

APPENDIX 7: MONITORING PROGRAMS THAT INCLUDE SOUTH CAROLINA COVERAGE

Name of Program	Coordinating Agency	Contact	Participating Partners	Extent of Coverage	Affected Species
<i>SCDNR Programs</i>					
Furbearer Scent Station Routes	SCDNR	Jay Butfiloski, SCDNR-WFF		Statewide; annually	mainly Red Fox, Gray Fox, Raccoon, Coyote, Bobcat (but also Opossum, Beaver, Muskrat, Long-tailed Weasel, Mink, Striped Skunk, Spotted Skunk, River Otter)
Mourning Dove Call Count Surveys	SCDNR	Willie Simmons, SCDNR-WFF		Statewide; annually	Mourning Dove
Wild Turkey Brood Surveys	SCDNR	Charles Ruth, SCDNR-WFF	Volunteers including public	Statewide; annually	Eastern Wild Turkey
Black Bear Bait Station Surveys	SCDNR	Tammy Wactor, SCDNR-WFF		Mountain region; every other year	Black Bear
Mast Survey	SCDNR	Tammy Wactor, SCDNR-WFF		Mountain region	Priority habitats that include mast-producing food items for Black Bear and other priority species in the region
Fox Squirrel Sighting Survey	SCDNR	Willie Simmons, SCDNR-WFF	DNR, USFWS, SCFC, USFS, US DoD, and volunteers including public	Statewide; conducted every other year	Southern Fox Squirrel
Wading Bird Surveys	SCDNR	Christine Hand, SCDNR-WFF		South Carolina Coastal Zone and Coastal Plain; annual aerial surveys	Colonial nesting wading birds (Wood Stork, heron species, egret species, ibis species, Anhinga)
Wood Stork Monitoring	SCDNR	Christine Hand, SCDNR-WFF	Wood Stork Working Group, FWS	Statewide; annual nest counts and productivity estimates	Wood Stork
Shorebird/Seabird Surveys	SCDNR	Mary Catherine Martin, SCDNR	USFWS	Cape Romain NWR (25 miles of SC coastline); 3-day survey conducted monthly	All shorebird and seabird species
Seabird Nesting Colony Surveys	SCDNR	Felicia Sanders, SCDNR-WFF	Cape Romain NWR, COE and Clemson COOP	Complete statewide ground counts (annual)	Colonial nesting seabirds (brown pelican, black skimmer, gull species, tern species)
American Oystercatcher Survey	SCDNR	Felicia Sanders, SCDNR-WFF	Clemson COOP	Periodic statewide surveys of nesting and wintering populations	American Oystercatcher

