South Carolina Department of Environmental Services

OFFICE OF LAW ENFORCEMENT

SHELLFISH MANAGEMENT AREA 09B

2025 ANNUAL UPDATE COMPREHENSIVE REPORT

Shellfish Sanitation Program
Office of Law Enforcement
2600 Bull Street
Columbia, SC 29201

SC DEPARTMENT *of* ENVIRONMENTAL SERVICES

September 2025

SHELLFISH MANAGEMENT AREA 09B 2025 ANNUAL UPDATE COMPREHENSIVE REPORT

[Data Through December 2024]

SC DEPARTMENT *of* ENVIRONMENTAL SERVICES

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TABLE OF CONTENTS
Shellfish Management Area 09B Annual Update Comprehensive Report

Summary 2
Introduction 2
Pollution Source Survey 6
Survey Procedures 6
Point Source Pollution 6
A. Municipal and Community Waste Treatment Facilities 6
B. Industrial Waste 8
C. Marinas 8
D. Radionuclides 9
Non-point Source Pollution 9
A. Urban and Suburban Stormwater Runoff 9
B. Agricultural Runoff 10
C. Individual Sewage Treatment and Disposal Systems 10
D. Wildlife and Domestic Animals 10
E. Boat Traffic 10
F. Hydrographic and Habitat Modification 10
Naturally Occurring Pathogens 11
A. Marine Biotoxins 11
B. *Vibrio Management Plan* 11
Hydrographic and Meteorological Characteristics 11
Water Quality Studies 12
Conclusions 13
Recommendations 13
References 15

Figures and Tables

Figures:

(1) Shellfish Growing Area 09B 16
(2) Shellfish Growing Area 09B Point Source Map 17

Tables:

(1) Shellfish Water Quality Sampling Stations Description 18
(2) Fecal Coliform Bacteriological Data Summary Sheet
(January 01, 2022 - December 31, 2024) 19
(3) Fecal Coliform Historical Trend Sheet 20
(4) Water Quality Sampling Station Data 21
(5) Rainfall Data *(January 01, 2022 - December 31, 2024)* 22
(6) Precautionary & Pollution Event Closures 26
(7) Marina Inventory 27

2025 ANNUAL UPDATE COMPREHENSIVE REPORT
Shellfish Management Area 09B

Data Inclusive Dates:
01/01/22 thru 12/31/24

Classification Change:
_X_ Yes ___ No

Shoreline Survey Completed: Yes

(I)ncreased/(D)ecreased/(N)one:
_D_ Approved
_N_ Conditionally Approved
_I_ Restricted
_N_ Prohibited

Prior Report & Date: 2024 Annual Update Comprehensive Report

SUMMARY

Based on reviews of fecal coliform bacteriological data and a pollution source survey within Shellfish Management Area 09B (SFMA 09B), SFMA 09B is impacted by nonpoint source runoff primarily. Nonpoint source runoff increases fecal coliform bacteria concentrations throughout the area. Development within the management area continues at a rapid pace. Impervious surfaces typically result in increased volumes of stormwater runoff and a more rapid movement of stormwater into adjacent shellfish harvesting waters. Additionally, a substantial portion of the Francis Marion National Forest drains to SFMA 09B. There are several classification changes for the 2025-2026 shellfish harvesting season. Boundary Station 09B-11 (Wando River at Guerin Creek) to Station 09B-04 (Wando River at Deep Creek) including creeks and marshlands south of Wando River (Wagner, Toomer and Darrell Creek) will be downgraded. Station 9B-16 (Nowell Creek at Martin Creek) including adjacent tributaries and marshland to Boundary Station 09B-01 (Wando River at Nowell Creek) will also be downgraded.

INTRODUCTION

PURPOSE AND SCOPE

The authority to regulate the harvest, sanitation, processing, and handling of shellfish is granted to the South Carolina Department of Environmental Services by Section 44-1-140 of the Code of Laws of South Carolina, 1976, as amended. The Department promulgated Regulation 61-47, which provides the rules used to implement this authority and outlines the requirements applied in regulating shellfish sanitation in the State. This regulation specifically addresses classification of shellfish harvesting areas and requires that all areas be examined by sanitary and bacteriological surveys and classified into an appropriate shellfish harvesting classification.

The United States Food and Drug Administration (USFDA) uses The National Shellfish Sanitation Program's (NSSP) *Guide for the Control of Molluscan Shellfish* to evaluate state shellfish sanitation programs. The NSSP Model Ordinance requires that a sanitary survey be in place for each growing area prior to its use as a source of shellfish for human consumption and prior to the area's classification as Approved, Conditionally Approved, Restricted or Conditionally Restricted. Each sanitary survey shall be updated on an annual basis and accurately reflect changes which have occurred within the area. Requirement of the annual reevaluation include, at a minimum, field observations of pollution sources, an analysis of water quality data consisting of the past year's data

in combination with appropriate previously collected data, review of reports and effluent samples from pollution sources, and review of performance standards for discharges impacting the growing area. A brief report documenting the findings shall also be provided.

The following criteria consistent with the NSSP Model Ordinance and S.C. Regulation 61-47 are used in establishing shellfish harvesting classifications:

Approved Area - Growing areas shall be classified approved when the sanitary survey concludes that fecal material, pathogenic microorganisms, and poisonous or deleterious substances are not present in concentrations that would render shellfish unsafe for human consumption. Approved classifications shall be determined upon a sanitary survey that includes water samples collected from stations in the designated area adjacent to actual or potential sources of pollution. For waters sampled under adverse pollution conditions, the median fecal coliform Most Probable Number (MPN) or the geometric mean MPN shall not exceed fourteen per one hundred milliliters, nor shall more than ten percent of the samples exceed a fecal coliform MPN of forty-three per one hundred milliliters (per five tube decimal dilution). For waters sampled under a systematic random sampling plan, the geometric mean fecal coliform MPN shall not exceed fourteen per one hundred milliliters, nor shall the estimated ninetieth percentile exceed an MPN of forty-three per one hundred milliliters (per five tube decimal dilution). Computation of the estimated ninetieth percentile shall be determined using National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish methodology.

Conditionally Approved Area - Growing areas may be classified conditionally approved when they are subject to temporary conditions of actual or potential pollution. When such events are predictable, as in non-point source pollution from rainfall runoff or discharge of a major river, a management plan describing conditions under which harvesting will be allowed shall be adopted by the Department prior to classifying an area as conditionally approved. Where appropriate, the management plan for each conditionally approved area shall include performance standards for sources of controllable pollution (e.g., wastewater treatment and collection systems), evaluation of each source of pollution, and means of rapidly closing and subsequently reopening areas to shellfish harvesting. Memorandums of agreements shall be a part of these management plans where appropriate. Shellfish shall not be directly marketed from a conditionally approved area until conditions for an approved classification have been met for a period of time likely to ensure the shellfish are safe for consumption. Shellstock from conditionally approved areas that have been subjected to temporary conditions of actual or potential pollution may be relayed to approved areas for purification or depurated through controlled purification operations only by special permit issued by the Department.

