
Chapter 6 Coastal Waters

6.1 Alabama Coastal Nonpoint Pollution Control Program (ACNPCP)

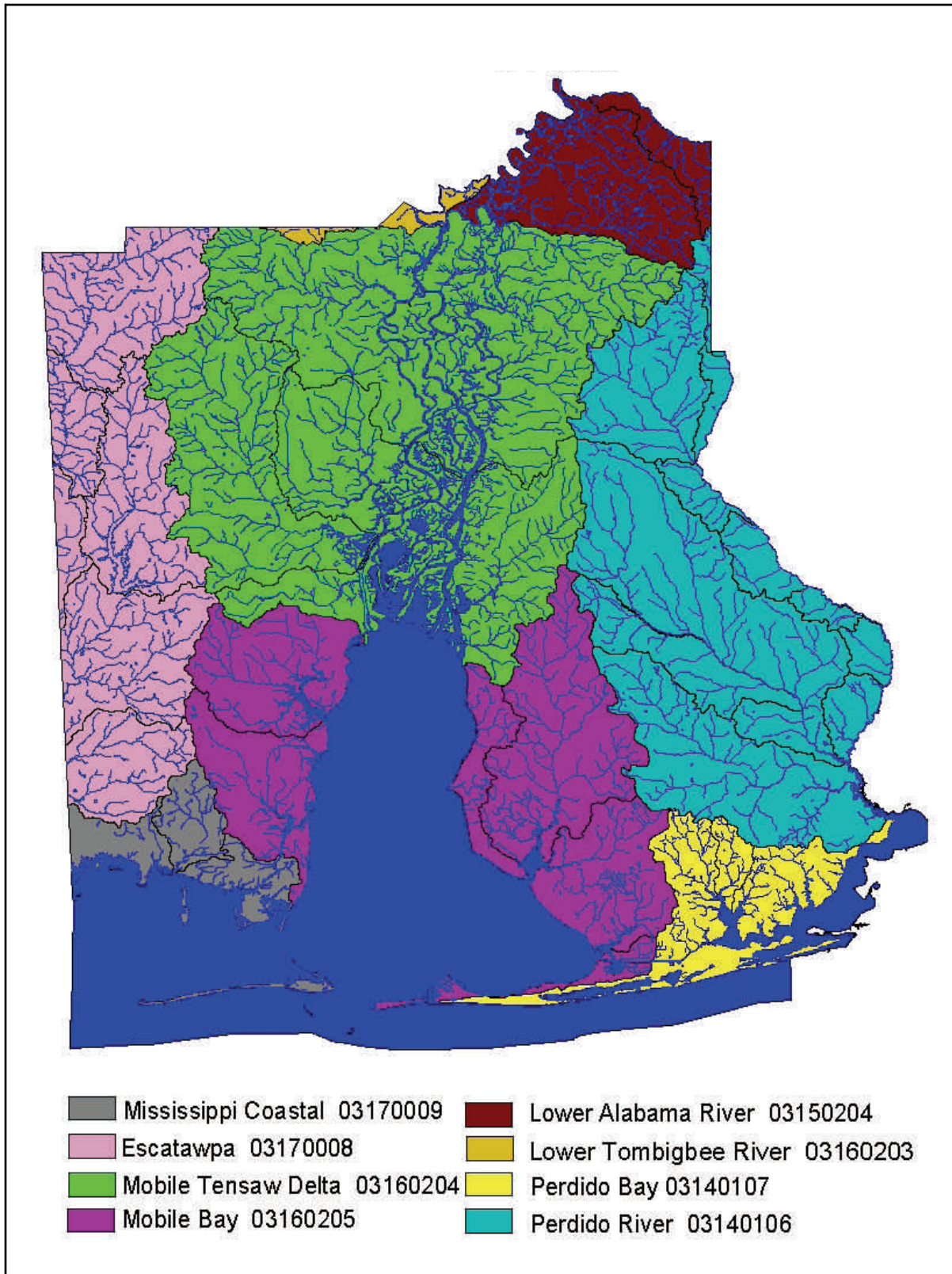
In June 1998, the NOAA-Office of Coastal and Resource Management (OCRM) and USEPA awarded conditional approval to the Alabama Coastal Nonpoint Pollution Control Program (ACNPCP). Since achieving conditional approval, ADEM has developed the ACNPCP, seeking full program approval, in order to ensure that program components are implemented to the maximum extent practicable. The approved ACNPCP Management Area is inclusive of the subwatersheds of the Escatawpa, Mobile-Tensaw, and Perdido Sub-Basins, that are contained within the geo-political boundaries of Baldwin and Mobile Counties. Figure 6-1, on page, depicts the ACNPCP Management Area.

