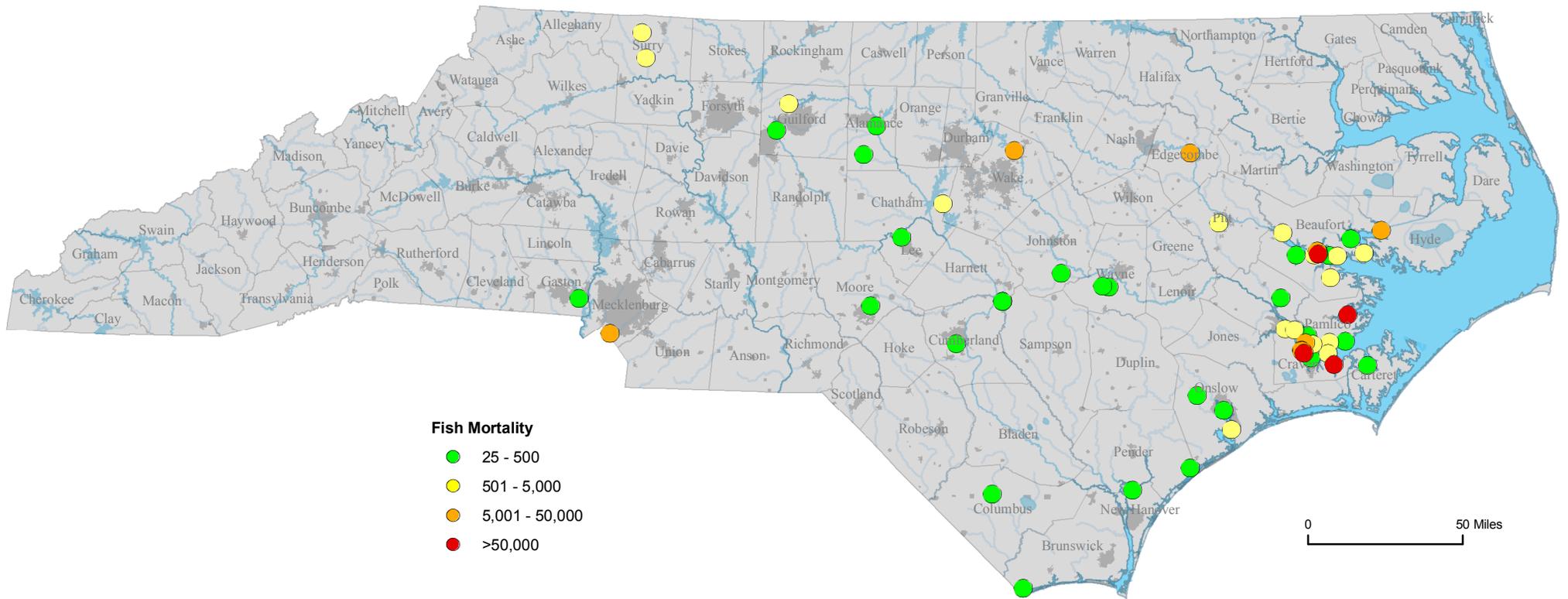


Fish Kill Events Reported to the North Carolina Division of Water Quality - 2000



2000 Fish Kill Events (by County)

Total 2000 Fish Kills: 58

Total 2000 Fish Mortality: 716141

Date	Kill Number	Waterbody	Location	Mortality	Comments
Alamance					
6/9/2000	WS00004	Town Branch	near Graham	200	Kill caused by spill of 5200 gallons of sewage. Vandals placed an object in the sewer causing blockage. Steram was flushed during the day and overnight.
7/27/2000	WS00005	Wolf Farm Pond		150	Investigators noted "pea soup" areas of pond. Water samples reflects bloom conditions as determined by the high algal unit density of 35,000 units/ml. Most affected fish were larger and older. Pond was fertilized in June.
		Total Kills for County: 2		Total Mortality for County: 350	
Beaufort					
2/1/2000	WA00001	Pungo Creek	between Archbell and Windmill	143	Fish may have succumbed to extremely cold water temperatures. Water temperatures in the area had been recorded as low as < 2 C within the previous 5 days.
5/22/2000	WA00008	Jacks Creek	Washington	700	Very low dissolved oxygen levels measured at time of investigation. Most dead fish were sunfish and menhaden. Fish with flared gills were observed.
6/21/2000	WA00012	Pamlico River	near Bath	14500	Lesions reported on fish. Investigators reported oxygen deficits at 2-3 meters depth. ESB staff observed Pfiesteria-like dinoflagellates in water samples at 314-361 cells/ml. All Pfiesteria-like dinoflagellates observed fluoresced throughout their cells as if they were obligate autotrophs (not toxic Pfiesteria). Cause not determined during investigation.