Restricted Area - Growing areas shall be classified restricted when sanitary survey data show a moderate degree of pollution or the presence of deleterious or poisonous substances to a degree that may cause the water quality to fluctuate unpredictably or at such a frequency that a conditionally approved classification is not feasible. Shellfish may be harvested from areas classified as restricted only for the purposes of relaying or depuration and only by special permit issued by the Department and under Department supervision. The suitability of restricted areas for harvesting of shellstock for relay or depuration purposes may be determined using comparison studies of background tissue samples with post-process tissue samples, as well as other process verification techniques deemed appropriate by the Department. For restricted areas to be utilized as a source of shellstock for depuration, or as source water for depuration,

the fecal coliform geometric mean MPN of restricted waters sampled under adverse pollution conditions shall not exceed eighty-eight per one hundred milliliters nor shall more than ten percent of the samples exceed a MPN of two hundred and sixty per one hundred milliliters for a five-tube decimal dilution test. For waters sampled under a systematic random sampling plan, the fecal coliform geometric mean MPN shall not exceed eighty-eight per one hundred milliliters nor shall the estimated ninetieth percentile exceed an MPN of two hundred and sixty (five tube decimal dilution). Computation of the estimated ninetieth percentile shall be obtained using the National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish methodology.

Conditionally Restricted Area - Growing areas may be classified conditionally restricted when they are subject to temporary conditions of actual or potential pollution. When such events are predictable, as in the malfunction of wastewater treatment facilities, non-point source pollution from rainfall runoff, discharge of a major river or potential discharges from dock or harbor facilities that may affect water quality, a management plan describing conditions under which harvesting will be allowed shall be prepared by the Department prior to classifying an area as conditionally restricted. Where appropriate, the management plan for each conditionally restricted area shall include performance standards for sources of controllable pollution, e.g., wastewater treatment and collection systems and an evaluation of each source of pollution, and description of the means of rapidly closing and subsequent reopening areas to shellfish harvesting. Memorandums of agreements shall be a part of these management plans where appropriate. Shellfish may be harvested from areas classified as conditionally restricted only for the purposes of relaying or depuration and only by permit issued by the Department and under Department supervision. For conditionally restricted areas to be utilized as a source of shellstock for depuration, the fecal coliform geometric mean MPN of conditionally restricted waters sampled under adverse pollution conditions shall not exceed eighty-eight per one hundred milliliters nor shall more than ten percent of the samples exceed a MPN of two hundred and sixty per one hundred milliliters for a five-tube decimal dilution test. For waters sampled under a systematic random sampling plan, the fecal coliform geometric mean MPN shall not exceed eighty-eight per one hundred milliliters nor shall the estimated ninetieth percentile exceed an MPN of two hundred and sixty per one hundred milliliters (five tube decimal dilution). Computation of the estimated ninetieth percentile shall be obtained using the National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish methodology.

Prohibited Area - Growing areas shall be classified prohibited if there is no current sanitary survey report or if the sanitary survey report or monitoring data show unsafe levels of fecal material, pathogenic microorganisms, or poisonous or deleterious substances in the growing area or otherwise indicate that such substances could potentially reach quantities that could render shellfish unfit or unsafe for human consumption.

BACKGROUND INFORMATION

This sanitary survey evaluates the current harvest classification of shellfish growing waters designated as Shellfish Management Area 09B (SFMA 09B). SFMA 09B consists of approximately 17,105 acres of shellfish growing area habitat located in Berkeley and Charleston Counties, South Carolina. SFMA 09B extends from the headwaters of the Wando River, located within the Francis Marion National Forest at Ion Swamp, 19 miles southwest to the Wando River's confluence with the Cooper River. SFMA 09B consists entirely of the Wando River and all of its tributaries, including Alston, Boone Hall, Darrell, Deep, Foster, Guerin, Hobcaw, Horlbeck, Nowell, Toomer and Wagner Creeks.

The shellfish industry in South Carolina is based primarily on the harvest of the eastern oyster (*Crassostrea virginica*) and hard clams, which include both the northern clam (*Mercenaria mercenaria*) and several small populations of the southern clam (*Mercenaria campechiensis*). The ribbed mussel (*Geukensia demissa*) is also harvested in South Carolina, primarily on a small scale by the general public for recreational harvest. Areas in South Carolina designated for commercial harvest by the South Carolina Department of Natural Resources (SCDNR) include State shellfish grounds, Culture permits, Mariculture permits and Kings Grant areas. The South Carolina Department of Health and Environmental Control will disallow the harvesting of shellfish within Area 09B, for direct marketing purposes, from the restricted waters listed below in the recommendations.

There are three (3) State Shellfish Grounds (SSG's) located within Area 09B: S237, S238 and S248. There are no other designated shellfish harvesting areas within SFMA 09B.

The shellfish harvesting season in South Carolina typically extends from October 1 through May 31. The South Carolina Department of Natural Resources (SCDNR) has the authority to alter the shellfish harvesting season for resource management purposes and grant permits for year-round mariculture operations. Additionally, the South Carolina Department of Health and Environmental Control has the authority to prohibit shellfish harvesting when necessary to ensure that shellfish harvested in South Carolina waters are safe for human consumption.

Additionally, the South Carolina Department of Environmental Services has the authority to prohibit shellfish harvesting when necessary to ensure that shellfish harvested in South Carolina waters are safe for human consumption.

The harvesting classifications of SFMA 09B **prior** to this sanitary survey were as follows:

PROHIBITED

1. Seaward portions of the Wando River (and adjacent tributaries and marshland), from Remley's Point to Station 09B-15, including all of Hobcaw and Molasses Creek.
2. Southwestern portions of Beresford Creek and adjacent marsh near Thomas Island, extending to the Area 10B boundary.
3. The Wando River, within approximately 1,000 feet Detyen's Shipyard.
4. The Wando River, within approximately 1,000 feet of Detyen's Shipyard NPDES discharge outfall.
5. The Wando River within approximately 200 feet of the Charleston City Boatyard.

RESTRICTED

1. Horlbeck Creek, Boone Hall Creek and their tributaries from their headwaters to Station 09B-21 (Horlbeck Creek at the power line crossing).
2. Station 09B-04 (Wando River at Deep Creek) east including Stations 09B-05 (Wando River at Big Paradise Island) and 09B-09 (Deep Creek - 1 mile from confluence with Wando River) to the boundary of SFMA 09B.

CONDITIONALLY APPROVED

None

APPROVED

All other waters of SFMA 09B.

Station Additions/Deactivations/Modifications: None

POLLUTION SOURCE SURVEY

SURVEY PROCEDURES

Shoreline surveys of Shellfish Management Area 09B (SFMA 09B) are conducted by the South Carolina South Carolina Department of Environmental Services, Lowcountry – Charleston, Shellfish Sanitation Staff**,** by watercraft, vehicle, and on foot, during the survey period and are ongoing.