ADEM continues to work with ADCNR-State Lands, NOAA-OCRM, USEPA and other State and federal agencies to coordinate the Alabama Coastal Nonpoint Pollution Control Program (ACNPCP). ADEM submitted the, ACNPCP: 2003 Submission Documentation; Response to NOAA/EPA Conditional Approval Items; July 31, 2003, wherein the State described new and expanded program components that demonstrate an approvable ACNPCP. This submission included a 250 page description of the Program with over 500 supporting documents, which include statewide and coastal projects and programs that have been developed or tailored to address the ACNPCP management measures. This documentation was augmented by the submission of the ACNPCP: Response to “Final Administrative Changes” Guidance; ACNPCP 2003 Submission Support Document; October 31, 2003, that provided the enforcement policy, long term strategy and implementation planning documentation requested by the federal review agencies to

complete their approval review process. The State is in the process of implementing it’s approach and 12 supporting projects that address the joint NOAA/EPA Interim Decision Document for Unapproved Conditions of ACNPCP (February 16, 2005), which outlines recommended actions to help the State gain federal approval and allow full program implementation. Figure 6-1 shows the ACNPCP Management Area.

The ACNPCP utilizes partnerships with Federal, State and Local agencies, businesses, organizations and decision makers to influence the implementation of items necessary to achieve program approval and operation. The ACNPCP has facilitated the development of a broad-based Technical Advisory Committee (TAC), the Coastal Alabama Nonpoint Source Resources Matrix (Matrix) and the Coastal Alabama Clean Water Partnership. The ACNPCP also works with the ADEM-319 program to address nonpoint source pollution management program needs and issues. These various forums are being utilized to enhance coordination and cooperation regarding coastal water quality resources management. NOAA-OCRM, USEPA, ADEM-319, ADCNR-State Lands, and many other agency environmental partners have helped to further administrative coordination and interagency cooperation.

Figure 6-1 ACNPCP Management Area



ADEM is currently engaged in many ongoing projects pertinent to the ACNPPCP that monitor and promote the effectiveness of nonpoint source pollution controls, CZARA-§6217 management measures and program approval criteria. ADEM submitted the Monitoring Plan for the ACNPPCP; Mobile and Baldwin Counties, Alabama. This plan incorporates monitoring activities being conducted through ADEM, within the ACNPPCP Management Area. ADEM staff continue extensive field monitoring efforts to conduct specific Land Use Category (LUC) BMP Surveys, Targeted Water Quality Studies, inspections of construction and mining operations, and Targeted Watershed Studies within the ACNPPCP Management Area. The ACNPPCP has concluded Targeted BMP Survey's for Marina and Agriculture LUCs, as well as Alabama's first Riparian Reference Reach and Regional Curve Study for the lower Coastal Plain. ADEM has also conducted the Targeted Water Quality Studies for designated Marinas and Agriculture high density sub-watershed areas, in order to acquire baseline water quality data associated with these land uses, for the coastal waterbodies of Southwest Alabama. The data from many of these activities are utilized to develop GIS information database and mapping applications that support the ACNPPCP.

