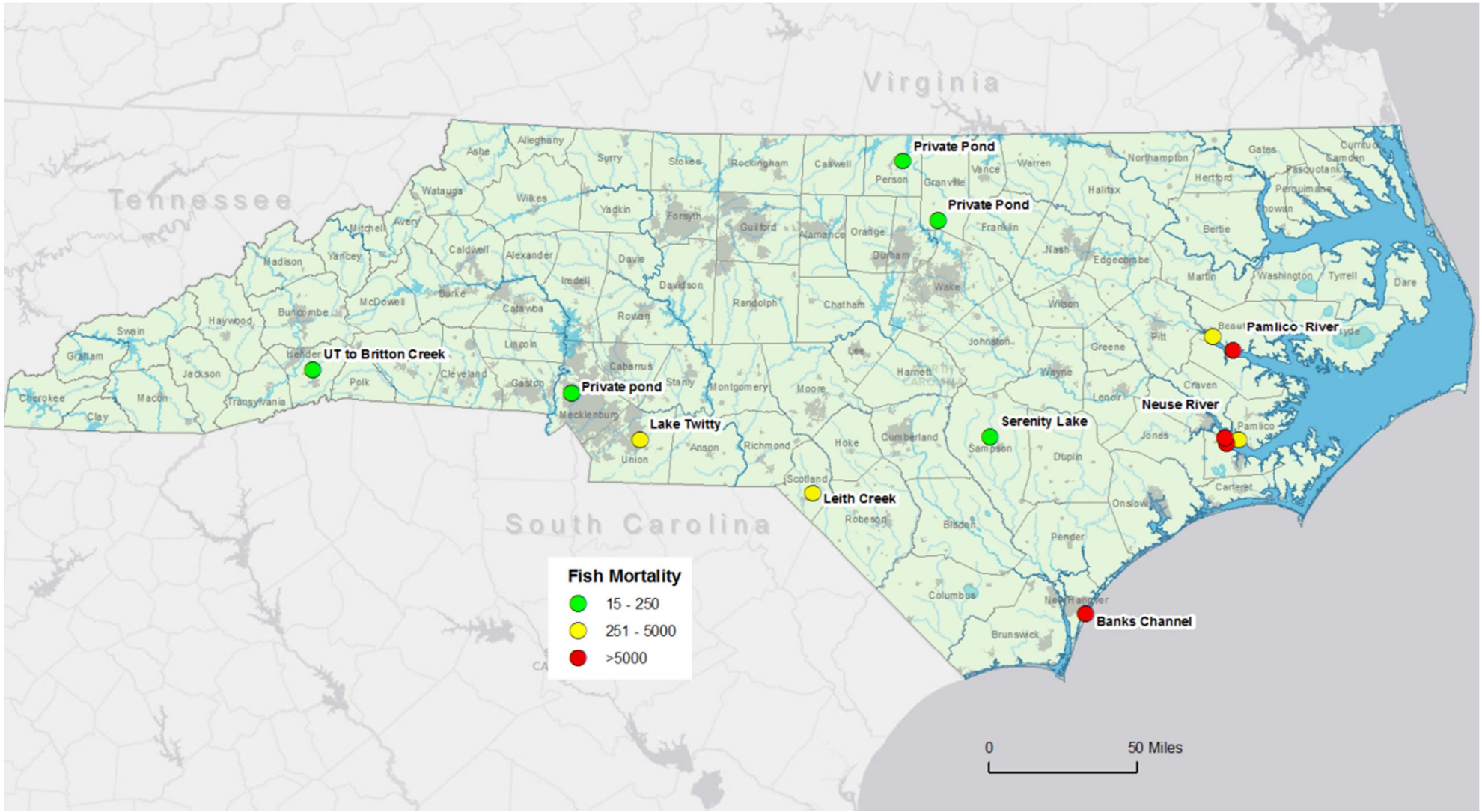
Fish kill events and observed mortality reported to NCDWR during 2013



