

Cape Fear River Basin - Water Quality Action Plan 2016

Action	Target	Time Frame : Lead :	Status	Notes	Next Steps (identify outreach, engagement, funding opportunity)
Action 13.00: Better Define WQ in this region between Lock and Dam #1 and Buckhorn Dam					
Action 13.10 Increase water quality monitoring between Lock and Dams #1 and #2 to identify water quality parameters that are most stressful to migratory fish at this location	Blue-green algal blooms eliminated in known locations (particularly in the regions of Lock and Dams #1 and #2 and Northeast Cape Fear River) and future blooms prevented to help maintain minimum of 5 mg/l DO in spawning areas and reduce potential algal toxin formation.	Medium : UNCW and CFRW : In progress	Some increased monitoring has occurred, but serious funding is required. Monitoring continued in summer 2014, looking at nitrogen forms, including urea. Results show that nitrate-nitrogen is by far the most important N form in the river in the relevant reach. Monitoring increased to examine phosphorus loading, nitrogen fixation, and algal blooms formation between the two dams. The stress likely arises from low DO, with some chance that algal toxins may become a problem. UNCW means Larry Cahoon here. Note: Fayetteville PWC would like to see actions 2.30-2.35 implemented in coordination with each other (e.g., have one work group that coordinates on all of these actions).	NCDA&CS staff remains available to conduct these voluntary operation reviews and provide technical assistance to soil and water conservation districts and farmers.	
Action 13.12 Seek funding for additional water quality monitoring between Lock and Dam #1 and Buckhorn Dam	Blue-green algal blooms eliminated in known locations (particularly in the regions of Lock and Dams #1 and #2 and Northeast Cape Fear River) and future blooms prevented to help maintain minimum of 5 mg/l DO in spawning areas and reduce potential algal toxin formation.	Medium : UNCW : In progress	UNCW submitted proposals to Duke Energy Progress for research on conditions favoring algae blooms in the CFR (not funded), If necessary after 2012 data collection. UNCW means Larry Cahoon here. Note: Fayetteville PWC would like to see actions 2.30-2.35 implemented in coordination with each other (e.g., have one work group that coordinates on all of these actions).	CREP is continuing open enrollment into the program. Update of priority watersheds needs to be completed.	
Action 13.20 Develop a protocol to assess and monitor surface algal blooms to better document blue green algal problems	Blue-green algal blooms eliminated in known locations (particularly in the regions of Lock and Dams #1 and #2 and Northeast Cape Fear River) and future blooms prevented to help maintain minimum of 5 mg/l DO in spawning areas and reduce potential algal toxin formation.	Short : UNCW and CFPWA : in progress	UNCW has done some sampling to achieve this but has no legal status to initiate change, UNCW utilized a novel incubation technique (river water held in tall cylinders to mimic light-limiting, low-flow, high nutrient conditions) to detect Microcystis presence in pre-bloom conditions.		
Action 13.21 Continue to assess the relationship between blue-green algal blooms and BOD downstream of Lock and Dam #1	Blue-green algal blooms eliminated in known locations (particularly in the regions of Lock and Dams #1 and #2 and Northeast Cape Fear River) and future blooms prevented to help maintain minimum of 5 mg/l DO in spawning areas and reduce potential algal toxin formation.	Short : UNCW : complete	UNCW has completed analysis between BG blooms and BOD, Note: Fayetteville PWC would like to see actions 2.30-2.35 implemented in coordination with each other (e.g., have one work group that coordinates on all of these actions).		