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American Oystercatcher Monitoring	SCDNR	Felicia Sanders, SCDNR	AMOY regional working group	Annual monitoring of color banded birds	American Oystercatcher
Wilson's Plover Monitoring	SCDNR	Felicia Sanders, SCDNR	Cape Romain NWR	Periodic statewide surveys of nesting populations	Wilson's Plover
Red-cockaded Woodpecker Monitoring	SCDNR	Caroline Causey, SCDNR-WFF		Extent of red-cockaded range in SC (Sandhills and Coastal Plain) in accordance with recovery plan guidelines. Conducted throughout the year.	Red-cockaded Woodpecker
Bluebird Monitoring Project	SCDNR	Lex Glover, SCDNR-WFF	Volunteers (George Rock) and DNR staff.	Conducted during the nesting season.	Eastern Bluebirds and various cavity nesting species
Painted Bunting Observation Team	UNCW, NCMNS, USFWS, SCDNR	Jamie Rotenberg, UNCW Craig Watson, USFWS	Citizen scientists	Band and re-sight at bird feeders	Painted Bunting
Bobwhite Quail Summer Whistling Cock Survey	SCDNR	Willie Simmons, SCDNR-WFF	DNR, USFWS, SCFC, USFS, US DoD	Statewide during breeding season	Northern Bobwhite
Bobwhite Quail Summer Brood Survey	SCDNR	Willie Simmons, SCDNR-WFF	DNR, USFWS, SCFC, USFS, US DoD, and volunteers	Statewide	Northern Bobwhite
Bobwhite Quail Hunter Survey	SCDNR	Willie Simmons, SCDNR-WFF	Volunteers	Statewide	Northern Bobwhite and American Woodcock
Fall Covey Counts (Bobwhite Quail)	SCDNR	Willie Simmons, SCDNR-WFF	DNR, USFWS, SCFC, USFS, and volunteers	Select WMAs	Northern Bobwhite
Appalachian Cooperative Grouse Research Project	SCDNR	SCDNR-WFF		DISCONTINUED	Ruffed Grouse
In-water Turtle Survey	SCDNR	Mike Arendt, SCDNR-MRD	NMFS/NOAA	Charleston shipping channel (ongoing)	Loggerhead Sea Turtle, Green Sea Turtle, Kemp's Ridley Sea Turtle
Artificial Reef Monitoring Survey	SCDNR	Bob Martore, SCDNR-MRD	USFWS (Dingle-Johnson)	Continental shelf and estuarine (ongoing)	Habitat for myriad marine invertebrates and vertebrates
Cobia tagging	SCDNR	Don Hammond, SCDNR-MRD	Cooperative Fisheries Research Program (federal), Hilton Head Sport-fishing Club, Port Royal Conservancy	Port Royal Sound, Beaufort County (Jan 2005 – March 2006)	Cobia

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Dolphin tagging	SCDNR	SCDNR-MRD		DISCONTINUED	Dolphin
Bill-fishing Survey	SCDNR	Wallace Jenkins, SCDNR-MRD	Governor's Cup Bill-fishing Series participants	Offshore of South Carolina, U.S. territorial Atlantic Ocean (summer – fall, annual)	Billfishes (marlin species, Swordfish, Sailfish), tuna species, Dolphinfish, Wahoo
State Finfish Survey (recreational fishery creel survey at public access)	SCDNR	Brad Floyd, SCDNR-MRD	USFWS (Dingle-Johnson)	South Carolina Coastal Zone (annual)	Red Drum, Spotted Seatrout, Sheepshead, flounders
Fisheries Statistics Survey	SCDNR	Amy Dukes, SCDNR-MRD	NMFS/NOAA, Atlantic Coastal Cooperative Statistics Program (federal)	South Carolina Coastal Zone and U.S. territorial Atlantic Ocean (annual)	All commercial marine fishes and American Shad, Hickory Shad, Blueback Herring
Remote-sensing Oyster Mapping	SCDNR	Peter Kingsley-Smith, SCDNR-MRD	NMFS/NOAA	South Carolina Coastal Zone (ongoing)	Eastern Oyster
State Shellfish Ground Assessment	SCDNR	Lee Taylor, SCDNR-MRD		South Carolina Coastal Zone (annual, spring & summer)	Eastern Oyster, Northern Quahog, Southern Quahog
Shellfish Culture Permit Monitoring	SCDNR	Nancy Hadley, SCDNR-MRD	Shellfish culture/harvest permit holders	South Carolina Coastal Zone (annual)	Eastern Oyster, Northern Quahog, Southern Quahog
Shellfish Mariculture Permit Management	SCDNR	Nancy Hadley, SCDNR-MRD	Shellfish mariculture permit holders	South Carolina Coastal Zone (annual)	Eastern Oyster, Northern Quahog, Southern Quahog