For more information about Alabama's Coastal Nonpoint Pollution Control Program, contact Randy C. Shaneyfelt in ADEM's Mobile Office at (251) 450-3408 or email: racs@adem.state.al.us

6.2 Coastal Assessment

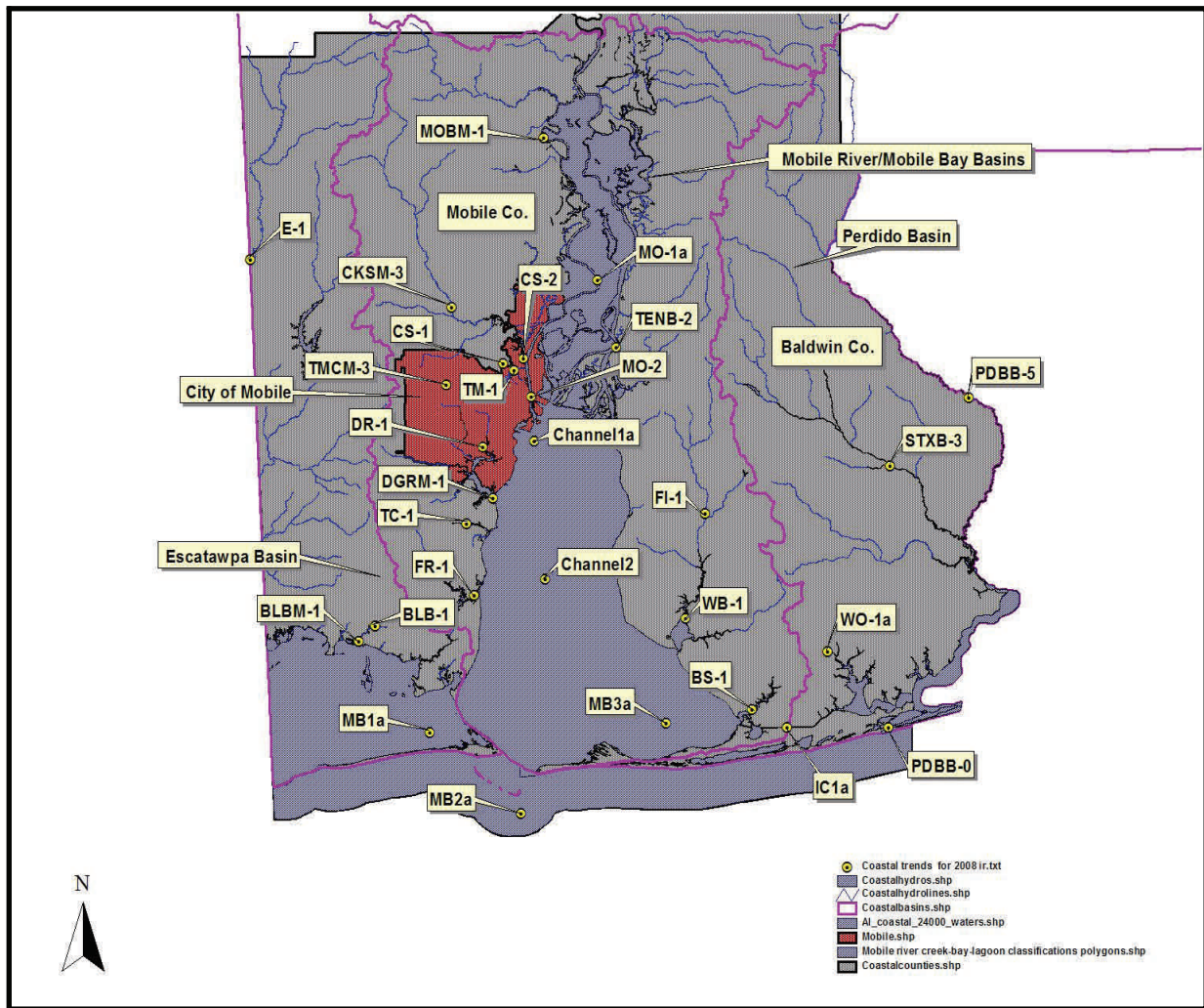
6.2.1 Eutrophication

Hypoxic and anoxic conditions are common in Alabama's coastal waters and are generally most prevalent during the summer months. Naturally occurring conditions combine to result in frequently stressed water quality conditions marked by stratification with low dissolved oxygen. These conditions include: relatively shallow water depths found in all of Alabama's open bays and sounds; low average wind and tidal energies; variable fresh water inflow; and constricted tidal passes. This persistent pattern of hypoxia manifests itself in "Jubilees", an infrequently occurring summer condition in Mobile Bay that results when winds blowing from the mainland drive surface waters from shore, causing deeper, poorly oxygenated water to move into the shallows. Fish, shrimp and crabs get caught in the poorly oxygenated water and generally rise to the surface in stress. The Jubilee phenomenon was first recorded in 1821 indicating that its underlying causes are naturally occurring. At this time it has not been determined if anthropogenic sources exacerbate those underlying causes.

6.2.2 Habitat Modification

Alabama's coastal counties are experiencing tremendous population growth. Statistics indicate that the population of Baldwin County increased from 115,266 in 1994 to 132,828 in 1998 and 140,415 in 2000. Between 1990 and 2000, the Baldwin County population increased by 42.9%. The population of Mobile County increased from 393,826 in 1994 to 399,429 in 1998 to 399,843 in 2000. Between 1990 and 2000, the Mobile County population increased by 5.6%. Much of that growth is occurring within Alabama's defined coastal area, particularly in Baldwin County where there has been explosive growth in the beach communities of Orange

Figure 6-2 Active Coastal Trend Stations



Beach and Gulf Shores and on the Eastern Shore of Mobile Bay. The area of west Mobile, inside and outside of the current city boundary, is undergoing rapid commercial and residential development. Sedimentation from erosion at the numerous construction sites and the increased post development storm water runoff have placed a heavy burden on the receiving streams in the area increasing the incidence of flooding and stream bank erosion. All of Alabama’s estuarine waters are being affected by this population growth..

Applications to the Department for coastal permits and certifications are growing, particularly in terms of complexity. Many of these applications propose projects that would have significant adverse impacts to coastal resources if approved as proposed. Projects having direct and significant adverse wetland impacts are routinely reviewed by Department personnel pursuant to the provisions of ADEM Administrative Code R.335-8 (Coastal Program) and Section 404 of the Clean Water Act. Generally, permits are issued for projects having wetland impacts only if all of the following conditions are satisfied.: the activity is related to an existing or approved water dependent use, or use of regional benefit or related to an approved beach nourishment, shoreline stabilization or marsh creation, restoration or enhancement project,