Total 2013 Fish Kills: 13

Total 2013 Fish Mortality: 20,608,452

2013 Fish Kill Events (by County)

Date	Kill Number	Waterbody	Location	Mortality	Comments
Beaufort					
9/30/2013	WA13002	Pamlico River	Washington Park	2,500	Minor fish kill in Washington Park over the weekend. 3-5 inch Menhaden DWR staff estimated around 2500 fish. All Menhaden had Ulcerative Mycosis (UM) lesions. Decay rates indicate around 24-36 hours old. Bloom samples taken even though physical data did not indicate active bloom. Most likely UM lesions weakened this small school of fish and high wind conditions over the weekend could have up-welled bad bottom water. The sample indicated a bloom of small round diatoms. The algal sample composition was typical for fall in local estuarine waters. Total algal sample density was 28,000 units/ml.
10/2/2013	WA13005	Pamlico River	Washington Park, Blounts Creek	10,000,000	The DWR EMT received multiple phone calls regarding dead and dying menhaden among Chocowinity Bay, Blounts Creek, Blounts Bay, and the Pamlico proper downstream to the Pamlico Point area. Three to five inch Menhaden were observed to be from several days old to recently dying and lethargic. Most of the menhaden observed (99%) had red sores/lesions. This has been observed in the past (almost exactly a year previous to date) and have been documented as Ulcerative Mycosis caused by a slime mold Aphanomyces invadens. Given the large extent of the kill, and the likelihood that it will continue to occur as water temperatures cool, it was difficult to enumerate the event. A best educated estimate would put mortality numbers into the tens of millions. **UDPATE** 10/09/2013 Recent cloudy and rainy weather may decrease the impact of oscillating DO from algal blooms. However, the slime mold may continue to cause secondary mortalities. Algal bloom reports indicate a mixture of raphidophyte algae (Chattonella and Heterosigma) were also present. Total algal sample density was 23,000 units/ml. Chattonella and Heterosigma are reported in the academic literature as capable of producing toxins, but there have been no known reports of health effects associated with them in North Carolina. Algal community composition was typical for fall in local estuarine waters.
				Total Kills for County: 2	**Total Mortality for County: 10,002,500**

2013 Fish Kill Events (by County)

Date	Kill Number	Waterbody	Location	Mortality	Comments
Craven					
8/14/2013	WA13001	Neuse River	Flanners Beach	100,000	EMT staff investigated a fish kill on Tuesday August 13th, at Flanner's Beach located on the south side of the Neuse River in New Bern. Staff was notified of this fish kill Monday. Observations indicated dead decaying menhaden and croaker along the shoreline near Flanner's Beach and extended towards Carolina Pines. Prior investigators indicated this kill extended downstream to Slocum Creek near Havelock area. Monday evening's weather included heavy rainfall, washing away most of the kill. Therefore a proper count could not be ascertained. Some Menhaden and Croaker were observed. Fish lengths varied from 100 mm to 600 mm with most of the larger sized fish being Menhaden. An overview of the historical weekend weather indicated calm, hot sunny days. It is possible that algal blooms were occuring during the weekend as water temps were near 33 degrees by 11:00 a.m. this week. Dissolved oxygen was near 9 mg/L and pH was near 8.0. Salinties were well over 23 ppt. Nightime die-off of these blooms and subsequent lack of DO, coupled with storm/wind activities could have contributed to this localized fish kill. Water quality samples were collected at the Flanner's Beach area and sent to The Division of Water Resources Laboratory in Raleigh for further investigation.
10/2/2013	WA13004	Neuse River	New Bern, Fishers Landing,	10,000,000	The DWR EMT responded to several fish kill calls from citizens residing from James city and Carolina Pines. EMT staff observed dead and dying menhaden near Union Point Park in New Bern all the way downstream to where the River meets the mouth of Slocum Creek. The kill extend across the river in some areas (particularly Flanner's Beach area and James City area), with densities of fish varying as the northerly winds push to the southern shore. Three to five inch Menhaden were observed to be from several days old to recently dying and lethargic. Most of the menhaden observed (99%) had red sores/lesions. This has been observed in the past (almost exactly a year previous to date) and was documented as Ulcerative Mycosis caused by a slime mold Aphanomyces invadens. Physical data recorded indicated algal bloom activity beginning mid morning. DO values ranged from 5.4 to 8.5 mg/L. Salinities were from 3 to 12 ppt. Algal bloom samples were collected and sent to DWR's chemical laboratory for further analysis. Dying fish with lesions were collected and will be frozen for further analysis by NOAA's Wayne Litaker et al when possible. Given the large extent of the kill, it is difficult to enumerate this situation. A best educated estimate would put these numbers into the tens of millions. **UDPATE** 10/09/2013 EMT staff continue to receive phone calls regarding dead fish. A resident of Northwest Creek (Fairfield Harbor area) called to report dead fish all the way up to its headwaters. So it should be expected to see adjaent tributaries affected by this slime mold and developing algal blooms during the days, paired with low DO events during the evenings. Recent cloudy and rainy weather may decrease the impact of oscillating DO from algal blooms. However, the slime mold may continue to cause secondary mortalities.