The Department's Bureau of Coastal Management (BCM) developed GIS shapefiles documenting rural, non-MS4 (Municipal separate storm sewer system) areas in Charleston County on septic tanks. A one-mile buffer was drawn around all impaired shellfish water bodies in the county. County parcel data was cross referenced with Department septic tank permit data in those areas to develop shapefiles of all parcels on septic tanks, to include the number of tanks on the property and the property owner's names(s) and address(s). A physical shoreline survey of these same areas was conducted, taking GPS coordinates of any observed animal farms, to include the parcel information of the farm, the type and number of animals observed, and their distance from shellfish harvesting waters. Together, the septic data and animal farm data should provide focus for future shoreline survey efforts in locating and evaluating potential non-point source impacts near impaired shellfish harvesting waters.

POINT SOURCE POLLUTION

A. Municipal and Community Waste Treatment Facilities

Detyens Shipyards (SC0033022) operates a wastewater treatment plant (WWTP) located on their Wando Yard property adjacent to the Wando River and Highway 41. The plant receives wastewater generated onsite as well as wastewater from a convenience store located across Highway 41. The treated effluent discharges into the Wando River adjacent to the shipyard. Detyens Shipyard had no Discharge Monitoring Report (DMR) violations for fecal coliform for the reporting years 2022-2024. Detyens Shipyard last discharged from their wastewater pond in August of 1996 and has since utilized recirculation methods. Detyens Shipyard is currently in the process of closing their Wando Yard location and it is uncertain what the future use of

the site will be. Mount Pleasant Waterworks (SC0043273) operates a reverse osmosis (RO) water treatment plant located in SFMA 09A. The facility discharges into the Lower Wando in SFMA 09B, however, the effluent has no fecal coliform component. Refer to the Potential Pollution Sources map included in this report.

National Pollutant Discharge Elimination System (NPDES) Permitted Facilities		
Permit #	**Facility**	**Outfalls**
SC0033022	Detyens Shipyards / Wando Yard WWTP	001-Tidal Marsh to Wando River
SC0043273	Mt. Pleasant Water Works Reverse Osmosis	001-Unnamed tributary to Cooper River in Area 10B

Portions of SFMA 09B are serviced by two wastewater collection systems. Charleston Water Systems operates a collection system on Daniel Island and Clements Ferry Road. The wastewater is sent to the Plum Island WWTP (SC0021229); however, Plum Island is located on the Ashley River adjacent to Dill Creek, and discharges treated wastewater into the Charleston Harbor in SFMA 10B which is Prohibited in its entirety. Daniel Island also has its own WWTP (SC0047074) however currently it is only being used to remove debris from the wastewater and the wastewater itself is sent to the Plum Island WWTP for treatment. The outfall for the Daniel Island WWTP, which is rarely used, goes to the waters of the Cooper River in SFMA 10B. The Town of Mt. Pleasant also operates a collection system which services Mt. Pleasant in the southeastern portion of SFMA 09B. The Town of Mount Pleasant had three reported SSO's for 2022-2024 none confirmed within the boundary of SFMA 09B. Charleston Water Systems had two reported SSO's on Daniel Island/Clements Ferry Road Area which affected SFMA 09B during 2022-2024. One was in the Prohibited area of SFMA 09B and the other was North of Clements Ferry Rd. with limited impacts to the growing area (samples taken by BOW staff).

Sanitary Sewer Overflows - 2022-2024				
Mt. Pleasant				
Date	**Location**	**Gallons**	**Water body Entered**	**Growing Area**
2/14/22	Hwy 17 & I-526 Interchange	3,000	Upper reach of Shem Creek at Von Kolnitz Rd	10B
5/6/22	Center St & RR St Mount Pleasant	4,500	Shem Creek	10B
6/21/22	Storm Catch Basin 206	375	Marsh to Intracoastal Waterway	N/A
Daniel Island/Clements Ferry Road – 2022-2024				
Date	**Location**	**Gallons**	**Water body Entered**	**Growing Area**
3/5/24	1176 Clemens Ferry Rd.	850	No Name Creek to Wando River	9B
10/3/2024	873 Island Park Dr.	5,500	Stormwater pond to another stormwater pond to Creek leading to the Prohibited area of the Wando River	9B

B. Industrial Waste (Discharges)

There is one permitted industrial discharge located within the boundaries of SFMA 09B. The French Quarter Group (SCG730086) operates a borrow pit located along the northern portion of the area, adjacent to Highway 41. The permit was issued for de-watering activities that may be necessary during normal operations. However, their discharge is to French Quarter Creek and the Cooper River (SFMA 10B).

National Pollutant Discharge Elimination System (NPDES) Permitted Facilities		
Permit #	**Facility Name**	**Facility Type – Outfall Type**
SCG730086	French Quarter Group L.P Mine	Borrow Pit –Discharge to French Quarter Creek

C. Marinas

In 2007, prompted by the Department's Bureau of Coastal Management (BCM and formally known as the Office of Coastal Resource Management-OCRM) marina definition change, the Shellfish Sanitation Program adopted the following marina definition. S.C. Regulation 61-47, Shellfish defines Marina as any of the following: 1) locked harbor facility; 2) any facility which provides fueling, pump-out, maintenance or repair services (regardless of length); or, 3) any facility which has permanent docking space of 250 linear feet or greater. 4) Any water area with a structure which is used for docking or otherwise mooring vessels and constructed to provide temporary or permanent docking space for more than ten boats. 5) A dry stack facility.

Prior to the 2007 definition change, a wide variety of boating facilities were located in SFMA 09B. Hobcaw Creek Docks, formerly misidentified as Hobcaw View Marina, is a recreational marina located on Hobcaw Creek, providing dockage for approximately 30 boats. An

additional 10 moorings not associated with the marina are located in Hobcaw Creek. No fueling or pump-out facilities are provided and no live-aboards are allowed. Three marine repair facilities are located on the Wando River: Detyens Shipyard-Wando Yard, Charleston City Boatyard and Safe Harbor City Boatyard. The Detyens Shipyard (Wando Yard) is located on the south side of the Wando River, adjacent to the SC Hwy 41 Bridge. The Wando Yard has three large dry docks and serves as a vessel repair facility. Currently the Wando Yard is inactive as all ship repairs are being conducted at Detyens main location on the former Naval shipyard in North Charleston. The owner of the Wando Yard is cleaning up the site, and the future use of the site is uncertain. Charleston City Boatyard, formerly Halsey Cannon Boatyard, located across the river from the Wando Yard, provides repairs to recreational boats ranging in size from 15 to 30+ feet. It has approximately 1,000 feet of dockage, used exclusively for boats awaiting haul-out for land-based repair. Safe Harbor City Boatyard, located just North-west of the Wando River Marina has 20 Slips with a pump-out facility and an upland only fuel station. Safe Harbor City Boatyard does provide boat repairs Detyens Shipyard-Wando Yard and Charleston City Boatyard do not have fueling or pump-out services, and no liveaboards are allowed. The combined Administratively Prohibited closure zone for both these facilities was established based upon a sizing determination conducted by the Bureau of Water's Division of Water Quality, 401 Certification section. Additionally, the S.C. Ports Authority operates the Wando-Welch Terminal located on the eastern shore of the Wando River approximately three miles from the Wando and Cooper River confluence. The terminal has 3,800 linear feet of continuous docking space and loads/unloads intercontinental transport cargo vessels. The Administratively Prohibited waters of the Lower Wando and Charleston Harbor encompass this facility. There are no commercial fisheries docks within SFMA 09B. Table #7 is included at the end of this report, providing additional detail on SFMA 09B boat docking facilities. An additional facility, Atlantis Marine, is listed in this table, and while not meeting the definition of a marina, is still included for informational purposes.

