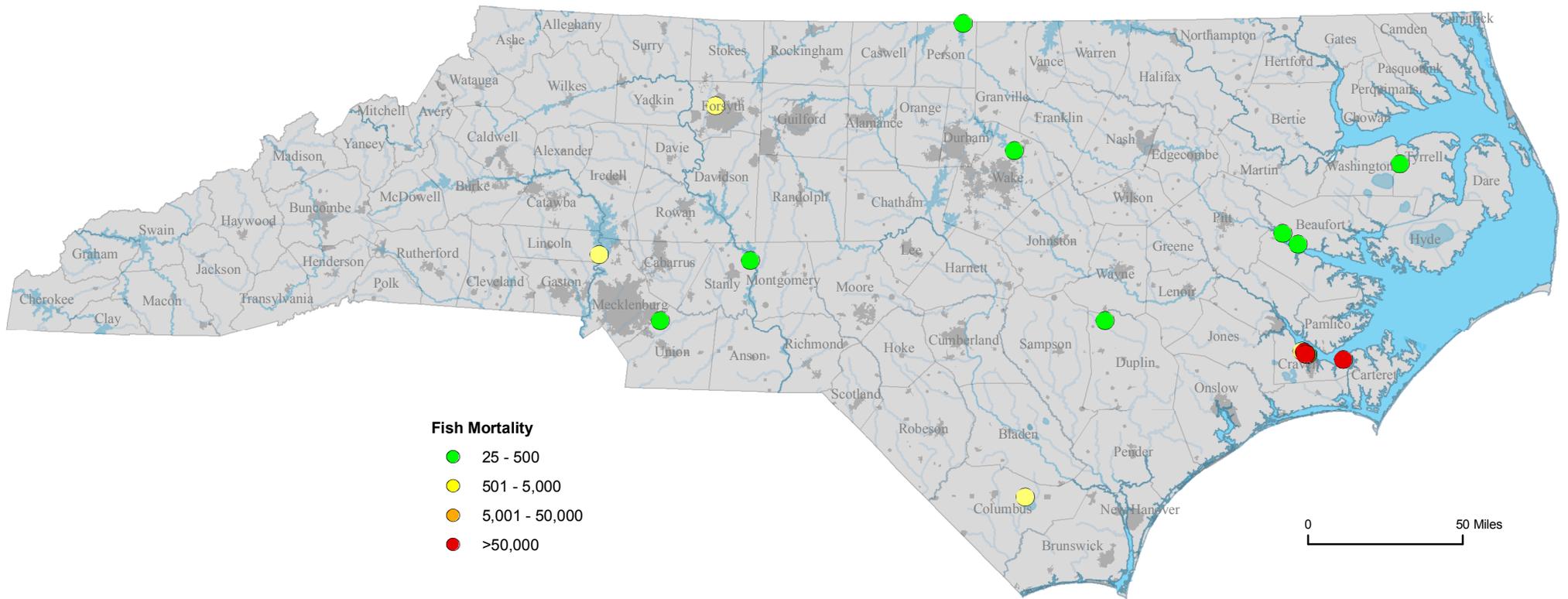


Fish Kill Events Reported to the North Carolina Division of Water Quality - 2004



2004 Fish Kill Events (by County)

Total 2004 Fish Kills: 18

Total 2004 Fish Mortality: 732863

Date	Kill Number	Waterbody	Location	Mortality	Comments
Beaufort					
3/21/2004	WA04001	Jacks Creek	near mouth	500	Cause of kill unknown. Kill limited to gizzard shad. Kill reported on Sunday, 3/21 by WRC, but residents in the area first noticed dead fish as early as Friday, 3/19. At the time of investigation, dissolved oxygen levels appeared normal.
10/29/2004	WA04008	Pamlico River	mouth of Broad Creek	78	Upon investigation PRRT found 78 eels from 8- 22 in. washed up on the shore and in the rock rip-rap. High surface DO and pH levels indicate an algae bloom. PRRT suspect the algae bloom may have caused the DO to drop out the night before and the eels beached themselves in an effort to get oxygen and eventually suffocated.
Total Kills for County: 2 Total Mortality for County: 578					
Columbus					
5/1/2004	WL04003	Lake Waccamaw	Weavers Landing	1000	Additional water quality parameters: Site #2; Midpoint between Dale's and Cove boat landing: DO = 7.7 ppm, Tempt. = 23.3 C, % saturation = 90.0 %; Site #3; Cove Boat Landing: DO = 7.94 ppm, Tempt. = 23.4 C, % saturation = 93.4 %. Most probable cause of kill: natural causes specific to white perch as better than 98 % of observed dead fish were white perch.
Total Kills for County: 1 Total Mortality for County: 1000					
Craven					
5/16/2004	WA04009	Neuse River	Carolina Pines	400	NRRT recieved a report of a fishkill at Carolina Pines from Mr. Rick Dove. When DWQ arrived at the site of the kill, approximately 400 juvenile Croaker were found. The fish showed no signs of lesions, and had been dead for approximately 12-24 hours. No sign of algae bloom activity was found in the area, although samples were collected for analysis. USGS monitors at Channel Marker # 11 indicated a drop in surface dissolved oxygen on the evening of 5/15/04. This drop was most likely caused by an increase in windspeed which was measured at the same time. Weather patterns most likely caused a mixing or upwelling of water from the bottom, which had been anoxic for a week prior to this event. These type of circulation patterns which can create areas of low dissolved oxygen are usually short lived and spatially erratic. It was this kind of event which is believed to have caused the fishkill.
5/21/2004	WA04003	Neuse River	Carolina Pines	235000	Kill was investigated on 5/21/04. Fish were observed on the beach along a 3.3 mile span of the Neuse River in the Carolina Pines area. Species of fish included Spot, Croaker, Pinfish, Atlantic Menhaden, Silver Perch, and Blue Crabs. Fish appeared to be 24-48 hrs. old with a size range of 30-90mm. A historical graph from USGS monitors shows periods of low dissolved oxygen in the area of the kill. No lesions were observed.
5/21/2004	WA04002	Neuse River	Carolina Pines	98954	Kill was investigated on 5/21/04. Investigation covered a 2.2 mile span of the Neuse River in the Carolina Pines area. Species of fish included Spot, Pinfish, Croaker, Atlantic Menhaden, and Silver Perch. Fish were approximately 24hrs. old with no lesions. USGS monitors in the area recorded low readings of dissolved oxygen in the area at the time of the kill.