Action 13.30 Use all available data, including ambient monitoring and eDMR reports to assess impacts of wastewater treatment plants on the water quality in accordance with the standards between Lock and Dams #1 and #3	Blue-green algal blooms eliminated in known locations (particularly in the regions of Lock and Dams #1 and #2 and Northeast Cape Fear River) and future blooms prevented to help maintain minimum of 5 mg/l DO in spawning areas and reduce potential algal toxin formation.	Short : NCDWQ and UNCW : In progress	UNCW has been able to grow Microcystis in lab culture from river water samples before a major bloom occurs. Low flow conditions are critical to bloom formation. CFR nutrient levels are more than high enough to support blooms (see 13.1). Check that eDMR is only telling about waste water plants...is there other information there possibly? regional staff regularly check DMR reports to assure compliance and identification of wastewater treatment plant issues. The cape fear basin planner will review available data and work with the regional office staff to insure that all point source issues addressed prior to completion of the basin wide management pant. DWQ is currently working on the basin wide water quality management plan which will assess the WQ in this segment of the Cape Fear River basin. UNCW means Larry Cahoon here. Note: Fayetteville PWC would like to see actions 2.30-2.35 implemented in coordination with each other (e.g., have one work group that coordinates on all of these actions). DWR has said work has started on a Nutrient Criteria Development Plan will be required for the middle CFR basin.		

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Action 14.00: Define nutrient inputs into the Cape Fear River basin				
Action 14.10 Identify chicken and turkey and sod farm locations in the watershed	Nutrient input decreased	Short : CFRW and UNCW : In progress	UNCW Geography Dept. and CMS have used aerial photography and GIS to make solid progress in Id-in poultry farms in CFR (student theses projects). UNCW (funded by Waterkeeper) has submitted paper to journal re: this issue. The NC Secretary of State's Office does identify sod farm locations in the Inc. search. Is a search for all companies with 'sod' in their name complete enough? (link to search)	
Action 14.20 Create comprehensive map of agriculture (hog, chicken and turkey farms), forestry, and sod farms bordering the Cape Fear and its tributaries	Nutrient input decreased	Short : CFRW : In progress	Some progress has been made in Duplin Co.(see panel above) but it's a big watershed. Sod farms not in the data base yet, will have to be located and entered manually. Need to determine the best way to identify sod farms. Might be able to look up Sod companies through the Secretary of State's Office by looking through the Inc. lists.	
Action 14.30 Map wastewater land application fields (NCDWQ), septage land application fields (Division of Solid Waste) and Class B residual land application sites (NCDWQ).	Nutrient input decreased	Short : UNCW : Complete	CFRW/UNCW sponsored an intern who obtained permit data from NC DENR and mapped these locations in the basin. Fraser Dane, a volunteer who will work with Larry in fall 2012, will lead implementation of this action. Fraser served as a summer intern with CFRW last year. CFRW previously worked in conjunction with the River Keepers Alliance to map CAFO land application fields in NC, so there should be GIS background information and experience to complement the effort. (Municipal wastewater treatment systems may also be an issue; releases of several million gallons of untreated wastewater in Wilmington over last several months). UNCW means Larry Cahoon here. (Comments from DWQ (Michael Tutwiler and Evan Kane 919-807-6461- 11/13/12) Action item 2.38 states that UNCW should work with the NC Division of Water Quality (DWQ) and the NC Division of Waste Management (DWM) to map fields associated with municipal wastewater irrigation, wastewater residual solids (biosolids) and septage. DWQ has already completed much of the mapping work in item 2.38, and has done additional work that puts the potential nutrient loads from wastewater irrigation and residuals in context. The DWQ maintains GIS shapefiles that contain a point location for each active wastewater irrigation (municipal and industrial/commercial) or residual solids land application field. Currently over 99% of these fields have a point location. The Land Application Unit has been working on posting these locations online at http://portal.ncdenr.org/web/wq/aps/lau/map but they are only available by request right now. Additionally, DWQ's Groundwater Planning Unit has undertaken an assessment of nutrient loads associated with residuals and wastewater irrigation sites. We have compiled phosphorus and plant available nitrogen loads applied to fields as wastewater residual solids at multiple geographic scales in the following report: Compilation of Phosphorous and Plant Available Nitrogen Applied to the Land through Permits for Land Application of Residual Solids in 2010. A similar report on nutrient applied to wastewater irrigation sites is currently underway. We have not attempted to determine whether or not land application activities are contributing nutrients to adjacent surface waters but this work does provide an estimate of land applied nutrients that can be compared to other sources of nutrients in the basin or individual watersheds (such as those estimated in the report, Potential Nitrogen Contributions from On-site Wastewater Treatment Systems to North Carolina's River Basins and Sub-basins http://www.soil.ncsu.edu/publications/TB324Finalmay29.pdf) for prioritizing nutrient management approaches. Larry Cahoon notes that a much larger concern is land application of wastes by CAFOs. DWQ has swine CAFO data, but is that also mapped the in same way as waste solids land application sites? Also re: poultry CAFOs, which land apply waste solids but, to the best of my knowledge, are not even known to DWQ in terms of location and size. CFRW is mapping poultry CAFOs the old fashioned way – locating them in Google Earth imagery (poultry CAFOs have no waste lagoons) and judging size by barn sizes and numbers. This is a potentially huge gap in our knowledge of nutrient loading potential in the watershed. I note also that use of arsenicals in poultry feed introduces another dimension – the need to assess arsenic loadings.	