6/30/2000	WA00014	Pamlico River	mouth of Blounts Creek	210	90% of affected fish had sores. Many healthy fish seen in area during time of investigation. Dissolved oxygen slightly elevated on surface. Cast net samples contained healthy fish. More diseased and dead fish seen in area on July 1, probably part of the same event. ESB staff observed Pfiesteria-like dinoflagellates in water samples at 1485-1578 cells/ml. All Pfiesteria-like dinoflagellates observed fluoresced throughout their cells as if they were obligate autotrophs (not toxic Pfiesteria). NCSU Botany Lab fish bioassays in progress. Cause not determined during investigation.
7/1/2000	WA00015	Pamlico River	near Core Point	146000	Open lesions(0.5-1.0 cm) seen on fish. Some fish seen attempting to leave the water. Dissolved oxygen levels were within acceptable ranges during investigation. ESB staff observed Pfiesteria-like dinoflagellates in water samples at 186 cells/ml. All Pfiesteria-like dinoflagellates observed fluoresced throughout their cells as if they were obligate autotrophs (not toxic Pfiesteria). Cause not determined during investigation.
7/5/2000	WA00016	Pamlico River	near Bayview/Kilby Island	300	This kill was reported to have fish actively dying but during time of investigation no fish were found dying. Wind had shifted and was pushing fish that had died during 6/30,7/1 kills into pockets along shore. Some fish seemed fresher (less than one day old) and others appeared to be older, 90% had sores. Microtox assay conducted on water samples was negative for toxicity.ESB staff observed Pfiesteria-like dinoflagellates in water samples at 1124 cells/ml. All Pfiesteria-like dinoflagellates observed fluoresced throughout their cells as if they were obligate autotrophs (not toxic Pfiesteria). Cause not determined during investigation.