Table 6-1 Active Coastal Trend Stations

Station	Station Location	Latitude	Longitude
BLB-1	Bayou La Batre @ AL Hwy 188	30.40556	-88.24806
BLBM-1	Bayou La Batre in channel next to light approx. 0.4 miles upstream of mouth	30.38670	-88.27000
BS-1	Bon Secour River at Oyster Bay Canal	30.30139	-87.73542
Channel1a	Mobile ship channel just south of Arlington ship channel @ channel marker 76	30.63637	-88.03165
Channel2	Mobile ship channel south of Galliard Island @ channel marker 51	30.46424	-88.01657
CKSM-3	Chickasaw Creek @ State Highway 158	30.80297	-88.14334
CS-1	Chickasaw Creek on north side U.S. Hwy 43 Bridge Crossing	30.73258	-88.07330
CS-2	Chickasaw Creek on north side of CSX RR Crossing @ confluence with Mobile River	30.73911	-88.04561
DR-1	Dog River @ Luscher Park Boat Launch near I-10	30.62861	-88.10139
DGRM-1	Dog River in main channel at State Highway 163	30.56510	-88.08780
E-1	Escatawpa River @ U.S. Hwy 98 (Moffat Road) near Mississippi/Ala state line	30.86241	-88.41769
FI-1	Fish River @ State Hwy 104	30.54542	-87.79861
FR-1	Fowl River @ State Hwy 193	30.44403	-88.11333
IC1a	Intracoastal Waterway @ State Highway 59	30.27930	-87.68700
MB1a	Intracoastal Waterway on east side of Portersville Bay @ buoy 25	30.27308	-88.17317