D. **Radionuclides** - Sources of radionuclides have not been identified within SFMA 09B, and no other sources of poisonous or deleterious substances have been identified within the area.

NONPOINT SOURCE POLLUTION

A. **Urban and Suburban Stormwater Runoff** – Previous shoreline surveys conducted in SFMA 09B revealed the highest concentration of homes to be along the Mount Pleasant side of the Wando River. Single-family homes continue to be built along the south side of the Wando River between Guerin Creek and the Paradise Island Boat Landing. Multiple housing developments are being built from Station 09B-08 (Wando River at Marker #29) up to Station 09B-17 (Wando River midway between Detyens and Station 9B-11.) Residential subdivisions start at the Wando Terminal and continue northward along the Wando River.

New homes and docks are continually under construction in Alston, Boone Hall, Guerin, Nowell and Rat Hall Creeks. Stormwater runoff adversely impacts water quality by transporting fecal coliform bacteria from land to the shellfish growing area.

A dredge spoil area is located on the southernmost portion of Daniel Island, located at the mouth of the Wando River. The Army Corps of Engineers and the State Ports Authority both utilize this spoil area. The Army Corps of Engineers has not conducted any dredging projects

in the area recently. The South Carolina State Ports Authority conducts its own maintenance dredging directly in front of the Wando Terminal on an “as needed” basis.

The uplands surrounding the shellfish growing waters of SFMA 09B consist of various soil textures defined by the United States Department of Agriculture (USDA), Soil Conservation Service (Berkeley Co.1980 & Charleston Co.1971) utilizing general classifications and descriptions. Although lands within Area 09B, along the Berkeley County side of the river, consist of numerous soil types, the area is generally comprised of Chipley-Echaw-Pickney soils, made up of nearly level soils on long, narrow to broad ridges in areas roughly parallel with the coastline. The USDA (1980) further describes these soils as "Moderately well drained and very poorly drained soils that are sandy throughout." The upland area along the Charleston County side of the river consists of numerous soil types, however the area is generally comprised of soils in the Yonges series. Soils of this series typically occur on a low, swamp-like plain and on islands of higher areas that separate and parallel major streams. The USDA (1971) further describes these soils as “Poorly drained to very poorly drained, level to nearly level soils that have a loamy to sandy surface layer and a loamy to clayey subsoil.”

B. **Agricultural Runoff** - There are no permitted agricultural facilities located in SFMA 09B. Previous shoreline surveys found a residence adjacent to Station 09B-05 (Wando River at Big Paradise Island) that has a pasture that occasionally contains two to four horses. SFMA 09B serves as a drainage basin for southwestern portions of the Francis Marion National Forest.

C. **Individual Sewage Treatment and Disposal Systems** – The uplands bordering the Wando River and its tributaries, upstream of Station 09B-05, continue to be served exclusively by individual septic systems. Development in Paradise Island has continued to increase the number of residences served by septic systems. Each system requires inspection by the South Carolina Department of Environmental Services, Lowcountry – Charleston, On-site Wastewater Section and approval before final installation.

D. **Wildlife and Domestic Animals** - SFMA 09B supports a large population of domestic animals attributable to several private residences along the shores of the Wando River. The area supports a moderate amount of wildlife along the northern border that extends into the Francis Marion Forest. The area has many small tidal creeks. This creek system provides a possible conduit for animal fecal coliform bacteria to be transported to the adjacent growing waters.

E. **Boat Traffic** - Recreational boat traffic is moderate throughout the area between the months of November through April and heavy between the months of May through October. Commercial boat traffic ranges from fisherman collecting blue crabs to large commercial cargo vessels utilizing the S.C. Ports Authority Wando Terminal.

F. **Hydrographic and Habitat Modification** - Hydrographic and habitat modification in estuarine areas requires both State and Federal approval. Portions of the Wando River from Charleston Harbor to the I-526 Bridge require regular maintenance dredging. The U.S. Army Corps of Engineers utilizes designated tracts of land adjacent to the Cooper River as dredge spoil sites.

NATURALLY OCCURRING PATHOGENS

A. **Marine Biotoxins** - Bivalve shellfish contamination from marine biotoxins has not been shown to be a human health concern within SFMA 09B. During the winter and spring of 1988, South Carolina experienced an occurrence of "Red Tide", specifically Ptychodiscus brevis (K. brevis), which affected water quality in SFMA 01. There have been no documented reoccurrences of this organism at levels requiring emergency response in South Carolina waters subsequent to the 1988 event. The Department participates in a State Task Group on Toxic Algae and operates a toxic algae emergency response team. The Department also has a Marine Biotoxin Contingency Plan in place that must be evaluated and updated annually.

B. ***Vibrio Management Plan*** – Because State water temperatures exceed 81 degrees Fahrenheit (F) during June through September; *Vibrio* management controls must be implemented during these months. Management controls for permitted Aquaculture facilities are specifically addressed in R.61-47. The season for wild-stock harvest of oysters is typically closed from June 1 through September 30th. Because R.61-47 does not specifically address control of wild-stock harvest from waters exceeding 81 degrees F, the Department will recommend to and request of SCDNR that the wild stock harvesting season not be opened until October 1. The Department is currently not opposed to the issuance of special wild-stock harvest permits to Certified Shippers during the closed season as long as special permit conditions are included. Special permit conditions for maricultured triploid oysters during the vibrio control months must include current R.61-47 and NSSP temperature control requirements to be included in the Certified Shipper's HACCP plan.

HYDROGRAPHIC AND METEOROLOGICAL CHARACTERISTICS

PHYSIOGRAPHY

Shellfish Management Area 09B is comprised of the Wando River and associated deep-water tributaries and marshlands. The creeks within the area range from 30 to 450 feet in width and an average of 5 to 25 feet in depth. The shipping channel near the Wando Terminal is maintained at a mean low water depth between 37 and 40 feet by the U.S. Army Corps of Engineers. Freshwater flows into the area from the Francis Marion National Forest and associated creeks. Higher salinity ocean water enters the area from Charleston Harbor. Freshwater also has the potential to enter the area from the Cooper River by way of Charleston Harbor. The entire management area is approximately eight miles wide (northwest to southeast) and nineteen miles long (southwest to northeast).