Date	Kill Number	Waterbody	Location	Mortality	Comments
7/7/2000	WA00017	Pungo River	Near Old Field Point	5000	Sores observed on fish. Kill appeared to be fresh with some actively dying fish. Fish were widely scattered. A kill had been reported in the area a week earlier but nothing was found. Low dissolved oxygen readings were observed around 4 m meters under the surface. ESB staff observed Pfiesteria-like dinoflagellates in water samples at 111 cells/ml. All Pfiesteria-like dinoflagellates observed fluoresced throughout their cells as if they were obligate autotrophs (not toxic Pfiesteria). Cause not determined during investigation.
7/8/2000	WA00018	Pamlico River	Core Point	2300	Sores observed on fish. There were many old, decaying fish located on shore; these fish were not included in the 2,300 count. Only a few fish were seen dying. The majority of decayed/24 hour old fish may have blown from the north shore where fish were dying earlier in the week. This may have been an ongoing event. ESB staff observed Pfiesteria-like dinoflagellates in water samples at 99 cells/ml. All Pfiesteria-like dinoflagellates observed fluoresced throughout their cells as if they were obligate autotrophs (not toxic Pfiesteria). Dissolved oxygen was within normal range at time of investigation. Cause not determined during investigation.
7/28/2000	WA00021	Pungo River	Channel Marker 19 and 21	15340	While conducting their monthly ambient run on the Pungo, the Pamlico Response Team investigated several algal blooms along the river. They also noted a fish kill at Channel Marker 21 with other fish dying around Marker 19. The algal blooms at these two stations were probably caused by a large, nontoxic, photosynthetic dinoflagellate known as Gyrodinium uncatenum. ESB identified Pfiesteria-like cells in water samples and when viewed under fluorescence they glowed as obligate photosynthetic autotrophs (no toxic forms of Pfiesteria). The ESB presumptive counts for Pfiesteria-like dinoflagellates in the preserved samples were 12 to 87 cells/mL. No Pfiesteria-like dinoflagellates were observed in the unpreserved samples examined under fluorescence.
8/9/2000	WA00022	Pamlico River	Hawkins Landing	35000	DO levels in the area had been depressed for the week prior to the kill. Readings from the automated monitor at light 5, which was nearby, showed that DO levels dropped below 2 mg/l throughout the water column the night before. Investigators suspected this was when the kill occurred since no one in the area had seen dead fish the previous evening and the response team was in the area the previous day and had not noticed any dead fish. Strong and steady SW winds piled the fish up on the North shore which was where 24,782 were found. The remaining 10,000 were caught in the grass near shore. High surface DO and pH were recorded at this site on 9 Aug and near the site on the previous day. Data recorded below a meter or so indicated a salt/low DO wedge was present during both days. Algal sample from Aug 8 was an obvious bloom of large photosynthetic dinoflagellates and cryptomonads. The 9 Aug sample was not as dense, and the algal community was dominated by small chrysophyte flagellates.
8/14/2000	WA00024	Pamlico River	near Rest Haven/BayView Ferry	800	Recent dissolved oxygen levels in the river were extremely low. Investigators suspected kill was related to low levels. Kill area was very small with no other species affected.
9/15/2000	WA00029	South Creek	near channel marker 18	2012	Received report of menhaden distressed and dying on the evening of 9/14. Investigators didn't have time to respond before dark, so investigated on 9/15. The kill was completed and the fish were washed up on the shore and in the marsh. Few fish found in open water. Did direct shoreline count to get final number. Lots of schools of menhaden and finger mullet in the area. Cast-netted live menhaden and found 10 - 20 percent with sores. ESB staff identified few pfiesteria-like organisms in water samples and they appeared as photosynthetic (autotrophic) dinoflagellates.
Total Kills for County: 12					Total Mortality for County: 222305
Brunswick					
1/19/2000	WL00001	Calabash River	near Calabash	200	Fish looked healthy. Water quality measurements all within normal ranges. Recent drop in ambient temperatures suspected as cause.

