Beach with species including menhaden, shad, mullet, and striped bass. The kill was predominantly menhaden at roughly 1000 fish that had been on the beach for more than 48 hrs with 85% lesions. The other fish involved in the kill appeared to be net bycatch and some had been filleted. There were fishermen in the area that were net fishing from the beach.
10/11/2003	WA03029	Neuse River	Long Creek	34000	Fish were estimated to be dead for 24 - 48 hours. Investegators reported 100% of fish had lesions. No cause was specified.
10/16/2003	WA03032	Neuse River	Cherry Branch Ferry Basin	200	Fish described as having lesions at time of investigation. Elevated dissolved oxygen levels measured at water surface.

Date	Kill Number	Waterbody	Location	Mortality	Comments
					Total Kills for County: 13 Total Mortality for County: 3217520
Currituck					
6/19/2003	WA03006	Poyners Road Canal	near Sligo	1500	Hypoxic conditions observed in Tulls Creek at time of investigation. Kill confined to upper end of Poyners Road canal at access area. No dead fish were observed in Tulls Creek despite hypoxic conditions.
					Total Kills for County: 1 Total Mortality for County: 1500
Duplin					
9/11/2003	WL03004	Rockfish Creek	Near Wallace	190	Investigators noted the presence of aquatic weeds (Elodea, Fanwort, Water Willow, Duckweed) that choked the creek in many places. Fish seen moving into shallow areas.
					Total Kills for County: 1 Total Mortality for County: 190
Durham					
1/10/2003	RA03001	Private Pond	Glaxo Smith Kline main campus	2000	Cause of prolonged fish kill unknown. Fish described as acting lethargic and erratic. Sick herons associated with pond were submitted to Rollins Animal Lab (NCSU) for analyses. Birds showed heavy parasitism from nematodes.
					Total Kills for County: 1 Total Mortality for County: 2000
Forsyth					
9/11/2003	WS03002	Salem Creek		400	Water quality measurements were normal at time of investigation. Cause of kill could not be determined.
					Total Kills for County: 1 Total Mortality for County: 400
Gates					
9/24/2003	WA03027	Merchants Millpond	Silver Springs	10000	Low dissolved oxygen levels following Hurricane Isabel were reported by investigators and blamed for the event.
					Total Kills for County: 1 Total Mortality for County: 10000
Hertford					
9/22/2003	WA03030	Chowan River	Tuscarora Beach	400	Kill occurred after Hurricane Isabel. Live fish reported as lethargic and gasping at the surface. Dissolved oxygen at the time of the investigation was measured at 0.55 mg/L.
					Total Kills for County: 1 Total Mortality for County: 400
Hyde					
4/19/2003	WA03002	Rose Bay Canal	near Lake Mattamuskeet	1234	Kill covered approx 1.67 mi. of Rose Bay canal that drains from Lake Mattamuskeet. The majority of the fish affected were carp which appeared to have been dead for 2-3 days. DO levels at the time of the invetigation were within normal ranges (4.8 to 7.6 mg/l). Salinity levels were also low. One side of the canal appears to have been sprayed with an herbicide at some point. A water sample was collected to test for the presence of pesticides/herbicides that may have leaked into the canal from the canal side spraying or from local Ag fields. The results were negative for both pesticides and herbicides.

Date	Kill Number	Waterbody	Location	Mortality	Comments
					Total Kills for County: 1 Total Mortality for County: 1234
Madison					
1/7/2003	AS03001	California Creek	north of Mars Hill	83000	Kill caused by a tanker truck spill of propionic acid directly into California Creek. NCWRC performed investigation and assessed a fine of around $16000 for time and cost of fish. Fine forwarded to DWQ for collection.
					Total Kills for County: 1 Total Mortality for County: 83000
Martin					
9/24/2003	WA03021	Roanoke River	Jamesville, Plymouth	93500	Kill resulted from the flushing of swamp water into the river following Hurricane Isabel, and the subsequent drop in DO levels. The main kill zone stretched from Devils Gut 2.6 mi above Jamesville to the river mouth, a distance of 18.2 mi. , but dead and dying fish were found for several miles upriver of kill zone. All DO readings were below 0.5 mg/l and fish were actively seen gasping for air near the surface. Heaviest concentration of larger fish was near Plymouth. Untold numbers of juvenile fish are not reflected in kill total. Dark, tannic swamp water was seen mixing with the brown river water throughout the river.
					Total Kills for County: 1 Total Mortality for County: 93500
New Hanover					
9/22/2003	WL03003	Greenfield Lake	Wilmington	450	Lake was lowered prior to Hurricane Isabel. Resulting lake outfall had very low dissolved oxygen from the lake bottom. D.O = 0.08 mg/L at outfall where kill occurred.
					Total Kills for County: 1 Total Mortality for County: 450
Pamlico					
6/26/2003	WA03007	Beard Creek	near mouth	37000	During routine sampling NRRT discovered dead clams in Beards Creek. Clams were found floating just inside the mouth of the creek. The kill was suspected of being caused by a combination high water temperature, low dissolved oxygen, and possible location of the clams. Large numbers of asiatic clams often die for several reasons, these clams appear to have been transported downstream by high flow from freshwater input in the area. Clams were relatively homogenous in size 30-40mm.
7/11/2003	WA03010	Neuse River	Minnesott Beach	800	The kill consisted of approximately 800 juvenile to one year old Atlantic Menhaden washed on the beach at Minnessott. Fish were observed over an area of one mile starting at the DOT ferry basin moving west along the beach above Minnesott Country Club. The fish appear to be at least 48hours old with 95-100% lesions. The monitors in the area have recorded hypoxic conditions in the last few days which could be a contributing factor to the kill. No samples or measurements were taken due to the age and decomposition of the fish and the exact location of the kill is unknown.