Tides in SFMA 09B are semidiurnal, consisting of two low and two high tides occurring each lunar day. Mean tidal ranges in the Wando River at the Highway 41 Bridge are 6.2 feet during normal tides and 8.0 feet during spring tides. Wind direction and intensity, as well as atmospheric pressure, typically cause variations in predicted tidal ranges.

Precipitation in SFMA 09B is heaviest during late summer and early autumn. Tropical storms and hurricanes occasionally produce extremely large amounts of rainfall. During winter months heavy rainfall events are uncommon, yet occasional intense thunderstorms associated with rapidly moving low-pressure systems generate heavy rains. Precipitation rarely occurs in the form of snow or ice.

Spring weather patterns may be dynamic with associated thunderstorms and severe weather conditions.

In 2017, the collection of rainfall data has been improved for a more consistent, accurate, and reliable data set that can be accessed directly from a shellfish staff member's computer or phone. With assistance from the National Weather Service's Southeastern River Forecast Center, the development of the South Carolina Shellfish Rainfall Program was introduced and utilized. This new technology provides shellfish program staff with real-time daily updates for rainfall accumulation in each of the South Carolina shellfish growing management areas, as well as providing critical triggers that alert staff to when rainfall thresholds for closures are exceeded.

The 2024 annual rainfall recorded total was 52.92 inches, which was slightly below the 10-year average of 56.35 inches. On August 6th, 2024, SFMA 09B received 11.22 inches of rain due to Tropical Storm Debby. Since the open shellfish harvesting season was closed and there is no summer harvesting operations in this growing area, the area was not put under a precautionary closu. On December 18th, 2023, SFMA 09B received 3.61 inches of rain in a 24-hour period due to a Nor'easter storm event. While other growing areas were closed due to over four inches of rain in 24-hours, SFMA 09B was not affected.

Prevailing winds along the central portion of the South Carolina coast are from the south and west during spring and summer and from the north during autumn and winter. Wind speeds are generally less than 15 miles per hour (mph); however, strong weather systems may generate winds in excess of 25 mph. Tropical storms and hurricanes occur occasionally.

The Wando River receives freshwater from two primary sources, freshwater flowing into the mouth of the Wando River from the Cooper River and runoff from the Wando River watershed.

WATER QUALITY STUDIES

DESCRIPTION OF THE PROGRAM

The Department currently utilizes a systematic random sampling (SRS) strategy within SFMA 09B in lieu of sampling under adverse pollution conditions. In order to comply with NSSP guidelines, a minimum of thirty samples are required to be collected and analyzed from each station during the review period. Sampling dates are computer generated prior to the beginning of each quarterly period thereby insuring random selection with respect to tidal stage and weather. Day of week selection criteria is limited to Mondays, Tuesdays and Wednesdays due to shipping requirements and laboratory manpower constraints. Sample schedules are rarely altered.

During July 1998, an updated shellfish water quality data scheduling and collection procedure was formalized. Samples utilized for classification purposes are limited to those samples collected in accordance with the SRS for a 36-month period beginning January 1 and ending December 31. This allows for a maximum of 36 samples per station, yet provides a six-sample cushion (above the NSSP required 30 minimum) for broken sample bottles, lab error, breakdowns, etc. This also allows each annual report's water quality data to meet the requirements for the NSSP Triennial Review sampling criteria.

Six hundred and forty-eight (648) surface water quality samples (<1.0 ft. deep) were collected for bacteriological analyses and classification purposes from eighteen (18) active water quality sampling stations in SFMA 09B during the period 01/01/22 through 12/31/24. Multiple bacteriological samples were collected during the review period for non-classification purposes, associated with reopening the area following a precautionary closure. The samples were collected in 120 ml amber glass bottles, immediately placed on ice and transported to the South Carolina Department of Environmental Service's, Lowcountry – Charleston Laboratory in North Charleston, South Carolina. An additional 120 ml water sample was included with each shipment as a temperature control. At the laboratory, sample sets exceeding a 30-hour holding time or containing a temperature control in excess of 10 degrees C. were discarded (APHA, 1970).

Surface water temperatures were measured utilizing hand-held, laboratory-quality calibrated centigrade thermometers. Salinity measurements were measured in the laboratory using an automatic temperature compensated refractometer. Additional field data include ambient air temperature, wind direction, tidal stage and date and time of sampling.

MONITORING RESULTS

Stations 09B-05 and 09B-09 exceeded the fecal coliform geometric mean MPN value of 14.

Stations 09B-04, 09B-05, 09B-07, 09B-09, and 09B-16 exceeded a fecal coliform MPN estimated 90th percentile value of 43.

No station exceeded a geometric mean MPN value of 88 and no stations exceeded a fecal coliform MPN estimated 90^{th} percentile value of 260.

CONCLUSIONS

Based on review of fecal coliform bacteriological data and a pollution source survey, SFMA 09B is impacted by both actual and potential pollution. Mostly due to rapid development, nonpoint source runoff appears to be a major source of fecal coliform bacteria concentrations throughout the area.

RECOMMENDATIONS

Several classification changes are recommended for the upcoming 2025-2026 shellfish harvesting season. Below are the recommended classifications for SFMA 09B:

PROHIBITED

1. Seaward portions of the Wando River (and adjacent tributaries and marshland), from Remley's Point to Station 09B-15, including all of Hobcaw and Molasses Creek.
2. Southwestern portions of Beresford Creek and adjacent marsh near Thomas Island, extending to the Area 10B boundary.
3. The Wando River, within approximately 1,000 feet Detyen's Shipyard.
4. The Wando River, within approximately 1,000 feet of Detyen's Shipyard NPDES discharge outfall.
5. The Wando River within approximately 200 feet of the Charleston City Boatyard.

RESTRICTED

1. Station 9B-16 (Nowell Creek at Martin Creek) including adjacent tributaries and marshland to Station 09B-01 (Wando River at Nowell Creek).
2. Horlbeck Creek, Boone Hall Creek and their tributaries from their headwaters to Station 09B-21 (Horlbeck Creek at the power line crossing).
3. Station 09B-11 (Wando River at Guerin Creek) to Station 09B-04 (Wando River at Deep Creek) including creeks and marshlands south of Wando River (Wagner, Toomer and Darrell Creek).
4. Station 09B-04 (Wando River at Deep Creek) east including Stations 09B-05 (Wando River at Big Paradise Island) and 09B-09 (Deep Creek - 1 mile from confluence with Wando River) to the boundary of SFMA 09B.

CONDITIONALLY APPROVED

None

APPROVED

All other waters of SFMA 09B.

Station Additions/Deactivations/Modifications: None

Analysis of sampling data for SFMA 09B demonstrates the probability of a significant impact from rainfall exceeding 4.00" in a 24-hour period. Therefore, a precautionary closure of SFMA 09B will be implemented following rainfall events of greater than 4.00" in a 24-hour period, as measured by the National Weather Service's Southeastern River Forecast Center. This methodology is associated with the concept of the Probable Maximum Precipitation (PMP). The National Weather Service publishes PMP estimates for the coastal United States in a series of hydro-meteorological reports (HMRs) (*National Weather Service*). PMP estimates for South Carolina's growing areas are derived from HMRs 51, 52 and 53 (*National Research Council, 1985*).