Date	Kill Number	Waterbody	Location	Mortality	Comments
					Total Kills for County: 1 Total Mortality for County: 200
Chatham					
11/3/2000	RA00005	Lake Jordan	Little Beaver Creek	1000	The COE was contacted on 11/2/00 regarding several dead fish at the end of SR-1903 in Little Beaver Creek of B.E. Jordan Reservoir. The dead fish were first observed on 10/31/00. Nothing out of the ordinary was observed. Investigators reported that the fish kill was likely a result of some natural phenomenon.
					Total Kills for County: 1 Total Mortality for County: 1000
Columbus					
5/2/2000	WL00002	Mollie Branch	near Whiteville	50	Kill occurred days prior to investigation. No samples collected due to late investigation. No spill events reported in area. Cause unknown.
					Total Kills for County: 1 Total Mortality for County: 50
Craven					
4/18/2000	WA00002	South River	Southeast Creek	65	Recent rainfall and runoff from ditches in adjacent fields may have caused a drop in dissolved oxygen levels resulting in the kill. Fish ranged from 40 to 180 mm. More than 2 inches of rainfall were received in the area days prior.
5/8/2000	WA00005	Little Swift Creek	near Emul	55	No other fish found outside the vicinity of bridge. Water quality measurements showed no problems at the time of the investigation. Fish were suspected as being bycatch which was dumped from the bridge.
6/12/2000	WA00013	Lake Clermont	James City	1130	The lake was a large pond less than 2 meters deep and located in a residential community. Algae in the samples were not particularly dense and total sample biovolume was relatively low. The sample visually resembled a bloom of the filamentous blue green <i>Anabaena spiroides</i> . A few <i>Euglena</i> were seen, so if these euglena were concentrated at the surface, they might have contributed to the pea green color of the water. Cause not determined during investigation.
6/16/2000	WA00010	Neuse River	near mouth of Clubfoot Creek	152000	Kill was composed of mostly croaker (30-120mm). Very few lesions seen on fish and all appeared to be older lesions. Plenty of unstressed fish seen swimming in the shallows at time of investigation. Dissolved oxygen reading at time of investigation was 1.9 mg/L. 2000 more fish attributed to the same kill event were discovered in the area on 6/17. Presumptive pfiesteria cell counts by ESB staff were 41 cells /ml.
6/21/2000	WA00011	Neuse River	near Flanner's Beach	14500	Conditions prior to the kill in the area of the kill were stratified with low oxygen on the bottom, after a change in wind direction from prevailing southwest to northeast, the water column mixed, possibly causing a net loss in dissolved oxygen long enough to kill fish, that may have already been stressed. Menhaden sampled showed 4% lesions in large schools. Lesions ranged from early stages to well developed. Presumptive pfiesteria cell counts by ESB staff ranged from 169-233 cells /ml. Presumptive Counts by NCSU Botany Lab staff ranged from 160-630 cells/ml. UNC Greensboro scientists reported samples negative for <i>P. piscicida</i> and <i>P. shumwayae</i> DNA. NCSU Botany Laboratory fish bioassays in progress. Both Labs reported possibly identifying heterotrophic pfiesteria-like cells in samples.
8/10/2000	WA00023	Neuse River	Flanner's Beach	260	Oxygen levels had been low to nothing below approximately 2m in this area for the past several days. Investigators suspected that weaker fish had been dying off in small numbers in the area over the past several days. None of the menhaden observed showed lesions. 600 blue crab were also reported affected. The numbers derived for each species were based on direct counts.

Date	Kill Number	Waterbody	Location	Mortality	Comments
9/1/2000	WA00025	Northwest Creek	near Fairfield Harbor	1700	4 inches of rain had fallen in the days prior to NRRT notification. There was a significant amount of freshwater flowing out of the headwater wetlands into Northwest creek. Dissolved Oxygen levels at the headwaters of the creek were lower than those farther downstream in the creek. There were other outfalls from drainage ditches in the general area of the kill that could have held stagnant low dissolved oxygen water. No lesions were found on the fish, and by appearance of decomposition the fish appeared to be have been dead for over 36 hours. Phytoplankton samples showed a dense bloom of the dinoflagellate Peridinium trochoideum and Eutreptia (a euglenoid). ESB staff presumptively identified Gyrodinium galatheanum (a Pfiesteria-like) at 5590 cells/ml
9/12/2000	WA00026	Slocum Creek	near mouth	60	All fish were found very high on the beach and appeared to have been discarded by local recreational fisherman a day or two prior to the investigation. The species found are commonly used as bait in that area, and fishermen were observed doing so at the time of the investigation. There were many large schools of healthy mullet observed swimming in the creek and surrounding area. Water was highly tannic, characteristic red color. 90% of menhaden showed lesioned/sore areas.
9/24/2000	WA00031	Neuse River	Flanner's Beach	30000	Dead menhaden were observed along the shore, there were none seen floating or dying in the water. There were extremely large schools of menhaden observed throughout this area, approx 80% had lesions. Physical measurements appeared to be within the normal ranges. The menhaden appeared to be dead about 12-36 hours.
9/28/2000	WA00032	Neuse River	Flanner's Beach to Slocum Creek	78200	Based on the location where the fish were found it is highly probable that these are some of the fish that we observed with advanced lesions earlier in the week. The age of the fish was estimated to be between 12 and 48 hours old or more in some cases. The heaviest concentrations of fish were found closer to the Slocum Creek area. No samples were collected due to the fact that this area had been sampled the day before. Samples collected the day before included DWQ samples, Burkholder samples, and Rublee samples. confirmation tests negative for Pfiest. spp.
10/25/2000	WA00034	Neuse River	Flanners Beach	14240	At time of investigation the fish appeared to be 24 to 48 hours old. Investigators suspected an environmental stressor such as a shift in oxygen or salinity pushed already stressed fish over the edge. No schools of fish were seen in the area of the kill and there were no dead fish observed in the water at the time of the investigation.