Date	Kill Number	Waterbody	Location	Mortality	Comments
7/2/2004	WA04005	Neuse River	Carolina Pines	59500	NRRT received a fish kill call approx 8:00 a.m. July 2nd. The kill was located near the Carolina Pines area towards Flanner's Beach. It was approximately 1.4 miles in length and was comprised of, in order of highest percent abundance, juvenile spot, croaker, menhaden, flounder, blue crabs and some popeye mullet. Data from the nearest USGS in situ monitor (channel marker 11) indicated a drop in dissolved oxygen (DO) for approximately 2 hours the previous evening. At the time of the investigation, there were no other physical or biological parameters found to be out of the ordinary. It is believed that a short-term drop in DO was responsible for the fish kill.
7/31/2004	WA04010	Neuse River	near Courts Creek	200000	NRRT received a report of a fishkill on the Morning of July 31 regarding dead fish washed ashore near Courts Cr. Upon investigation, dead fish were found along a 0.5 mile stretch of beach between Courts Cr. and Long Cr. along the Neuse River. Residents in the area reported observing various species of fish trying to leave the water the previous evening, along with a strong hydrogen sulfide (rotten egg smell). Noting the behavior of the fish during the kill event, the hydrogen sulfide smell, and the wind conditions present at that time, the kill could most likely be attributed to an upwelling of anoxic water from the lower portion of the water column. Field staff experienced strong easterly winds in that area on the afternoon of July 30. This would have created an upwelling current along the shoreline where the fishkill occurred. All fish in the kill were either juvenile or bottom dwelling species which inhabit shoreline areas.
8/28/2004	WA04006	Neuse River	Flanners Beach	2180	A fish kill call was received on Saturday evening at 6:43 from Lynn Gurganous, a campground supervisor at the Croatan National Forest. The arrival time of 7:43 did not allow much time for pictures or sonde readings. The kill consisted of only menhaden in the small size range near 100 mm. The dried condition of the fish and human activities on the beach indicated the kill may have occurred late morning. No lesions were observed. The extent of the kill was near 1759 feet (0.33 miles). Three 50 foot transects revealed an approximate total of 2,180 fish. There were two wind shifts, one early morning, and the other before noon that same day. The USGS channel marker monitors indicated a slight drop in DO found during these times, along with an overturn of surface and bottom waters. This data is not conclusive, as the kill may have resulted from a localized event.
9/7/2004	WA04007	Neuse River	Carolina Pines	131000	Due to continued concern of lesioned and dead menhaden, NRRT investigated a fish kill in the Carolina Pines area. This concern was communicated on Tuesday of the following week. This kill extended for approximately 3.5 miles. Five 60 foot transects were performed, resulting in 131,000 dead menhaden. Prolonged exposure indicated time of death near the previous weekend. Schools of lesioned menhaden were evident in a large radius, extending from Slocum Creek to Flanner's Beach. Several cast nets indicated over 90% lesioned fish, some of which were in various stages of lesion development. Some of the lesioned fish were observed swimming lethargically and dying. Fish samples and ambient water samples were taken for NOAA, DWQ, NCSU, and UNCG to determine presence of other stressors. Other in situ parameters did not indicate any substantial drop in dissolved oxygen.
					Total Kills for County: 7 Total Mortality for County: 727034