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Public Shellfish Ground Planting and Restoration	SCDNR	Nancy Hadley, SCDNR-MRD		South Carolina Coastal Zone (annual)	Eastern Oyster, Northern Quahog, Southern Quahog
Whelk Fishery Monitoring and Management	SCDNR	Nancy Hadley, SCDNR-MRD	Whelk trawl fishery permit holders	South Carolina shallow Atlantic shelf (winter – spring, annual)	Knobbed Whelk, Channeled Whelk
Juvenile American Eel Survey	SCDNR	Allan Hazel, SCDNR-WFF	ASMFC, Atlantic Coastal Fisheries Cooperative Management Act, NMFS/NOAA	Upper Goose Creek below Goose Creek Reservoir (late winter – early spring, annual); Rediversion Canal below St. Stephen Dam (year round)	American Eel
Shad Tagging	SCDNR	Bill Post, SCDNR-WFF	ASMFC, Atlantic Coastal Fisheries Cooperative Management Act, NMFS/NOAA	Edisto, Santee and Waccamaw-Pee Dee Rivers (annual with three-year cycle per river)	American Shad, Hickory Shad
Commercial Shad Fishery Monitoring	SCDNR	Bill Post, SCDNR-WFF	ASMFC, Atlantic Coastal Fisheries Cooperative Management Act, NMFS/NOAA	All State waters (annual)	American Shad, Hickory Shad
Adult American Shad Telemetry	SCDNR	Bill Post, SCDNR-WFF	Duke Energy, SCANA	Lake Moultrie, Lake Marion, Wateree River, Congaree River, Broad River, Saluda River, Cooper River, Santee River	American Shad
Santee Accord Juvenile American Shad Surveys	SCDNR	Jarrett Gibbons, SCDNR-WFF	Duke Energy, SCANA	Lake Marion, Lake Moultrie, Wateree River, Congaree River, Broad River, Upper Santee River, Cooper River	American Shad, Blueback Herring
Santee Accord Sturgeon Monitoring	SCDNR	Bill Post, SCDNR-MRD	Duke Energy, SCANA	Lake Marion, Lake Moultrie, Wateree River, Congaree River, Broad River, Saluda River, Upper Santee River, Cooper River	Shortnose Sturgeon, Atlantic Sturgeon
Multi-State Sturgeon Telemetry	SCDNR	Bill Post, SCDNR-WFF	UGA, NCSU, NCDMF	NC, SC, GA coastal waters and rivers to the first impediment	Shortnose Sturgeon, Atlantic Sturgeon
Sturgeon Surveys	SCDNR	Bill Post, SCDNR-WFF	NMFS/NOAA	Edisto Rivers (ongoing)	Shortnose Sturgeon, Atlantic Sturgeon

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Monitoring Fish Species at St. Stephen's Fish Lift	SCDNR	Bill Post, SCDNR-WFF		St. Stephen's Fish Lift	All diadromous and freshwater species
Monitoring Juvenile American Shad stocks	SCDNR	Bill Post, SCDNR-WFF	USFWS	Edisto, Great Pee Dee, and Savannah Rivers	American Shad
Robust Redhorse Conservation Committee (RRCC)	SCDNR	Mark Scott, SCDNR-WFF	MOU between state and federal resource agencies, universities, private industry, and the conservation community; 13 signatory and 2 cooperating members	Statewide	Robust Redhorse
Marine Resources Monitoring, Assessment and Prediction (MARMAP) Program	SCDNR	Marcel Reichert, SCDNR-MRD	NMFS/NOAA	Atlantic Ocean shelf and slope (high salinity estuaries for juvenile gag grouper recruitment study—ongoing)	Benthic or bottom-dwelling marine fishes, primarily snappers and groupers, specifically Gag
South Carolina Estuarine and Coastal Assessment Program (SCECAP)	SCDNR	Densie Sanger, SCDNR-MRD	SCDHEC, USEPA, NOAA, USFWS	Coastal Zone estuaries Annual since 1999 through at least 2006	Measurement of water and sediment quality and related presence and diversity of marine invertebrates and fishes; assessment of tidal creeks (nursery habitat for a variety of priority species)
Oceans and Human Health Initiative	SCDNR	Bob Van Dolah, SCDNR-MRD	NOAA, SCDHEC, MUSC, College of Charleston	Tidal creek habitats representing various levels of urban development. Semi annual to annual through 2007	Measurement of water and sediment quality, benthic and demersal invertebrate and fish communities, testing of new bioindicators of biota health using oysters
SECOOS Fish Watch	SCDNR	SCDNR-MRD	NOAA, UNC-W, Univ. of Ga.	NC, SC, GA coastal waters. Ongoing	Underwater camera systems to document fish movements.
Southeast Area Monitoring and Assessment Program (SEAMAP)	SCDNR	Marcel Reichert, SCDNR-MRD	NOAA, ASFMC,	NC,SC,GA coastal waters. Ongoing	Demersal finfish and invertebrate stock assessment and water quality measures
Inshore Recreational Finfish Surveys	SCDNR	Steve Arnott, SCDNR-MRD	NOAA	SC estuaries, ongoing	Monitoring the status of inshore recreational finfish species such as Red Drum, Spotted Seatrout, flounder, and other species
Electrofishing Finfish	SCDNR	Steve Arnott, SCDNR-	ACE Basin, NOAA	SC tidal freshwater and oligohaline	Fish community sampling