MB2a	Mobile ship channel just south of Sand Island Light House in the Gulf of Mexico @ buoy 10	30.17180	-88.04895
MB3a	Intracoastal Waterway in Bon Secour Bay @ channel marker 127	30.28407	-87.85137
MO-1a	Mobile River @ CSX RR Crossing	30.83667	-87.94472
MO-2	Mobile River @ Government Street (Bankhead Tunnel)	30.69083	-88.03556
MOBM-1	Mobile River @ APCO water intake (near Bucks @ doppler gage)	31.01370	-88.01853
PDBB-0	Perdido Bay approx. 0.25 mile upstream of State Highway 182 bridge	30.27968	-87.54948
PDBB-5	Perdido River @ Duck Place Rd. on AL/FL line (off State Highway 112)	30.69047	-87.44026
STXB-3	Styx River @ Baldwin County Rd. 87 (near Elsanor)	30.60532	-87.54700
TC-1	Theodore Industrial Canal @ State Hwy 193 (Rangeline Road)	30.53333	-88.12389
TENB-2	Tensaw River approx. 0.3 mile downstream of power line crossing (near Blakely Park and Steam Mill Landing)	30.75291	-87.91987
TM-1	Three Mile Creek between U.S. Hwy 43 & RR Crossing	30.72403	-88.05903
TMCM-3	Three Mile Creek @ Spring Hill Ave.	30.70630	-88.15111
WB-1	Weeks Bay @ U.S. Hwy 98 (Marina)	30.41470	-87.82575
WO-1a	Wolf Creek @ Swift Church Road (Baldwin Co. Rd. 12)	30.37361	-87.63250

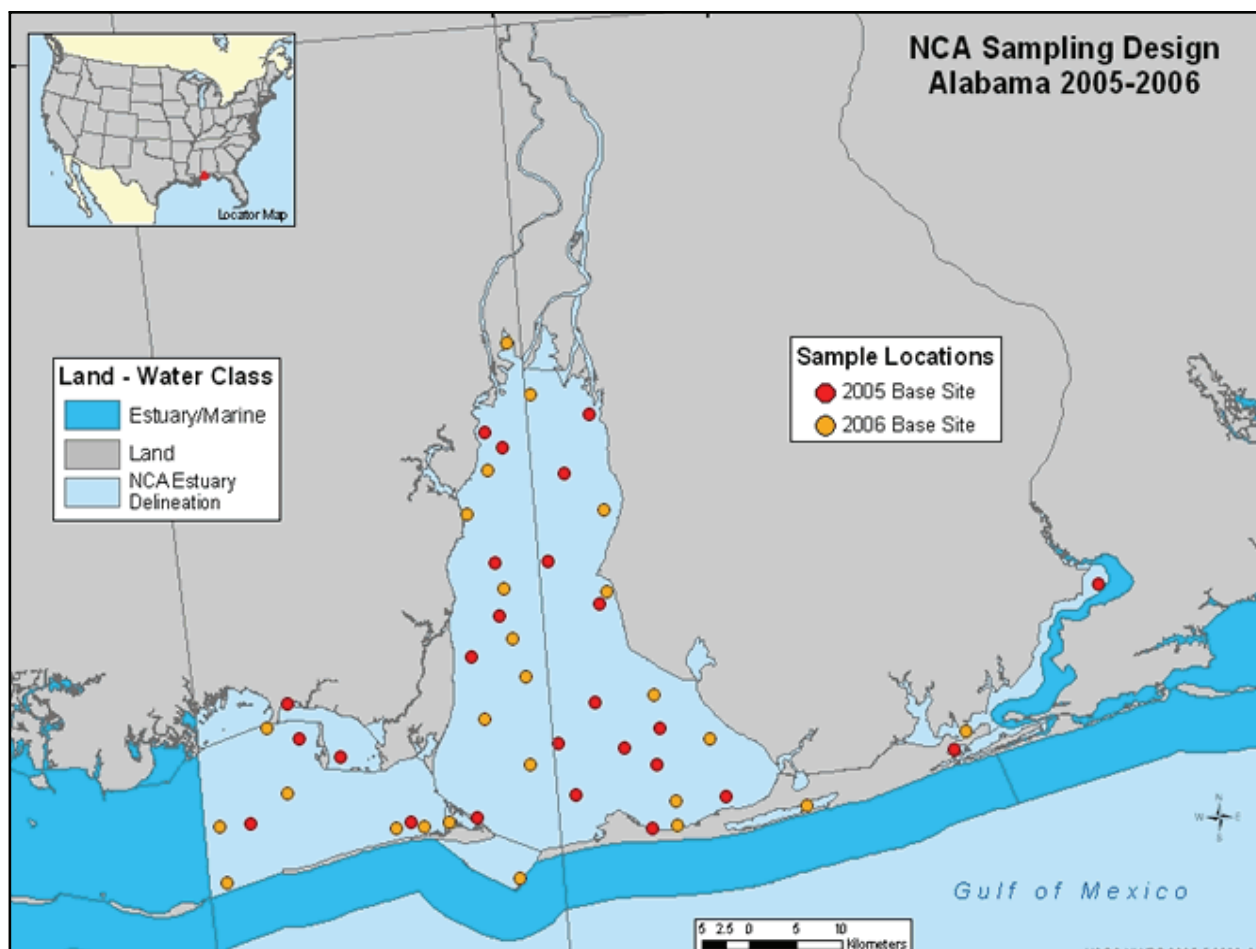
Table 6-2 Coastal Alamap Conventional Parameter Sampling Summaries