Total Kills for County: 11 Total Mortality for County: 292210

Cumberland

5/10/2000	FA00001	UT to Blount's Creek	Fayetteville, Lake Clair Apartments	150	Fish dead atleast 48 hours. Other fish appeared healthy and swimming fine at time of investigation. Golf course upstream of trib that feeds lake. Groundskeeper reported no applications that would have caused the kill. No dead fish seen in other ponds on golf course. Pesticide sample showed nothing at detectable limits.
8/7/2000	FA00002	Rhodes Pond		500	Low dissolved oxygen observed at time of investigation. Flared gills and lesions observed on fish.
8/15/2000	FA00003	Rhodes Pond		250	Low dissolved oxygen observed at time of investigation. Possible continuation of event that began on 8/7/00 at the site. Water described by investigators as discolored with a surface film. Algal density in water sample was not very high suggesting a bloom was not present.

Total Kills for County: 3 Total Mortality for County: 900

Edgecombe

6/19/2000	RA00003	Indian Lake	near Tarboro	10000	Cities aerator had quit working on the prior Wednesday. This was followed by several days of very hot, humid, conditions. Dissolved oxygen levels were 3 mg/L or less. Fish seen gasping at surface during investigation.
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Date	Kill Number	Waterbody	Location	Mortality	Comments
					Total Kills for County: 1 Total Mortality for County: 10000
Gaston					
4/13/2000	MO00002	South Fork Catawba River	near Cramerton	200	Cause not specified by investigators. The Cramerton WWTP reported a sewage overflow of 3000 gallons on April 3 upstream of the kill site.
					Total Kills for County: 1 Total Mortality for County: 200
Guilford					
5/9/2000	WS00001	Davis Lake	High Point	150	Large amount of duckweed noted. Algal mat also noted. Immediate area around the lake was heavily developed.
9/11/2000	WS00006	Tributary to Lake Higgins	near Greensboro	2000	Heavy rains occurred 2 weeks prior to kill. Water was described as unusually turbid at the time of the investigation. Investigators measured very low dissolved oxygen levels during the investigation.
					Total Kills for County: 2 Total Mortality for County: 2150
Johnston					
2/27/2000	RA00002	Farm Pond	Hayes Farm north of Newton Grove	300	Kill event appeared to be the result of a severe algal bloom. ESB staff reported algal cells in samples from the pond were so dense they could not be counted. Investigators suspected possible over application of animal waste in fields above pond. Fish described as gasping at surface with erratic behavior.
					Total Kills for County: 1 Total Mortality for County: 300
Lee					
7/19/2000	RA00004	Big Buffalo Creek	near Sanford	179	A fire and chemical spill occurred in the Sanford vicinity on Wednesday, July 12, 2000. At that time no dead fish were observed. On Tuesday, July 18 the chemical slug was reported by several workers repairing a sewerline downstream on Big Buffalo Creek. Several dead fish were observed. On July 19 investigators checked several access points and found the majority (>95%) of the dead fish in Big Buffalo Creek behind Parkdale Mills off U.S. 421. There was a sewerline crossing at this location and workers were in the process of repairing a break in the sewerline. It was unclear whether the fish were killed by the spill, sewage or combination.
					Total Kills for County: 1 Total Mortality for County: 179
Mecklenburg					
4/24/2000	MO00001	Little Sugar Creek	below Sugar Creek WWTP	7500	Kill caused by spill of 400 gallons sodium hydroxide from Sugar Creek wastewater treatment plant near Charlotte. Investigators reported fish bleeding at the gills and attempting to leave the water. Turtles were also reported killed.
					Total Kills for County: 1 Total Mortality for County: 7500
Moore					
8/21/2000	FA00004	Reservoir Park Lake	near Southern Pines	55	Normal levels for D.O. and pH were observed by investigators. No evidence that algae bloom or spill had occurred. Several hot, still days prior followed by a violent thunderstorm with very high winds. Investigators suspected a dissolved oxygen event.
					Total Kills for County: 1 Total Mortality for County: 55