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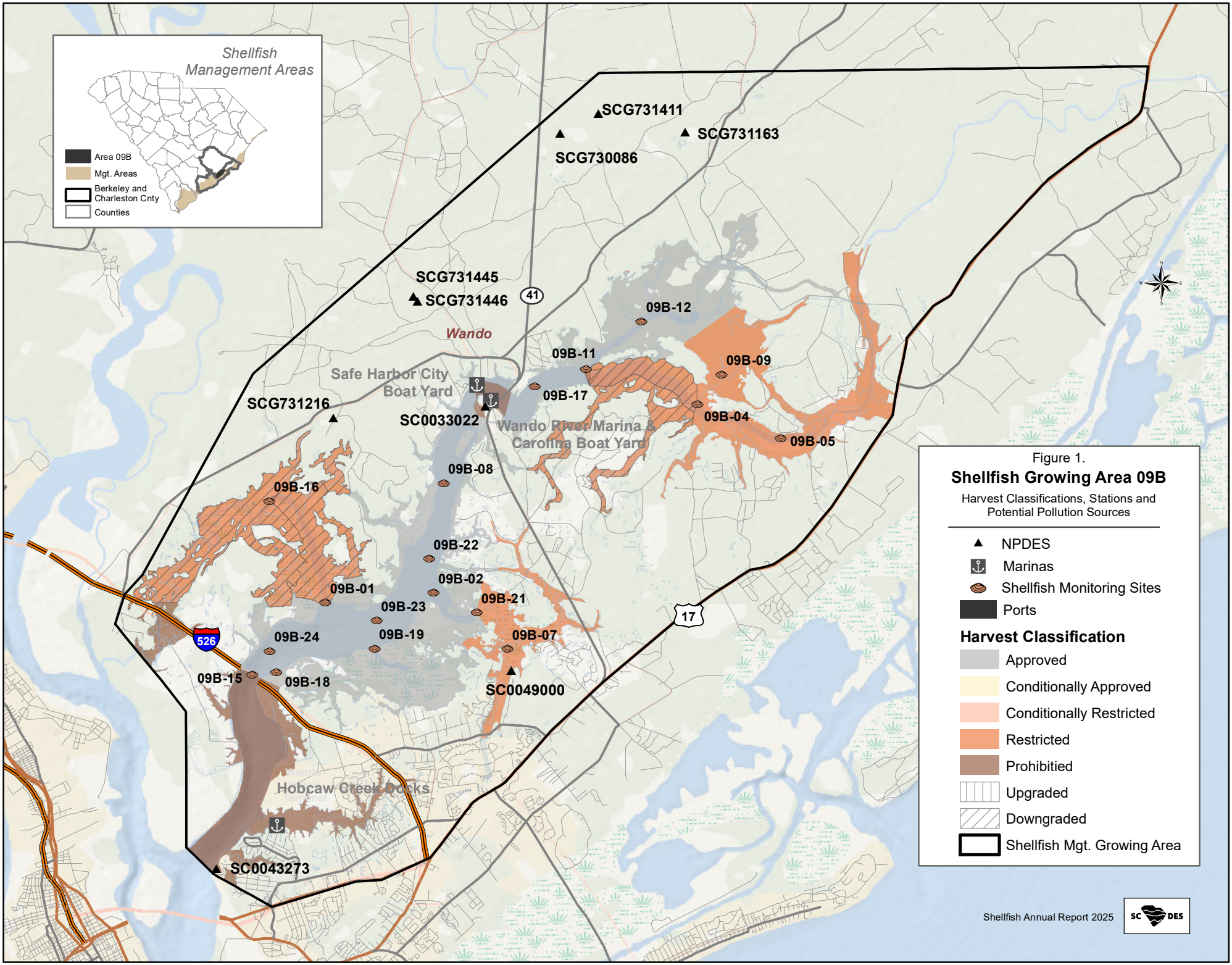

Shellfish Management Areas
Area 09B
Mgt. Areas
Berkeley and Charleston Cnty
Counties
SCG731411
SCG731163
SCG730086
SCG731445
SCG731446
41
Wando
09B-12
09B-11
09B-09
Safe Harbor City Boat Yard
09B-17
SCG731216
SC0033022
Wando River Marina & Carolina Boat Yard
09B-04
09B-05
09B-08
09B-16
09B-22
09B-02
09B-01
09B-21
09B-23
17
526
09B-24
09B-19
09B-07
09B-15
09B-18
SC0049000
Hobcaw Creek Docks
SC0043273
Figure 1.
Shellfish Growing Area 09B
Harvest Classifications, Stations and Potential Pollution Sources
NPDES
Marinas
Shellfish Monitoring Sites
Ports
Harvest Classification
Approved
Conditionally Approved
Conditionally Restricted
Restricted
Prohibitied
Upgraded
Downgraded
Shellfish Mgt. Growing Area
Shellfish Annual Report 2025
SC DES