2006 NCA: DO, Ph, & Temperature Summary
• Dissolved Oxygen Violations were 40% (20 of 50 stations) with 5.0mg/L as criteria
• Dissolved Oxygen Violations were 22% (11 of 50 stations) with 4.0 mg/L as criteria
• Ph Violations were 0% (0 of 50 stations) below 6 or above 8.5 pH
• Temperature violations were 2% (1 of 50 stations) above 90F (32.2C)
2004 NCA: DO, Ph, & Temperature Summary
• Dissolved Oxygen Violations were 18% (9 of 50 stations) with 5.0mg/L as criteria
• Dissolved Oxygen Violations were 8% (4 of 50 stations) with 4.0 mg/L as criteria
• Ph Violations were 0% (0 of 50 stations) below 6 or above 8.5 pH
• Temperature violations were 2% (1 of 50 stations) above 90F (32.2C)
2003 NCA and ALAMAP-C: DO, Ph & Temperature Summary
• Dissolved Oxygen Violations were 8.9% (10 of 112 stations) with 5.0 mg/L as criteria
• Dissolved Oxygen Violations were 6.3% (7 of 112 stations) with 4.0 mg/L as criteria
• pH violations were 0% (0 of 112 stations below 6 or above 8.5pH)
• Temperature violations were 0% (0 of 112 stations above 90°F)
2002 NCA and ALAMAP-C: DO, Ph, &Temperature Summary
• Dissolved Oxygen Violations were 17% (19 of 112 stations) with 5.0mg/L as criteria
• Dissolved Oxygen Violations were 3.6% (4 of 112 stations) with 4.0mg/L as criteria
• pH violations were 0.9% (1 of 112 stations)
• Temperature violations were 5.4% (6 of 112 stations)
2001 NCA and ALAMAP-C: DO, pH & Temperature Summary
• Dissolved Oxygen Violations were 9.0% (15 of 166 Stations) with 5.0 mg/L as criteria
• Dissolved Oxygen Violations were 4.8% (8 of 166 Stations) 1
• pH violations were 0% (0 of 166 Stations above 8.5)
• Temperature violations were 0% (0 of 166 Stations)
2000 NCA and ALAMAP-C: DO, pH & Temperature Summary
• Dissolved Oxygen Violations were 11% (15 of 140 Stations) with 5.0 mg/L as criteria
• Dissolved Oxygen Violations were 2.1% (3 of 140 Stations) 1
• pH violations were 5.7% (8 of 140 Stations above 8.5)
• Temperature violations were 1% (2 of 140 Stations)