Date	Kill Number	Waterbody	Location	Mortality	Comments
New Hanover					
5/19/2000	WL00004	Simon Pond	near Castle Hayne	63	Investigators reported mats of green algae on pond. Dissolved oxygen was elevated. No phyto/chlor a samples submitted.
					Total Kills for County: 1 Total Mortality for County: 63
Onslow					
5/16/2000	WL00003	Private Pond	near Lake Catherine	50	Water reported as discolored and brownish. Surface film also reported. Dissolved oxygen elevated at time of investigation.
8/28/2000	WL00006	New River	Morgan Bay	300	Fish appeared dead for at least 1 day. No lesions or other visible irregularities were observed. Small fish observed swimming in area at time of investigation. All fish located within 1/2 mile of shore. Investigators suspected a bycatch dump since red drum season had closed at the time of the investigation.
10/16/2000	WL00007	New River	near Grey Point	600	"Punched out" sores observed in anal region of fish. Sores also observe dorsally and ventrally on the body.
					Total Kills for County: 3 Total Mortality for County: 950
Pamlico					
4/20/2000	WA00004	Dawson Creek	at Deep Run	750	Investigation occurred 3-4 days after the event. Water quality measurements at the time of the investigation showed no problems. Heavy rains and runoff during days previous are suspected of playing a role. Rains may have washed stagnant, oxygen-poor water from a swamp that feeds into the creek.
6/11/2000	WA00009	Neuse River	Camp Seagull	2500	Fish first noticed by camp director at 0730. Camp personnel cleaned up fish before NRRT investigation. All fish reported as juveniles with no sores or disease. Dissolved oxygen readings at time of investigation were normal. Trawlers seen in area during the week - possible bycatch. Fish see actively swimming and feeding at time of investigation.
7/10/2000	WA00019	Camp Creek	Oriental	142	Kill appeared to be a result of trawling in the area. The species killed, and the size of the fish found indicate a bycatch situation. The fish were found directly on the ramps at the Wildlife access in Oriental NC.
7/18/2000	WA00020	Bay River	Moore Creek	109700	Based on eyewitness observations from the reporting party this was the result of bycatch from shrimp trawling the previous weekend. According to DMF the entire Bay River was recently opened for shrimp trawling. The reporting party said that he counted 19 large trawlers, 5 medium sized trawlers, and more than 20 small trawlers working in the Bay River.
9/13/2000	WA00027	Neuse river	near Kennel Beach	103	Most of the menhaden appeared to be 12-24 hours old. Up to 100% of the affected fish were observed with lesions. There were a few singles in distress scattered throughout the area. Salinity levels were reported as low for that area for this time of year. Investigators reported environmental factors may have played a role. The fish with lesions appeared stressed. Investigators were also able to catch 668 menhaden in the castnet just upstream from the kill site with only 17% lesions. The lesions on these fish were not as advanced as the ones involved in the kill. ESB staff identified pfiesteria-like organisms in water samples numbering 82 cells/ml and appeared as photosynthetic (autotrophic) dinoflagellates. NCSU staff also reported pfiesteria-like organisms counts at <80 cells/ml.