Figure 2. - Shellfish Management Area 09B - Point Source Map

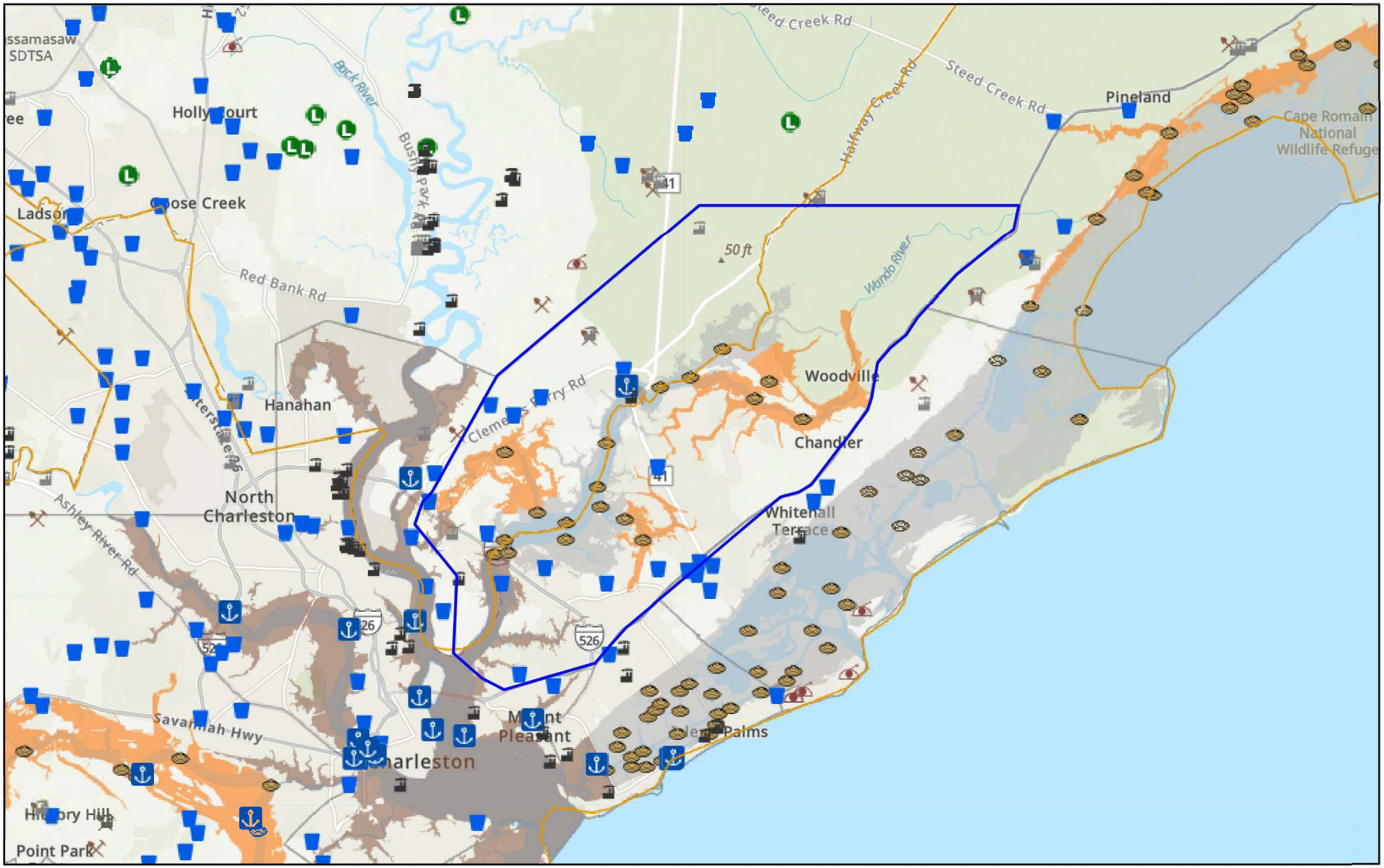


TABLE #1
Shellfish Management Area 09B
Water Quality Sampling Stations Description

Station	**Description**
9B-01	Wando River at Nowell Creek
9B-02	Wando River at Horlbeck Creek
9B-04	Wando River at Deep Creek
9B-05	Wando River at Big Paradise Island
9B-07	Boone Hall Creek at County Recreation Area
9B-08	Wando River at Marker #29
9B-09	Deep Creek - 1 mile from confluence with Wando River
9B-11	Wando River at Guerin Creek
9B-12	Guerin Creek at Old House Creek
9B-15	Wando River at I-526 bridge
9B-16	Nowell Creek at Martin Creek
9B-17	Wando River midway between Detyens and Station 9B-11 (at old dry dock)
9B-18	Wando River at Rat Hall Creek
9B-19	Wando River at Foster Creek
9B-21	Horlbeck Creek at the power line crossing
9B-22	Wando River at Marker #27
9B-23	Wando River at Marker #20
9B-24	Wando River at Marker #13

(**Total Active – 18**)

TABLE #2

Shellfish Management Area 09B
FECAL COLIFORM BACTERIOLOGICAL DATA SUMMARY
From Shellfish Water Quality Sampling Stations Between

January 01, 2022 to December 31, 2024

Station #	01	02	04	05	07	08	09	11	12	15
SAMPLES	36	36	36	36	36	36	36	36	36	36
GEOMEAN	4.4	5	10.9	18.5	14.3	4.8	16.5	7.1	8.5	5.1
90TH %ILE	19	25	49	102	68	15	96	32	42	17
WATER QLTY	A	A	R	R	R	A	R	A	A	A
CLASSIFICATION	R	A	R	R	R	A	R	R	A	P

Station #	16	17	18	19	21	22	23	24
SAMPLES	36	36	36	36	36	36	36	36
GEOMEAN	8.7	6.3	8.6	5.3	7	4.1	3.6	4.1
90TH %ILE	50	27	38	20	35	16	11	14
WATER QLTY	R	A	A	A	A	A	A	A
CLASSIFICATION	R	A	A	A	R	A	A	A

A – Approved **CA** – Conditionally Approved **R** – Restricted
RND – Restricted/No Depuration **P** – Prohibited

Table #3 Fecal Coliform Historical Trend Sheet											
Area 09B Stations 90th%ile Values for Annual Updates Related to Rainfall											
Station #	**2024**	**2023**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**
9B-01	19	10	14	20	21	18	15	17	19	20	13
9B-02	25	14	16	21	21	21	19	13	14	17	21
9B-04	49	36	43	51	68	126	113	105	49	47	34
9B-05	102	67	73	76	82	181	184	151	61	63	53
9B-07	68	57	65	103	113	173	116	94	50	75	74
9B-08	15	14	17	20	18	16	15	14	10	10	10
9B-09	96	73	74	125	150	247	183	137	92	108	103
9B-11	32	20	23	25	29	41	43	33	19	20	18
9B-12	42	31	29	34	42	55	56	40	32	42	41
9B-15	17	13	21	20	20	15	14	11	8	15	17
9B-16	50	39	36	42	46	46	29	24	26	37	28
9B-17	27	19	30	32	36	35	39	29	20	19	19
9B-18	38	21	28	22	44	39	42	28	34	50	36
9B-19	20	15	22	26	23	16	14	22	21	23	15
9B-21	35	25	32	38	36	39	37	37	26	35	32
9B-22	16	8	14	16	15	10	8	9	13	13	12
9B-23	11	9	11	15	13	14	11	12	12	11	11
9B-24	14	12	18	16	20	21	20	18	14	12	9
Annual Rainfall (in inches)	**52.92**	**58.68**	**51.36**	**49.62**	**65.49**	**51.51**	**62.27**	**63.61**	**41.47**	**72.27**	**50.65**
ND = No Data Red = Impaired Water Quality											

TABLE #4

WATER QUALITY
SAMPLING STATIONS DATA

Shellfish Management Area 09B

Detailed data for each shellfish station listed in this report's "Fecal Coliform Bacteriological Data Summary Table" and in other shellfish reports, can be obtained through South Carolina's Department of Environmental Services – Freedom of Information office at the address below.

Freedom of Information
SC Dept. of Environmental Services
2600 Bull Street
Columbia, SC 29201

Any explanation or clarity needed on the report's content can be obtained by contacting the preparer(s), and/or reviewer(s) listed on the cover page.