Action 14.40 Complete NCDWQ/USGS study of surface water quality associated with swine operations		Medium : NCDWQ and USGS : In progress	USGS has completed their study, reported on it at the 2015 WRRRI conference, and will be publishing a report this summer. There is currently no surface water monitoring of CAFOs. The end goal is to determine if it is worth taking the time in the future to monitoring what is coming from CAFOs.	
Action 14.50 Meet with nutrient source permittees to pursue voluntary loading reductions	Nutrient input decreased	Medium : UNCW and CFRW : Action needed	This step needs nutrient modeling and nutrient data synthesis before targeting specific point source dischargers. DWR has said a Nutrient Criteria Development Plan will be required for the middle CFR basin. They are choosing Advisory council members to serve on it	

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Action 14.00: Define nutrient inputs into the Cape Fear River basin				
Action 14.60 Correlate runoff information gathered by the NCDWQ/USGS Swine study (action 14.4) with fish habitat to determine how swine operations affect fish habitat	Nutrient input decreased	Medium/Long : NOAA : N/A	Removed DMF from action. NOAA means NMFS SER HCD here.	
Action 14.70 Correlate land-use changes throughout the basin and bordering the Cape Fear River and its tributaries to water quality parameters (DO, Nitrogen, Phosphorous, chlorophyll <i>a</i> and fecal coliform)	Nutrient input decreased	Long : Jennifer Alford and UNCW : Complete	Jennifer Alford has completed a land use change analysis for her thesis (fall 2014) that includes examples of specific locations in the watershed and correlate changes in % urbanization and % wetlands to water quality parameters (DO, N, P, chlorophyll A, and fecal coliform) Comments from DWQ (Michael Tutwiler and Evan Kane 919-807-6461- 11/13/12) Action item 2.41 recommends efforts to correlate land-use changes bordering the Cape Fear River and its tributaries to water quality parameters (DO, Nitrogen, Phosphorous, chlorophyll <i>a</i> and fecal coliform). The authors may be interested in recent work done by the USGS under contract to DWQ to examine potential influences of watershed attributes such as land use and land cover on nitrate, total N, and total P yields. Their work summarizes and synthesizes nutrient yield data compiled for 48 stream sites in central and eastern NC, including numerous sites in the Cape Fear Basin. The report is currently in internal review by USGS, but the authors of the NOAA document may want to contact Steve Harden of the USGS for more information. He can be reached at 919-571-4051 or slharden@usgs.gov.	
Action 15.00: Improve regulatory strategies to reduce point and non-point source pollution				
Action 15.10 NCDMF and NCWRC refine AFSAs and establish data necessary for appropriate water quality standards for these areas, particularly for nutrients and sediment	Nutrient input decreased	Medium/Long : NCDMF and NCWRC : N/A	DWQ can include as part of their triennial review. From the NC estuarine striped bass FMP: HWQ waters have certain discharge restrictions placed on new and expanding dischargers. (15A NCAC 02B .0224). Can work through the surface water triennial review process to establish standards needed to protect anadromous fish species. Page 251 of the 2009 STB FMP describes the locations of the documented spawning areas in the CFR. Underway right now the DMF is placing sonic tags in 20 A. shad to track their movement with potential to locate spawning areas. Sonic tags have also been placed in Atl. Sturgeon in hope of locating spawning areas. Once these areas are more well established, water quality standards can be set. Does this need to be species specific?	