Table 6-2 Coastal Alamac Conventional Parameter Sampling Summaries (Continued)

1999 Coastal ALAMAP DO, pH & Temperature Summary
• Dissolved Oxygen Violations were 7.9% (7 of 89 Stations) with 5.0 mg/L as criteria
• Dissolved Oxygen Violations were 4.5% (4 of 89 Stations) 1
• pH violations were 5.6% (5 of 89 Stations above 8.5)
• Temperature violations were 19% (17 of 89 Stations), {8.9% (8 of 89) were in shallow waters of the Mobile River Delta, 10.1% (9 of 89) were in the Perdido Bay system} due to drought conditions.
1998 Coastal ALAMAP DO, pH & Temperature Summary
• Dissolved Oxygen Violations were 8.8% (6 of 68 Stations) with 5.0 mg/L as criteria
• Dissolved Oxygen Violations were 1.5% (1 of 68 Stations) 1
• pH violations were 2.9% (2 of 68 Stations above 8.5)
• Temperature violations were 8.8% (6 of 68 Stations)
1997 Coastal Alamac DO, pH & Temperature Summary
• Dissolved oxygen violations were 6.1% (8 of 131 stations)
• pH violations were 4.6% (6 of 130 stations above 8.5 pH s.u.)
• Temperature violations were 1.5% (2 of 130)
1996 Coastal Alamac DO, pH & Temperature Summary
• Dissolved oxygen violations were 0.0%
• pH violations were 2.7% (3 of 112 stations less than 6.5 pH s.u.)
• Temperature violations were 0.0%
1995 Coastal Alamac DO, pH & Temperature Summary
• Dissolved oxygen violations were 17.2% with 5.0 mg/L as criteria (20 of 109 stations)
• Dissolved oxygen violations were 6.0% (7 of 109 stations) 1
• pH violations were 2.8% (2 of 109 stations less than 6.5 pH s.u. & 1 of 109 above 8.5 pH s.u.)
• Temperature violations were 0.9% (1 of 109 stations)
1994 Coastal Alamac DO, pH & Temperature Summary
• Dissolved oxygen violations were 8.6% with 5.0 mg/L as criteria (11 of 128 stations)
• Dissolved oxygen violations were 3.9% (5 of 128 stations) 1
• pH violations were 4.7% (5 of 128 stations less than 6.5 pH s.u. & 1 of 125 above 8.5 pH s.u.)
• Temperature violations were 0.0%
1993 Coastal Alamac DO, pH & Temperature Summary
• Dissolved oxygen violations were 15.3% (13 of 85 using 5.0 mg/L) & 14.1% (12 of 85 using 4.0 mg/L)
• pH violations were 5.8% (6 of 85 above 8.5 pH s.u.)
• Temperature violations were 2.4%

Figure 6-3 NCA 2005-2006 Sampling Sites



elimination of dead-end canals or boat slips exhibiting poor water quality or other similar beneficial use, no other feasible alternatives exist; impacts to wetlands on the project site have been minimized by project design, and mitigation is incorporated into the project proposal.

There have been no coastal area wide surveys completed of wetland acreage for submersed aquatics, tidal emergence, or swamp forest during the reporting period. Due to the State's restrictive approval process, including mitigation requirements, it is believed that wetland losses that do occur are minimal for those wetlands regulated by the program and that other losses that may occur are due to natural erosion, unpermitted activities, and minimal losses due to Nationwide permitting by the U.S. Army Corps of Engineers.

ADEM's Coastal/Facility Unit is working with other governmental entities to support wetland and submersed aquatic vegetation status and trend identification. At this time, both Mobile and Baldwin Counties have been flown and color infrared digital ortho-quarter quads have been produced. This imagery will be used to map wetlands and uplands in Mobile and Baldwin Counties.