Date	Kill Number	Waterbody	Location	Mortality	Comments
9/5/2003	WA03020	Neuse River	Kennels Beach	3500	NRRT discoved this fishkill while investigating a larger fishkill on the opposite side of the Neuse River. Upon making measurements on the northern side of the river and discovering that the estuary was in the process of an upwelling event, NRRT began looking for fish in distress. In the Kennels Beach/ Kendall Pt area Crabs and flounder were observed trying to leave the water. The strong smell of sulphur (anoxic water conditions) was present in the area. These conditions as well as fish in distress were found from Cooper Pt. to Myrtle Marsh Pt. At the time of investigation winds had switched 180° and were blowing from the north at around 12mph. This was moving surface water to the southern shoreline, and causing hypoxic bottom water to upwell on the northern shoreline. This event caused very low dissolved oxygen levels which stressed and killed the fish found along the shoreline. Samples were taken in the area of the fishkill and sent to ESB, NCSU, and UNCW. ESB staff analyses of phyto samples showed a very diverse mix of algal species commonly seen in the Neuse. Algal concentrations indicated that fairly dense algal blooms took place at both sites. Only insignificantly low concentrations of Pfiesteria-like dinoflagellates were found in the Kennel Beach sample, and no Pfiesteria-likes were found in the Slocum Creek sample.
10/4/2003	WA03025	Neuse River	Kennels Beach, Minnesott	39109	Fish appeared to be dying off from large schools which were swimming close to the bottom of the river. There were no obvious environmental changes in that area of the river which may have caused stressfull conditions. Cause is undetermined at this time.
10/4/2003	WA03024	Neuse River	Minnesott Beach	3921	Fish appeared to be dying off from large schools which were swimming close to the bottom of the river. There were no obvious environmental changes in that area of the river which may have caused stressful conditions. Cause was undetermined at time of investigation.
					Total Kills for County: 5 **Total Mortality for County: 84330**
Pitt					
6/14/2003	WA03005	Borrow Pit Pond	near Farmville	6000	Fish kill was taking place in a borrow pit (used for building the wastewater treatment plant 30+ years ago) next to the Farmville WWTP. Citizens said no rain had fallen in the last week, but there had been storms in the area elsewhere. Cloudy water in the pond suggested an algae/bacterial bloom had occurred, and led to low DO levels that is suspected to have killed some fish, and was causing others to struggle/gasp/seek the shore. This is the second fish kill in this pond; the other occurred on 01/25/02. The pond had a strong odor of corn or beets, like vegetation rotting or fermenting. ESB staff examined water samples and found considerable bacteria and debris but no bacterial or algal blooms.
7/28/2003	WA03013	UT to Fork Swamp	near Winterville	50	Fish were found dead in a subdivision stormwater drainage ditch that connects to Fork Swamp. Citizens first noticed the dead fish on Saturday (7/26) and the kill was reported to us and investigated on 7/28. Heavy rains several days prior had caused the ditches to flood. It appeared the fish moved into the ditch with the high water and may have been stranded when the water droppped out, succumbing to low DO. Flooding from the swamp may have contributed to low DO levels. Citizens reported smelling gas and a sheen on the water on Saturday, but no gas smell was noticed at the time of the invetigation. There was, however, a sheen present on the water from oxidizing bacteria.
					Total Kills for County: 2 **Total Mortality for County: 6050**
Stanley					
5/28/2003	MO03001	Badin Lake	near Palmerville	1000	Most fish were seen around Palmerville. 8 Fish were sent to USFWS Lab in Warm Springs Georgia for Spring Viremia testing. Results were returned on 7/14/2003 and all fish tested negative for Spring Viremia. Cause of mortality is unknown.
					Total Kills for County: 1 **Total Mortality for County: 1000**

Date	Kill Number	Waterbody	Location	Mortality	Comments
Surry					
1/2/2003	WS03001	Private Pond	near Dobson	2050	Cause of kill unknown. Owner suspected pond was poisoned by vandals. Phyto sample sent to ESB showed no algal bloom occurring at time of investigation.
					Total Kills for County: 1 Total Mortality for County: 2050
Tyrrell					
9/24/2003	WA03026	Scuppernong River	near Columbia	300	Low dissolved oxygen levels following Hurricane Isabel were reported by investigators.
					Total Kills for County: 1 Total Mortality for County: 300
Wake					
9/10/2003	RA03002	Estes Pond	Zebulon	400	Suspected pond turnover. Previous weather was sunny, hot. Received approx. one inch of rain associated with a 20 degree temperature drop. Pond depth was stated by owner to be approx. 6 feet.
					Total Kills for County: 1 Total Mortality for County: 400
Watauga					
10/15/2003	WS03003	Middle Fork South Fork New River	Blowing Rock	14300	Fish kill was the result of a 3000 gallon spill of sodium hydroxide from the town of Blowing Rocks water filtration plant. The spill caused a kill at least 5.8 miles below the plant. The pH of the stream below the spill was measured at 11.5. DWQ issued a notice of violation to the town.
					Total Kills for County: 1 Total Mortality for County: 14300