TABLE #5

RAINFALL DATA

Shellfish Management Area 09B

Source:

2022 – 2024 Data
National Weather Service, Southeastern River Forecast Center
Location: Mount Pleasant, South Carolina

2022 Annual Rainfall Summary
Source: National Weather Service, Southeastern River Forecast Center
Location: Mount Pleasant, South Carolina

2022	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1				0.25		0.01	0.84		0.02	1.77		0.19
2						0.02	1.90	0.02	0.82			
3	0.04				0.31	0.01			0.12			
4						0.50	0.06	0.02	0.05			
5		0.38			0.28	0.27	0.14		0.05		0.07	0.01
6	0.04			0.79		0.45	0.04	0.10	0.11		0.02	0.26
7	0.01	0.04		0.96				0.04				
8		0.06		0.05		0.09	0.04	0.09	0.01			
9			0.53			0.49	0.03	0.25	0.29			
10	0.11		0.48			0.16	0.46		2.14			0.07
11							3.51	0.02	0.05		1.81	
12			0.07			0.08		0.24	0.02		0.06	0.12
13		0.07	0.03		0.01		0.16	0.73		0.75		
14		0.04			0.15		0.31					
15							0.49				0.02	0.14
16	0.40		0.01				0.47				0.10	0.06
17	1.03	0.20	0.45	0.41	0.03	0.20	0.01	0.06				
18		0.01		0.31		1.05	0.13	0.68		0.01		0.01
19		0.04	0.08	0.07			0.10	0.27	0.02			
20			0.02				0.55	0.87			0.04	
21	0.18						0.26	0.12				0.75
22	0.35							0.46				0.20
23					0.94		2.74	0.85	0.08			0.02
24			1.04				1.61	0.10				
25			0.73				0.03	0.06			0.12	
26								0.86			0.03	
27				0.08	0.17		0.01				0.04	
28		0.03			0.68						0.02	
29	0.06					0.78		0.29				
30						0.84		1.93	1.73			
31							0.04	0.02		0.18		
Total	**2.22**	**0.87**	**3.44**	**2.92**	**2.57**	**4.95**	**13.93**	**8.08**	**5.51**	**2.71**	**2.33**	**1.83**

***Days highlighted indicate 4 or more inches of rain in a 24-hour period. Blank fields indicate no rainfall.**

*** Sample dates are indicated in blue.**	**ND = No Data**	**ANNUAL RAINFALL**	**51.36**

2023 Annual Rainfall Summary
Source: National Weather Service, Southeastern River Forecast Center
Location: Mount Pleasant, South Carolina

2023	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1	0.06	0.18			0.25			0.49				
2												
3		0.51	0.05			0.03	0.04					0.05
4		0.24	0.04	0.17				0.07				
5	0.20	0.03					0.63	0.60				
6		0.40	0.08		0.02		1.26					
7						0.17		0.02				
8					0.02	0.25	1.06	0.21				
9	0.02			0.52	0.31		0.69	0.06	0.04			
10		0.03	0.15		1.48				0.17			
11		0.73	0.28				2.01	0.01	0.36			0.17
12		1.68				0.58		0.08	0.44	0.57	0.15	
13	0.16	0.13	0.36			0.13			0.13	0.45	0.06	
14	0.09			0.30				0.04	0.16	0.93		
15				0.11	0.16	0.23		0.02	0.15			
16				0.04		0.02	0.01	0.19				
17				0.02	0.01		0.32	0.61			0.28	1.03
18		0.07	0.23		0.66		0.18	0.04	2.51		0.08	3.61
19			0.16		0.76		0.04					
20						0.93	0.18	0.53				
21						0.01	0.29	0.02	0.31	0.31	0.07	
22	0.13	0.01		1.15	0.09	0.39	0.22				0.30	
23	1.40		0.12	0.69		1.35			0.02		0.63	
24						0.02	2.48				0.02	
25		0.15									0.03	0.01
26	0.42		0.06		0.01			0.26				1.87
27				0.01	1.79	0.02	0.04		0.23		0.29	1.40
28			0.25	0.23	0.64		0.21					
29			0.02				0.56					
30	0.70			0.48			0.92	0.57				
31	0.18						0.18	3.34				
Total	**3.36**	**4.16**	**1.80**	**3.72**	**6.20**	**4.13**	**11.32**	**7.16**	**4.52**	**2.26**	**1.91**	**8.14**

***Days highlighted indicate 4 or more inches of rain in a 24-hour period. Blank fields indicate no rainfall.**

*** Sample dates are indicated in blue.**	**ND = No Data**	**ANNUAL RAINFALL**	**58.68**

2024 Annual Rainfall Summary
Source: National Weather Service, Southeastern River Forecast Center
Location: Mount Pleasant, South Carolina

2024	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1					0.06				0.01			
2	0.03		1.83		0.05		1.45					
3			0.01				0.05	0.02	0.59			
4	0.14			1.16				0.36				
5		0.54			0.06			0.23		0.06	0.37	
6	0.16	0.48	0.15		0.03	2.10		*6.37			0.06	
7	0.15		1.04		0.45	0.01		*2.39	0.17		0.36	
8								*0.83	0.01		0.40	
9	0.02		0.52				0.65	*1.63	0.65			
10	1.16		1.21		0.39	0.69	0.86	0.01		0.09		0.03
11				1.58	0.06		0.04	0.01			0.10	0.02
12		0.19		1.10			0.30				0.19	0.23
13	0.09	1.48					0.12	0.03				
14					0.03		0.37					
15					0.56		1.17		0.02		0.15	
16			0.02		0.06				0.02			
17	0.01						0.05					
18			0.04									0.06
19					0.15		0.01					
20				0.03	0.91		0.57		0.15		0.03	
21						0.52	0.29					
22				0.30			0.18					
23			1.10			0.03	0.22					
24	0.01	0.22				0.03	0.03					0.25
25					0.18	0.41	0.75					0.15
26					0.57	0.04	0.63		0.01			
27							0.65		2.94			0.81
28	0.01		0.48		0.04	0.47	0.01					0.01
29			0.06			0.01				0.01	0.04	0.01
30						0.16	0.01	0.02		0.04	0.01	1.01
31	0.06						0.08	0.02				
Total	**1.84**	**2.91**	**6.46**	**4.17**	**3.60**	***4.47**	**8.49**	***11.92**	**4.57**	**0.20**	**1.71**	**2.58**

***Days highlighted indicate 4 or more inches of rain in a 24-hour period. Blank fields indicate no rainfall.**

*** Sample dates are indicated in blue.**	**ND = No Data**	**ANNUAL RAINFALL**	**52.92**

TABLE #6
Shellfish Management Area 09B
Precautionary & Pollution Event Closures
2022 – 2024

Event	Date(s)	Sample Date(s)	Opening Date	Comments
Tropical Storm Debby	8/6/24 – 8/8/24	N/A	N/A	Storm produced 11.22 inches of rainfall. No precautionary closures were implemented because the open shellfish harvesting season was closed and there are no summer harvesting operations within the growing area.
Hurricane Ian	9/30/2022	N/A	10/2/2022	SFMA 09B was closed as a precautionary closure due to the Hurricane Warning. SFMA 09B was not affected by rainfall event.

TABLE #7
Shellfish Management Area 09B
MARINA INVENTORY

Marina	Total Slips/Linear Feet	Pump-out Facility	Fuel Dock
Safe Harbor City Boatyard	20 Slips	Yes	Upland only
State Ports Authority Wando Welch Terminal	3,800 LF	Port Terminal	Port Terminal
Hobcaw Creek Docks	30 Slips	No	No
Charleston City Boatyard	1000 LF	No	No
Wando River Marine	82 Slips	Yes	No