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Surveys		MRD		areas—ongoing	
Crustacean Monitoring Program	SCDNR	Larry DeLancey, SCDNR-MRD		SC estuaries and some nearshore sampling—ongoing	Shrimp and crab population monitoring using fishery independent methods
Monitoring of Shrimp Viral Disease	SCDNR	Craig Browdy, SCDNR-MRD	NOAA	Coastal waters, Beaufort, NC to Jacksonville, FL—through 2005	White Shrimp
Red Drum Stocking Assessment Program	SCDNR	Mike Denson, SCDNR-MRD	NOAA, SeaGrant	SC estuaries where Red Drum have been stocked	Monitoring the effectiveness of Red Drum stocking approaches
South Atlantic Shallow Water Trawl Survey	SCDNR	Larry Delancey, SCDNR-MRD	SEAMAP and affiliates	Coastal Zone of the South Atlantic Bight—since 1986; Cape Hatteras, NC to Cape Canaveral FL	Monitor the status and trends of coastal species in the South Atlantic Bight, including fish, shrimp, crabs, horseshoe crabs, sea turtles, mantis shrimp, and squid, in order to amass a long-term data base for research and fisheries management use
Cooperative Atlantic States Shark Popping and Nursery Survey	SCDNR	Bryan Frazier, SCDNR-MRD	NMFS	SC coastal waters and estuaries—ongoing	Monitoring various shark species abundance and distribution
Adult Red Drum Monitoring Program	SCDNR	Erin Levesque, SCDNR-MRD	NOAA	SC coastal waters—ongoing	Monitoring adult red drum in nearshore coastal ocean waters
Harmful Algal Bloom Monitoring Program (SC Task Group on Harmful Algae)	SCDNR	Diane Greenfield, SCDNR-MRD and USC	Sea Grant, NOAA, CEC, SCDHEC, USC, MUSC, Hollings Marine Laboratory	SC estuarine and coastal waters including retention pond systems—ongoing	Monitoring of the distribution and abundance of phytoplankton, including harmful algal species, assessing effect on marine biota, assessing pathways of toxin transfer to eagles
Folly Beach Renourishment Study	SCDNR	Denise Sanger, SCDNR-MRD	US Army Corps of Engineers	Folly Beach and nearshore waters—ongoing	Monitoring the impact of dredging and beach nourishment on invertebrate populations on beach and in nearshore zone
Ocean Dredged Material Disposal Areas	SCDNR	Denise Sanger, SCDNR-MRD	US Army Corps of Engineers	Hard Bottom Reef Habitats adjacent to Charleston Ocean Disposal Area	Assessment of impacts of sediment movements on hard bottom reef habitats
Marine Turtle Conservation Program	SCDNR	Michelle Pate, SCDNR-MRD		Entire SC coast	All sea turtles
Sea Turtle Stranding and Salvage Network	SCDNR	Michelle Pate, SCDNR-MRD	Volunteer network	SC Coast: ¾ covered by cooperators and ¼ covered by monthly aerial surveys	All sea turtles