Action 16.00: Improve voluntary strategies to reduce non-point source pollution and protect fish habitat from impacts of land-based activities				
16.10 Increase developers participation in Wildlife Friendly Development Program in part by inviting the NCWRC to hold a workshop in Wilmington that reviews guidelines for the wildlife friendly program certification	Nutrient input decreased	Medium : CFRW, real estate developers, and NCWRC : Action needed	CFRW has contacts with Cape Fear Homebuilders Association (in New Hanover, Pender, and Brunswick Counties). CFRW could talk to Homebuilders about having WRC do a presentation at an upcoming meeting. Are there other similar Homebuilders Associations that we could reach out to (e.g., Fayetteville)? Convincing the developer that they can 'use' their riparian buffer to sell their product. Can incorporate with communal areas like bike and foot paths. This would require homeowners and property owner association to own the property.	UNCW has actively been pursuing grant funding for increased monitoring (long-term) from several venues and will continue to do so
16.12 Provide a workshop (with a focus on materials to incorporate priority areas from Action 10.2 in local program delivery, River Friendly Farmer Program, Stewardship Development Awards Program, and drug take back programs) for select soil and water conservation districts and cooperative extension to focus on setting local priorities with Cape Fear migratory fish	Nutrient input decreased	Short/Medium : NCDSWC : Action needed	The Association of Soil and Water Conservation Districts has an annual meeting in January to work on priority setting. District prioritization is flexible and at the local district level. Presentation may be appropriate for the Water Resources Standing Committee	

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Action 16.00: Improve voluntary strategies to reduce non-point source pollution and protect fish habitat from impacts of land-based activities				
16.18 Using education materials available from NCSU Cooperative Extension, educate homeowners, commercial applicators and others regarding: proper fertilizer use specific to lawn types, fertilizer storage, and fertilizer disposal.	Nutrient input decreased	Short (and ongoing) : Select soil and water conservation districts with help from local governments and select Cooperative Extension agents : In progress	Suggestion from DWQ Basin Plan - 2005, Chapter 31. Phil recommends statewide lead for these kinds of actions with opportunity/invitation for broad participation from local governments (as lead engages them in implementation). We don't want to single out one particular county or city when so many that should be involved basin wide. Cooperative Extension agents work on this though feel the real change is seen at a much higher level—when the fertilizer for sale is actually a 'better' formula. Deanne with Cooperative Extension said they are unable to do this now. In 12 CFR basin counties in 2014, NC Cooperative Extension had 103,498 face-to-face contacts and 480,843 non face-to-face contacts regarding urban and consumer	UNCW has actively been pursuing grant funding for increased monitoring (long-term) from several venues and will continue to do so
Action 16.19 Secure additional funding for Lagoon Conversion Program to encourage use of innovative animal waste management systems	Nutrient input decreased	Medium/Long : NCDSWC : Action needed	Funding is getting limited, but looking at innovative alternative methods to handle waste off facilities to do away with the lagoon system (needs to be economically feasible for farmers to do). Very expensive to do-- Existing program where swine farmers may be eligible for up to 90% cost share assistance to convert existing swine lagoon and spray field systems to innovative animal waste management systems.	
Action 16.20 Work with NGOs and partners to apply targeted protection actions to priority spawning areas: Smith Creek, Rice Creek, Town Creek, Smiley Falls. Actions could include acquiring buffers, lands, and/or conservation easements, or special designations.	Existing riparian wetlands are maintained and restored/enhanced in areas with evidence of buffer loss and/or water quality issues.	Long : NCDWQ, NCDMF, and NCWRC : N/A	Local governments should be involved in this action if it stays in the plan.	