2013 Fish Kill Events (by County)

Date	Kill Number	Waterbody	Location	Mortality	Comments
					Phytoplankton samples near James City indicated a bloom of the harmless dinoflagellate, Polykrikos and small round diatoms. Total algal sample density was 12,000 units/ml. Downstream samples near Slocum Creek indicated a bloom of small round diatoms and the harmless chain diatom, Leptocylindrus. Total algal sample density was 16,000 units/ml. Algal community composition was typical for fall in local estuarine waters.
					Total Kills for County: 2 **Total Mortality for County: 10,100,000**
Granville					
8/19/2013	RA13002	Private Pond	Creedmoor	200	Fish kill was first observed by landowner on 8/17/13. Dying fish were observed on surface gasping for air. Stream that provided source for pond showed very high conductivity (380) and little flow. Sanitary sewer line reported upstream from pond. Nutrient and fecal coliform samples collected. Results pending.
					Total Kills for County: 1 **Total Mortality for County: 200**
Henderson					
4/2/2013	AS13001	UT to Britton Creek	Hendersonville	75	City employee allowed 8 to 10 gallons of a chlorine solution to enter a storm drain in the vicinity of the kill. Investigators suspected spill amount was enough to cause the event.
					Total Kills for County: 1 **Total Mortality for County: 75**
Mecklenburg					
7/16/2013	MO13001	Private pond	NW Charlotte	127	The main contributor to the kill appeared to be an upstream construction site that had recently completed the logging phase of the grading and then sat idle for a month due to recent rainfall. Grading activity restarted and a rainfall event occurred (~4" in less than 3 hours) that collected material into the site sediment basin. The sediment basin discharged extremely hypoxic water, sediment, and organic material into the pond where the fish kill occurred. In conjunction, a broken private sewer lateral was found and contributed to low DO levels and organic material in the pond.
					Total Kills for County: 1 **Total Mortality for County: 127**
New Hanover					
1/8/2013	WL13001	Banks Channel	near Masonboro Inlet	500,000	National Estuarine Research Reserve System monitoring station showed a DO drop around the time of the kill. Investigators Speculated that the fish school moved up the creek with the rising tide, became too crowded, suffocated, and then were washed out as the tide dropped.
					Total Kills for County: 1 **Total Mortality for County: 500,000**

2013 Fish Kill Events (by County)

Date	Kill Number	Waterbody	Location	Mortality	Comments
Pamlico					
9/16/2013	WA13003	Neuse River	Kennel Beach	4,500	This report is based off a Neuse Riverkeeper incident report. Call received from a citizen who estimated thousands of fish affected. UNC Marine Lab recorded low dissolved oxygen levels in the area of the incident prior to occurrence. Neuse Riverkeeper visited the site and estimated between 3 and 5 thousand fish affected. She forwarded observations and photos to the DWR EMT. Cause of kill was suspected to be a result of low dissolved oxygen.
					Total Kills for County: 1 Total Mortality for County: 4,500
Person					
7/5/2013	RA13001	Private Pond	near Roxboro	150	Fish kill was observed by landowner on 6/28/13. Over 2 days he observed nearly 100 bluegill and 50 largemouth bass dead or dying in the pond. Dying fish were near surface gasping for air. He took pictures and showed them to DWR personel. Second pond that recieves drainage was not affected. Prior to fish kill Roxboro had very heavy rainfall which was concluded to cause D.O. problems leading to the fish kill.
					Total Kills for County: 1 Total Mortality for County: 150
Sampson					
4/26/2013	FA13001	Serenity Lake	near Clinton	100	The water level in the five acre pond was down approximately five feet. Approximately 100 dead brim were positioned high on shore (approximately one to two feet). Live bass were seen in the pond, and appeared to be active and unaffected. The fish kill appeared to have finished. One of the residents admitted that he had sprayed the shoreline with Round-Up where the water had receded, approximately three weeks prior to the fish kill.
					Total Kills for County: 1 Total Mortality for County: 100
Scotland					
5/1/2013	FA13002	Leith Creek	Laurinburg	300	Approximately 200 to 300 dead fish first reported to FRO in Leith Creek at a location between 1st Street and 3rd Street in East Laurinburg. City of Laurinburg Utilities checked manholes and lift stations, and found no problems. Investigators observed a storm water tributary that flowed into Leith Creek (34° 47’ 35.44 N, 79° 27’ 42.26 W, Hwy 15 bridge McColl Road). The tributary had a white cloudy appearance with a small amount of foam on the surface. Water samples collected included BOD, COD, Pesticides, Herbicides, AmmoniaNitrate plus Nitrite, Phosphorus. Cause not determined and chemistries are still pending . BIMS Incident Number 201300927.
					Total Kills for County: 1 Total Mortality for County: 300
Union					
3/4/2013	MO13002	Lake Twitty	near Monroe	500	Heavy rain reported on Feb 26 and additional heavy rains reported 7 days prior.
					Total Kills for County: 1 Total Mortality for County: 500