<i>Federal Programs</i>					
International Piping Plover Census	USGS	Melissa Bimbi (USFWS); Felicia Sanders (SCDNR)		Statewide; all beach habitat during February	Piping Plover, Wilson's Plovers, Red Knot
Midwinter Waterfowl Survey	USFWS	Carl Ferguson (USFWS); SCDNR Waterfowl Biologist	SCDNR (Greg Lynch)	Coastal Counties, including the Atlantic Ocean and Santee Cooper Lakes	All waterfowl species, eagles
Breeding Bird Survey	USGS	Bruce Peterjohn, Breeding Bird Lab	Surveys conducted by volunteers including DNR staff	US and Canada; total number of routes is 4461, 28 of which are in SC; conducted during the breeding season	All birds
R8 Bird Point Counts	USFS	May Lee Hafer, USFS	Surveys conducted by USFS biologists	Francis-Marion Sumter National Forest Conducted during the breeding season	Landbirds
Red-cockaded Woodpecker Monitoring	USFWS	Will McDearman and Paula Sisson, USFWS	All agencies with Red-cockaded woodpeckers present on their lands. SCDNR coordinates monitoring efforts on state owned and private lands within SC	Extent of Red-cockaded Woodpecker range in SC (Sandhills and Coastal Plain) in accordance with Recovery Plan guidelines; conducted throughout the year	Red-cockaded Woodpecker
Flatwoods Salamander monitoring	USFS	Mark Danaher, USFS	SCDNR (Will Dillman)	Francis Marion National Forest	Flatwoods Salamander
Webster's Salamander monitoring	USFS	Jeff Magniez, USFS	SCDNR (Will Dillman)	Sumter National Forest	Webster's Salamander
Isolated wetlands (Carolina Bays) and herps	DOE/ SREL	Kurt Buhlmann, SREL	SCDNR (Will Dillman)	SRS	
Marine Recreational Fisheries Statistical Survey, Marine Recreational Information Program	NMFS/NOAA	Amy Dukes, SCDNR-MRD		US Coastwide, all estuarine and marine waters (annual)	All recreational species, including species taken from charter boats, head boats, piers and from shore
Charleston Dolphin Abundance and Distribution (CDAD) Survey	NOS/NOAA	Eric Zolman, NOS	NMFS/NOAA	Charleston Harbor, Cooper River, Wando River and Stono River (annual)	Bottlenose Dolphin

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Health and Environmental Risk Assessment (HERA) Project	NOS/NOAA	Pat Fair, NOS	NMFS/NOAA, Harbor Branch Oceanographic Institute, SCDNR, Medical University of South Carolina, University of Miami, Mote Marine Laboratory, Mystic Aquariums, Cornell University	Charleston area, estuarine (annual)	Bottlenose Dolphin
Marine Mammal Stranding Survey	NOS/NOAA	Wayne McFee, NOAA	NMFS/NOAA, SCDNR, Coastal Carolina University	Coastal Zone (annual)	All marine mammals excluding manatees
NMFS, Beaufort Laboratory, Cetacean and Sea Turtle (CAST) Survey	NMFS/NOAA	Aleta Hohn, NMFS	SCDNR	Coastal Zone and Atlantic Ocean shelf (annual) - Southeastern US	Bottlenose Dolphin stock structure and genetics
Aerial Seabird Surveys	USFWS	Tim Jones, ACJV and Emily Silverman, USFWS	USFWS biologists	Maine to Cape Canaveral, FL	Shorebirds and waterbirds that utilize coastal areas; seasonal surveys
Aerial Sea Duck Surveys	USFWS	Tim Jones, ACJV and Emily Silverman	USFWS biologists	Maine to Cape Canaveral, FL	Seaducks during winter; also count seabirds on this survey