Action 16.21 Promote voluntary operation reviews available to farmers through NCDA&CS	Nutrient input decreased	Short (and ongoing) : NCDSWC : In progress	NCDA&CS SWCD is heavily involved in addressing concerns that operations may have. NCDA&CS can provide technical assistance and operation reviews for animal operations when requested by the farmers. Technical assistance provided in these reviews can lead to improved management of facilities	
Action 16.22 Identify specific areas within the Cape Fear watershed for the Conservation Reserve Enhancement Program (CREP) to focus on for marketing, including the impairments to flood plain	Existing riparian wetlands are maintained and restored/enhanced in areas with evidence of buffer loss and/or water quality issues.	Short/Medium : NCFSWC : In progress	The NCDA&CS SWCD has a position for a new employee to do this work to update a priority data layer. They will hire for the position soon to prioritize watersheds this years, and identify priority areas in the state. The Conservation Reserve Enhancement Program (CREP) objective is to install riparian buffers by providing financial incentives for 30 yr. permanent easements. All are eligible for the CREP funding, but funds are focused in priority areas.	
Action 16.23 Expand Stewardship Development Awards to entire basin	Nutrient input decreased	Medium : New Hanover and other counties : In progress	NH County, DENR, Piedmont Triad Council of Governments, Triangle area (general email: infor@trianglestewardship.org), other counties. Also, Pender County will be presenting a session on the Stewardship Development Program at this fall's meeting of the NC Chapter of the American Planning Association. Lower Cape Fear Stewardship Development Awards Program (Brunswick, New Hanover and Pender-- http://www.stewardshipdev.com/)- for developers that put LID practices in place. Program in Triangle area (http://trianglestewardship.org/) as well and is modeled after the coastal program and uses same guidelines. There is active Stewardship Award Program in Triangle area - Jason Doll is an organizer	UNCW has actively been pursuing grant funding for increased monitoring (long-term) from several venues and will continue to do so

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Action 16.00: Improve voluntary strategies to reduce non-point source pollution and protect fish habitat from impacts of land-based activities				
Action 16.30 Research possibilities and seek funding to conduct benthic surveys using side-scan sonar to assess potential Atlantic and shortnose sturgeon spawning habitat above and below existing barriers in Cape Fear River.	Existing riparian wetlands are maintained and restored/enhanced in areas with evidence of buffer loss and/or water quality issues.	Medium : USFWS and NCWRS co-lead, with help from NOAA and NCDMF : N/A	NCSU/USGS can't commit to doing this action (Joe retiring soon and may not be replaced). NCSU/USGS: have side-scan data for the lower Cape Fear (below LD1) that was collected for an ongoing project on Atlantic sturgeon distribution and migration. Will be doing some habitat analysis with those data but that would be relevant to holding/staging habitat around the freshwater: saltwater interface rather than spawning habitat. Any survey effort on sturgeon spawning habitat is premature until migration is better characterized. With NCDMF (Chip Collier) having so many sonic-tagged sturgeon and with the array of deployed VR2s, there should be much better information about migration (and possible spawning locations) in a couple of years. At that point, it might be a good idea to pursue funding for habitat work. From NMFS SER PRD: Work could potentially be funded through ESA Section 6 Cooperative Agreement (with NC WRC). NOAA has articles on low-cost side scan sonar method for assessing substrate composition tested by GA DNR that could be used in the Cape Fear (Kaeser and Litts 2010 and Kaeser et al 2012). An ESA Section 10 permit would not be required from NOAA for this work. NOAA worked with GA DNR to map sturgeon habitat in 4 Georgia Rivers. Their methods are simple but effective and relatively inexpensive to do. They also gladly share their techniques with others, as this will help get consistent habitat info between river systems. Local soil and water conservation districts remain available to provide technical assistance and limited financial support (through CCAP) for interested landowners	
Action 16.60 Provide technical assistance in urban areas to help establish and protect buffers	Nutrient input decreased	Short (and ongoing): local soil and water conservation districts with help from local governments : In progress	Soil and Water has CCAP program which can be used to accomplish this action (note the program has a small amount of funds for the whole state (about 200k), along with W6.8. Listing local governments (e.g., county, city levels) as helping here allows for broad partnership in implementation. suggestion from DWQ Basin Plan - 2005, Chapter 31	
Action 16.61 Reinivgorate and expand the River Friendly Farmers Program throughout the basin	Nutrient input decreased	Medium : N/A : In progress	This program identifies and recognizes farmers who have made efforts to have 'river smart' farming practices. Program administered by some Soil and Water Conservation Districts, so need to ID the SWCD representatives to establish communication and partnerships. Can focus the program on the biggest threats to the river/watershed.	