Duplin					
1/2/2004	WL04002	Farm Pond	near Mt. Olive	65	Multiple species and sizes of fish killed (mostly sunfish 100-200mm TL). No lesions or evidence of parasites apparent. Fish kill apparently began approximately 2 weeks ago corresponding to heavy (2-3") rains. Pond not originally stocked per NCWRC guidelines, so difficult to determine if the kill affected all fish in the pond.
					Total Kills for County: 1 Total Mortality for County: 65

Date	Kill Number	Waterbody	Location	Mortality	Comments
Forsyth					
3/29/2004	WS04001	UT to Mill Creek	near Winston Salem	791	Kill caused by sanitary sewer overflow from City of Winston Salem and an estimated 40080 gallons of wastewater reached UT to Mill Creek. Investigators reported depleted DO levels below the spill. DWQ issued an NOV for the event to Winston Salem, Forsyth Co. City/County Utilities.
Total Kills for County: 1 Total Mortality for County: 791					
Lincoln					
7/22/2004	MO04002	Lake Norman	near Cowans Ford Dam	2500	NC Wildlife Resources Commission biologists investigated this kill and worked with personnel from Duke Power to collect needed data throughout the event. Duke Power personnel first observed an abnormally high number of dead striped bass on July 22 during their weekly survey of the lake. A total of 2,497 dead striped bass were collected between July 22 and August 13. All but 40 fish were collected within several miles of Cowans Ford Dam. The die-off resulted when a group of striped bass became trapped in the hypolimnion by an anoxic metalimnetic layer. As water temperatures began to rise in the late spring, the lake stratified. The epilimnion, from the surface to a depth of about 10 m, remained oxygenated throughout the summer. Dissolved oxygen levels deeper in water column from about 10 m to the bottom (about 34 m near the dam), were fixed as the lake stratified and continued to decrease throughout the summer due to normal biological processes. However, these processes occurred at a slightly faster rate in the metalimnion from about 10 to 20 m, and by late July this portion of the water column was nearly devoid of oxygen. The striped bass located in the hypolimnion below 20 m were trapped in pockets of water that had cool temperatures, forage, and sufficient oxygen. Over the following weeks, mortality occurred as hypolimnetic dissolved oxygen levels decreased, and dead striped bass were observed at the surface. Measurements of dissolved oxygen indicated that by the second week of August, metalimnetic and hypolimnetic dissolved oxygen values were at or near 0 mg/L, and a majority of the striped bass mortality was observed over the next several days. As many of the striped bass reached the surface, they were already in the later stages of decomposition. The operations of Duke Power facilities at Lake Norman were within the limits of their permits and were similar to previous years. Presence of a parasitic copepod affecting only striped bass was also considered as factor. Although nearly all striped bass collected were infected, infection rates for individual fish were relatively low. A small sample of freshly dead fish was sent to Auburn University for analysis, and there was no indication that the copepod was responsible for the kill. In addition, organs from several freshly dead striped bass were sent to North Carolina State University for analysis, and the results indicated nothing atypical related to disease or pathogens.
Total Kills for County: 1 Total Mortality for County: 2500					
Montgomery					
6/29/2004	FA04001	Badin Lake		250	Kill was most likely caused by a temperature/oxygen squeeze that eliminated adequate physical habitat for striped bass. Oxygen readings below 12m indicated that no oxygen was available for stripers occupying this depth in the water column.
Total Kills for County: 1 Total Mortality for County: 250					
Person					
3/30/2004	RA04001	Mayo Creek	Below Reservoir Spillway	60	A site visit was conducted at 0900 hrs on 30 March 2004. Observed approximately 60 dead common carp in various stages of decay within 500 meters of the spillway. There were also approximately 200 live carp congregating in the shallow areas and around spillway. Approximately 50% of the live carp had sores on top of their head and body. Many carp were very lethargic and unresponsive, as was the bluehead chub. Live carp were in spawning condition, but no spawning activity was observed. Four specimens were sent to Warm Springs Fish Health Center, Georgia, for analysis.

Date	Kill Number	Waterbody	Location	Mortality	Comments
					Total Kills for County: 1 Total Mortality for County: 60
Union					
3/24/2004	MO04001	Ut to Paddle Branch	near Goose Creek	200	Cause not specified on report
					Total Kills for County: 1 Total Mortality for County: 200
Wake					
12/9/2004	RA04002	Neuse River	At SR 2000 near Falls	35	There were approx 30-35 dead or dying Crappie and Gizzard Shad on shore in the park below the bridge on the upstream side. More dead fish were observed on shore, on the same side upstream, but were not counted. Also, some dead fish were observed in the stream running through the park into the Neuse. Measurements were taken at a depth of 0.1 meters and three water samples were collected to be tested for: N&P, coliform, and turbidity.
					Total Kills for County: 1 Total Mortality for County: 35
Washington					
5/26/2004	WA04004	Somerset Canal	near Creswell	350	The fish kill may be the result of rapidly declining DO levels after heavy rainfall events and subsequent runoff that occurred within previous days. Land application of herbicides and/or pesticides in this area was unknown.
					Total Kills for County: 1 Total Mortality for County: 350