Non-Federal Programs					
Monitoring Avian Productivity and Survivorship (MAPS)	Institute for Bird Populations	David DeSante, IBP	Volunteers including SCDNR staff (Lex Glover) See website for various points	International (Canada, US, Mexico); conducted during the breeding season at 2 SCDNR stations, Congaree NP, and McCrady; other SC stations include 1 operated by USFS	Landbirds
Christmas Bird Count	Audubon	Local Audubon Chapters	Volunteers including DNR staff	US and Canada Survey conducted in December	All birds
Coastal Carolina Dolphin Abundance and Distribution Survey	Coastal Carolina University	Rob Young, CCU	NMFS/NOAA, NOS/NOAA	North Inlet and Winyah Bay, Georgetown County (estuarine)—annual	Bottlenose Dolphin
UNC-W Dolphin Abundance and Distribution Survey	University of North Carolina – Wilmington	Peggy Sloan, UNC-W	NMFS/NOAA, NOS/NOAA	Bulls Bay and McClellanville (estuarine)—through September 2005 DISCONTINUED	Bottlenose Dolphin
Carolinas Coastal Ocean Observing and Prediction System (CaroCOOPS)	University of South Carolina, North Carolina State University	Madilyn Fletcher, USC	NOAA, USC, UNC-W	North and South Carolina from beach to shelf break	Oceanographic data from an instrumented array of coastal and offshore moorings used to monitor and model estuarine and coastal ocean conditions, as well as develop predictive tools and ultimately forecasts (storm surge models, water quality and transport of pollutants, sediment transport and shoreline stability, and the state of the fisheries)
Bald Eagle Survey (mid-winter)	Avian Conservation Center	Jennifer McCarthy Tyrrell, ACC	USGS coordinates US surveys	Coordinate and conduct statewide during winter	Bald Eagle
Diamondback Terrapin Working Group (DTWG)	Diamondback Terrapin Working Group (DTWG) 501c3 organization	Erin Levesque, SCDNR-MRD Mike Dorcas, Davidson College	Made up of individuals from academic, scientific, regulatory and private institutions/organizations	Atlantic and Gulf Coast states	Supports research, management, conservation, and education efforts in regards to Diamondback Terrapin
Beach Vitex Task Force (NFWF)	Beach Vitex Task Force	Betsy Brabson, SC BV Task Force	BASF Corp., Clemson University, North Inlet-Winyah Bay National Estuarine Research Reserve, NRCS, North Carolina Cooperative Extension Service, NC and SC Sea	Entire SC coast	Removal of invasive Beach Vitex (<i>Vitex rotundifolia</i>) and replanting of dunes with native plant species

			Turtle Networks, Town of Pawleys Island, Gaylord and Dorothy Donnelley Foundation, SCDHEC NOAA-OCRM, SCDNR, SCPRT SC Native Plant Society, USACE USFWS, USGS		
National Bobwhite Technical Committee (since 2009); previously Southeast Quail Study Group	National Steering Committee of 12 members	Willie Simmons, SCDNR (local contact) National Steering Committee Chair rotates every 2 years	SCDNR and 6 other state wildlife agencies	25 states within the species' range	Northern Bobwhite
Eastern Painted Bunting Working Group		Lex Glover, SCDNR		DISCONTINUED	Painted Bunting
United States Nightjar Survey Network	Center for Conservation Biology	Lex Glover, SCDNR	Arizona Bird Conservation Initiative, Florida Fish and Wildlife Conservation Commission, Moon: Illinois Natural History Survey, NCWRC, NJ Audubon, PA Game Commission, WBCI, Michigan Natural Features Inventory	Nationwide	9 species of nightjar including Common Nighthawk, Chuck-will's-widow and Whip-poor-will
Eastern Brook Trout Joint Venture	EBTJV	Mark Scott, SCDNR	SCDNR, USFS, Trout Unlimited	Entire US range of the species; in SC, restoration to appropriate stream habitat	Eastern Brook Trout