Date	Kill Number	Waterbody	Location	Mortality	Comments
9/13/2000	WA00028	Neuse River	mouth of Beard Creek	5000	NRRT observed menhaden with sores swimming irrationally and gasping, actively dying. Hydrolab readings showed no sign of a dissolved oxygen problem. Sea Gulls were noted actively scavenging the surface of the water. The dead menhaden appeared to be less than 24 hours old. Crabs and mullet were observed displaying normal behavior. ESB staff identified pfiesteria-like organisms in water samples numbering 23 cells/ml and appeared as photosynthetic (autotrophic) dinoflagellates. NCSU staff reported pfiesteria-like organisms counts as high as 355 cells/ml at mouth of Beard Creek. NCSU began algal and fish bioassays on water samples.
9/24/2000	WA00030	Neuse River	Kennel Beach	12500	Nrrt team members discovered this fish kill after investigating another kill at Flanners Beach. There were no dead fish observed down river from Beard Creek or up river from Transect 15 (N35.0240, W76.9286). Numerous schools of menhaden were observed throughout the estuary. It is estimated that 50 - 80% of the menhaden in those schools had lesions on them. Also observed were single menhaden with lesions, displaced from the schools, swimming at the surface. There were a few fish observed actively dying.
10/4/2000	WA00033	Goose Creek		320	Fish that were found appeared to be between 2 and 3 days old. All fish were quite decayed, most were found rafted up into the marshgrass by wind and waves. The wind had been out of the same direction for two previous days. Prevailing winds and age of the fish indicate that they may have died outside of Goose creek and been blown in. Lesion percentage was 100.
					Total Kills for County: 8 Total Mortality for County: 131015

Pender

8/1/2000	WL00005	Private Pond	Harry South Property	450	Water sample received from Harry South Pond East was dominated by the euglenoid Euglena sp. and the cryptomonad Cryptomonas erosa. The cell density of the sample was over 50,000 unit/ml suggesting an algal bloom at time of investigation.
					Total Kills for County: 1 Total Mortality for County: 450

Pitt

3/13/2000	WA00003	Lake Ellsworth		1086	Cause not specified by investigators. Low dissolved oxygen measured below surface at the time of investigation. Gusty winds and heavy rains reported days prior.
					Total Kills for County: 1 Total Mortality for County: 1086

Surry

6/12/2000	WS00002	Little Fisher River	near Oak Grove	1000	Sunny and hot days prior to kill. Three pipes noted by investigators upstream but no releases noted. Dissolved oxygen normal at time of investigation. Cause unknown.
6/13/2000	WS00003	Cody Creek	Near Dobson	4100	Kill caused by spillage of chlorinated water from swimming pool filter backwash. NCWRC biologists assessed value of kill and determined a cost of over \$500 for affected fish.
					Total Kills for County: 2 Total Mortality for County: 5100

Wake

2/7/2000	RA00001	Neuse River	below Falls Lake Dam	40000	Snow cover was present for 2 weeks prior to kill. Temperatures recorded in stream were near 5 degrees C, below the low end of the range for this species. Similar winter kills of this species have occurred historically. Nutrient samples revealed nothing of concern.
					Total Kills for County: 1 Total Mortality for County: 40000

Date	Kill Number	Waterbody	Location	Mortality	Comments
Wayne					
3/10/2000	WA00006	Private Pond	West of Brogden	53	Investigation occurred 2 weeks after initial event. Temperature inversion in pond suggested as possible cause. Definite cause unknown.
3/10/2000	WA00007	Private Pond	West of Brogden	25	Investigation occurred 2 weeks after initial event. Cause unknown.

Total Kills for County: 2 Total Mortality for County: 78