Alabama's Coastal Program is compiling data on stabilized versus unstabilized shoreline miles.

In general, the explosive coastal population growth has resulted in near continuous shoreline development, with certain areas developing more rapidly than others. The Gulf shoreline is unstabilized along its length in Alabama, except at the passes from interior estuarine waters to the Gulf of Mexico at Perdido Pass, Little Lagoon Pass, and on the eastern tip of Dauphin Island at the entrance to Mobile Bay.

6.2.3 Changes in Living Resources

The Alabama Department of Conservation and Natural Resources-Marine Resources Division (ADCNR-MRD) manages Alabama's marine resources. According to ADCNR-MRD personnel, populations are cyclic and vary by species. Generally, population levels are all within expected levels and there are no significant declines observed, expected, or predicted. ADCNR oversees the replanting of oyster reefs and believes that there has been an increase in reef size over time. Brown Shrimp landings were above average in 2006. Blue crab landings were at or slightly above average in 2006 (annual averages are 3.1 million pounds).

6.2.4 Toxic Contamination

The ADEM has conducted studies to determine metals enrichment in estuarine sediments and has sampled sediments in proximity to shipyards, petroleum storage terminals, and industrial point source discharges. Beginning in 1993 the ADEM implemented ALAMAP-C to provide a statistically defensible characterization of Alabama's coastal waters. Its parametrical coverage includes metals and selected organic compounds in estuarine sediments. During 2000, ADEM began sampling Alabama's estuarine sediments for toxicity and fishes for whole-body contaminants as part of the NCA program, described above. However, no statement is being made as to the extent of areas having elevated levels of toxicants because no state or EPA criteria for toxins in sediments exist. Figure 6-3 shows NCA 2005-2006 Sampling Sites.

6.2.5 Pathogen Contamination

In addition to the recreational beach monitoring discussed above, Alabama's coastal shellfishing waters are monitored for pathogens and are subject to closings, advisories, or warnings. During the reporting period, all of Alabama's oyster harvest areas were closed at one time or another through closing orders issued by the State Health Officer of the Alabama Department of Public Health. Those orders were issued when excess fresh water entered Mobile Bay from the Mobile River. Information on Shellfish Harvesting Area Closures/Reopenings, Fish Advisories are included in the chapter on Public Health.

For more information about Alabama's Coastal Coastal Assessment, contact in Mr. Joie Horn ADEM's Mobile Office at (251) 450-3418 or mjhorn@adem.state.al.us

6.2.6 Other State Coastal Activities

National Estuary Program

The ADEM is an active participant in the Mobile National Estuary Program (Mobile NEP).

Staff are involved on its various boards, committees, subcommittees, and workgroups.

In 2005 the Mobile Bay National Estuary Program (MBNEP) initiated a monitoring program within the Sub-Estuaries of Mobile Bay. The project area consisted of portions of Mobile Bay and adjoining water bodies in coastal Alabama. The Mobile NEP and the ADEM have agreed to support specific portions of the MBNEP Plan (August 2000).

The collaborative effort calls for monitoring of 3 sub-estuaries and their major tributaries. The Mobile NEP has contracted with the ADEM to sample quarterly approximately 13 stations per sub-estuary. Five of the quarterly stations will be supplemented monthly by the ADEM.

The first sub-estuary, Bon Secour River/ Intracoastal Waterway/Oyster Bay, was evaluated in 2005. The second sub-estuary, Bayou la Batre, was evaluated in 2006. The third sub-estuary, Dog River, was evaluated in 2007. Sampling included photic zone composites, sediment sampling, deployed datasones, and Accoustic Doppler flow measurements. Sampling will conclude in January of 2008 with reports issued throughout the year.

For more information about Alabama's National Estuary Program, contact in Mr. Steve Summersell in ADEM's Mobile Office at (251) 450-3426 or Ssummersell@adem.state.al.us