Action 16.70 Advocate and monitor for the implementation of forestry best management practices, including the establishment, management, and protection of stream and	Nutrient input decreased	Medium : North Carolina Forest Service : N/A		UNCW has actively been pursuing grant funding for increased monitoring (long-term) from several venues and will continue to do so
Action 16.71 Work with private landowners to protect and restore forestry buffers through best management practices on their land	Nutrient input decreased	Medium : Select soil and water conservation districts : In progress		
Action 16.80 Provide technical assistance to agricultural operations that are potential sources of nutrients, specifically total nitrogen and total phosphorous.	Nutrient input decreased	Medium : N/A : In progress	The NCSA&CA has the Ag Cost Share program and the federal CREP program that might be included in this action. NC Cooperative Extension worked with 476 animal waste applicators in 12 CFR basin counties throughout 2014 on proper waste application and continuing education events	

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Action 16.00: Improve voluntary strategies to reduce non-point source pollution and protect fish habitat from impacts of land-based activities				
Action 16.81 Work with farmers to manage fertilizer application at agronomic rates	Nutrient input decreased	Medium : Environmental Defense Fund (lead), NCSU Cooperative Extension, select soil and water conservation districts, and NCDSWC : N/A	Does NRCS want to be involved? Sampson County and adjacent counties are targeted for this pilot EDF work. EDF is working with NC State Cooperative Extension Service. A goal is to establish a network among the farming community to demonstrate the environmental and financial benefits of optimizing fertilizer application rates to reduce nutrient runoff and maximize profits. Policy adopted by the NCASWCD Community Conservation Standing Committee recognizes the LCF program, and encourages districts to implement similar programs.	
Action 16.82 Present Cape Fear Migratory Fish priorities to the NC Association of Soil and Water Conservation Districts	Nutrient input decreased	Medium : NCDSWC : Complete	The Association of Soil and Water Conservation Districts has an annual meeting in January to work on priority setting. District prioritization is flexible and at the local district level. Presentation may be appropriate for the Water Resources Standing Committee. The DSWC does not have data regarding which local districts recognized a River Friendly Farmer in 2014; a poll of districts could be completed if needed.	
Action 16.90 Continue promoting existing North Carolina Agriculture Cost Share Program within the basin with emphasis placed on Best Management Practices (BMPs) that can improve water quality in critical habitat areas (as identified in action 10.2)	Nutrient input decreased	Medium : NCDSWC and select soil and water conservation districts : In progress	Targeted outreach to landowners may also be a possibility	
Action 16.91 Continue to promote full funding of the existing North Carolina Community Conservation Assistance Program within the basin with emphasis placed on BMPs that can improve water quality in critical habitat areas (as identified in action 10.2)	Nutrient input decreased	Medium : NCDSWC and select soil and water conservation districts : In progress	Riparian buffers remain a cost-shareable practice through ACSP for interested landowners; local soil and water conservation districts are available to provide technical assistance to landowners with or without financial assistance. Targeted outreach to landowners may also be a possibility	
Action 16.92 Promote NRCS programs within the basin while continuing to provide producers with information on BMPs that can mitigate critical habitat areas	Nutrient input decreased	Medium : NCDSWC and select soil and water conservation districts : In progress	The DSWC and local soil and water conservation districts do this in their daily work... some practices are cost shared, in other cases, technical assistance is provided - please let me know if you'd like me to work with staff in Raleigh to run numbers for cost-shared BMP impacts that were implemented in the CFRB for PY2014. Targeted outreach to landowners may also be a possibility	
Action 16.93 Implement feasible and cost-effective storm water retrofit projects throughout the watershed to mitigate the hydrologic effects of development. Stream channel restoration activities should be implemented in target areas in order to improve aquatic habitat.	Nutrient input decreased	Medium : NCDSWC with help from local governments, select soil and water conservation districts, and select NCSU Cooperative Extension agents : In progress	Suggestion from DWQ Basin Plan - 2005, Chapter 31 Can include both Green Infrastructure and in stream work. EDF may be better suited to provide an update related to this particular project effort?	

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Action 16.00: Improve voluntary strategies to reduce non-point source pollution and protect fish habitat from impacts of land-based activities				
Action 16.94 Lay the groundwork for tax incentives for increasing buffers through tax credits (based on North Carolina Conservation Tax Credit handled through 'One NC Naturally Program')	Nutrient input decreased	Long : DENR Office of Conservation, Planning and Community Affairs : N/A	The One NC Naturally Program offers tax incentives for conservation practices. Can these Conservation Credits be focused on riparian areas that would meet the 'conservation of natural areas' part of program requirements? State does not have money to give credits now. Even though the state does not have funds, is the groundwork already there b/c the Conservation Tax credit is already in place?	
Action 16.95 Secure additional funding for Swine Buyout Program to fund buyouts for swine operations in the 100-year flood plain.	Nutrient input decreased	Medium/Long : NCDWC : Action needed	Voluntary program with objective to remove high-risk swine production operations from the 100-year flood plan and to mitigate potential hazard from future floods while retaining the land for agricultural use	
Action 16.96 Educate County and City Planning Departments beyond the coastal plain about the Green Growth Toolbox conservation options for landowners	Nutrient input decreased	Long : NCWRC : N/A	WRC needs to be invited to hold a workshop. Kacy Cook (kacy.cook@ncwildlife.org) is the WRC contact. Kacy can lead the work shop but the Coastal Land Trust (or another NGO with connections to town/city/county land used managers and councils of government, or the local council of governments themselves) would need to lay groundwork for having the workshop. The NC Coastal Land Trust and WRC are providing workshops to jurisdictions on the coastal plains (http://216.27.39.101/greengrowth/) . It is important for those initiating the workshop to already know land use planners and community leaders to help promote the workshop. Most local governments in and around the Wilmington area have been trained by the Coastal Land Trust. Cy Stober with the Piedmont regional Council has been trained. Randolph County has used some tool box concepts. WRC is working with the Town of Navassa (W. of Wilmington and N or Leland) and Moore county are receiving technical guidance work for their planning efforts from WRC. NC Coastal Land Trust's funding to carry out this work ends in September 2012 (involvement uncertain after that date).	
Action 17.00: Better support efforts to decrease input of toxic metals and chemicals into the Cape Fear River and better understand the effects of these compounds.				
The Association of Soil and Water Conservation Districts has an annual meeting in January to work on priority setting. District prioritization is flexible and at the local district level. Presentation may be appropriate for the Water Resources Standing Committee				
Action 17.10 Expand successful New Hanover County drug take-back program to other urban communities with wastewater discharging to the Cape Fear watershed.	Input of toxic metals (e.g. mercury) and endocrine disrupting chemicals decreased	Short/Medium : NHC : In progress	NH City Sheriff's Dept. does twice a year and will continue. DMF: DMF held a drug take back event this year in Wilmington. There is a need. We could ask them to expand and offer assistance. Research showing EDC pass through standard waste water treatment plants and alter environment—direct effect on specific fish still open. Seems that there are a few days a year where the US DEA has a drug take back day: http://www.deadiversion.usdoj.gov/drug_disposal/takeback/index.html Local soil and water conservation districts remain available to provide technical assistance to interested groups; resources related to Backyard Conservation: Lawns and the	
Action 17.11 Support NCDENR efforts to reduce mercury and other heavy metal inputs to the basin	Input of toxic metals (e.g. mercury) and endocrine disrupting chemicals decreased	Medium : UNCW and CFRW : In progress	UNCW's American Chemical Society sponsored a talk by Dr. Dennis Lemly about coal ash pollution, including Selenium pollution in Sutton Lake. Recent report indicates that air quality controls imposed by NC 2002 clean air legislation has also reduced total mercury emissions statewide to <1000 lb./year, with relatively more source of Hg now out of state. There is some pushback, therefore, on the NC mercury TMDL effort, possibly partly from within NC DAQ. Maybe Greg Cope is involved? When details are available for Action Item 10.2, districts may be able to do some targeted outreach to landowners. Districts statewide continue to promote ACSP. Stop Titan is a start, but DAQ approved Titan plan in part	