South Carolina Department of Environmental Services

OFFICE OF LAW ENFORCEMENT

SHELLFISH MANAGEMENT AREA 11

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 11
2025 ANNUAL UPDATE
COMPREHENSIVE REPORT

[Data Through December 2024]

SC DEPARTMENT *of*
ENVIRONMENTAL
SERVICES

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2025 ANNUAL UPDATE COMPREHENSIVE REPORT
Shellfish Management Area 11

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:
__I__ Approved
__N__ Conditionally Approved
__D__ Restricted
__N__ Prohibited

Prior Report & Date: 2024 Annual Update Comprehensive Report

SUMMARY

In Shellfish Management Area 11 (SFMA 11), the upland shores along the northern part of the Stono River, as well as along Bass Creek, Cinder Creek and Kiawah River are all being heavily developed, which appears to directly affect bacteriological water quality. Annual water quality oscillations, primarily rainfall-induced, appear to directly affect the management area. Classification changes that will be implemented for the upcoming 2025-2026 shellfish harvesting season. Station 11-21 (South Kiawah River on the flats) will now be upgraded to Approved. Station 11-34 (Cinder Creek at 3rd Bend from confluence with Bass Creek) is upgraded to Approved and Station 11-32 (Bass Creek at Cinder Creek) will remain a boundary station.

During the past several years this area has been impacted by major storms. On September 30, 2022, Hurricane Ian brought heavy rainfall totaling 4.65 inches of rain during the storm event. The area was closed for shellfish harvesting until samples justified reopening the growing area on October 12, 2022. On December 18th, 2023, SFMA 11 received 2.38 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 11 was not affected. On August 6-8, 2024, Tropical Storm Debby brought a significant amount of rain to SFMA 11 triggering a precautionary rainfall closure. On September 27th, 2024, Hurricane Helene also impacted areas of Charleston, SC. However, in SFMA 11, Hurricane Helene did not produce more than 4 inches of rain in a 24-hour period. As a result, SFMA 11 was not affected. The 2024 precipitation total recorded for SFMA 11 was 57.12 inches, which was slightly above the 10-year average of 56.47 inches.

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 the 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 through the use of 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 unpredictable, 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 harvesting classification of shellfish growing waters designated as Shellfish Management Area 11 (SFMA 11). SFMA 11 consists of approximately 29,273 acres of shellfish growing area habitat located in Charleston County, South Carolina. SFMA 11 consists of the Stono River and its tributaries including Elliott Cut, Abbapoola, Bass, Cinder, Green, Log Bridge and Rantowles Creeks and a portion of New Cut as well as the Kiawah River and its tributaries including Bryans, Captain Sams and Mullet Hall 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 Environmental Services will disallow the harvesting of shellfish within SFMA 11, for direct marketing purposes, from the restricted waters listed below in the Recommendations.

There are four (4) State Shellfish Grounds (SSG's) within SFMA 11: S172, S194 East, S194 West, and S189. There are two (2) Recreational Shellfish Grounds (R): R186 and R193. There are nine (9) Culture Permits (C) and two (2) Mariculture Permit leases throughout the southern portion of the area. There is also one (1) Grant (G) within SFMA 11: G170.

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 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 classification of SFMA 11 **prior** to this sanitary survey was as follows:

PROHIBITED

1. Those waters of Elliott Cut and Wappoo Creek and all adjacent marshlands.
2. Those waters of the Stono River approximately 1,000 feet south and 1,000 feet north of the St. Johns Yacht Harbor.
3. Those waters within approximately 1,000 feet of the Ross Marine facility.

RESTRICTED

1. All waters of Abbapoola Creek from its headwaters to Station 11-06.

2. Those waters of the Stono River and adjacent marshlands, extending from SFMA 12B boundary to Station 11-03 (Stono River midway between Markers 10 & 11).
3. Those waters of New Cut Creek and adjacent marshlands, extending from 11-15 (AIWW at Marker #63) to the SFMA 12A boundary.
4. Those waters of Cinder Creek and adjacent marshlands, including Bass Creek to boundary Stations 11-34 (Cinder Creek at 3rd Bend from confluence with Bass Creek) and 11-35 (Bass Creek at 5th Bend from confluence with Cinder Creek).
5. Those waters of the Kiawah River from Station 11-28 (Mullet Hall Creek 300 yards from Kiawah River) including Station 11-21 (South Kiawah River on the flats) to boundary Station 11-22 (Kiawah River at Mingo Point).

CONDITIONALLY APPROVED

None

APPROVED

1. Those waters of the Stono River and adjacent marshlands, extending south of boundary Station 11-03 (Stono River midway between Markers 10 & 11) to boundary Station 11-06 (Abbapoola Creek at first large bend).
2. Southwest of boundary Station 11-22 (Kiawah River at Mingo Point) to Station 11-23 (Kiawah River at Captain Sam's Creek) including Station 11-21 (South Kiawah River on the flats).
3. Those waters of Bass Creek and adjacent marshlands, from its headwaters to Station 11-31 (Stono River at Bass Creek) at the confluence with the Stono River.

All other waters in SFMA 11.

Station Additions/Deactivations/Modifications: None

POLLUTION SOURCE SURVEY

SURVEY PROCEDURES

Shoreline surveys of Shellfish Management Area 11 are conducted by the South Carolina Department of Environmental Services (SCDES), Lowcountry – Charleston Shellfish Sanitation Program 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 information 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

There are two wastewater treatment plants (WWTP) within SFMA 11 that have been issued land application permits. One is issued to Kiawah Island Utility (ND0017361) on Kiawah Island. The other is issued to the Town of Seabrook Island (ND0063347) on Seabrook Island.

National Pollutant Discharge Elimination System (NPDES) Permitted Facilities			
Permit #	**Facility**	**Outfalls**	**Permitted Flow (Gallons Per Day)**
ND0017361 43 FC/100mL	Kiawah Island Utility – WWTP	001-006 – Land App. To Golf Course	859,015 GPD
ND0063347	Town of Seabrook Island – WWTP	001-003 - Land App. to Golf Course	869, 200 GPD
SC0048186	Kiawah Resort / Cassique Golf – Reverse Osmosis	001-Unnamed Trib. to Kiawah River	N/A

There is also a Reverse Osmosis (RO) plant located within SFMA 11 issued to Kiawah Resort\Cassique Golf Course (SC0048186) on Seabrook Island. The discharge is only permitted to discharge concentrated salt residue. The Town of Kiawah had no reported SSO's for 2022-2024. Also, the Town of Seabrook had no reported SSO's for 2022-2024.

Sanitary Sewer Overflows				
Town of Kiawah & Town of Seabrook – 2022-2024				
Date	**Location**	**Gallons**	**Water Body**	**SFMA**
N/A	N/A	N/A	N/A	N/A

These three facilities are depicted on the attached Potential Pollution Source Map. The tables below summarize all instances where WWTP facilities exceeded their allowed permit values for fecal coliform, the Discharge Monitoring Report (DMR) value of that violation, and flow value. For the 2022-2024 reporting years for this Annual Update Comprehensive Report, there were no instances of permit violation for fecal coliform parameters.

WWTP Discharge Monitoring Report Violations – 2022-2024					
Facility	**Limit**	**Violation**	**Outfall**	**Report Date**	**Monthly Avg. Flow (Gallons Per Day)**
Kiawah Island - WWTP	N/A	N/A	N/A	N/A	N/A

The City of Charleston has a wastewater collection system in SFMA 11, operated by Charleston Water Systems. It services the incorporated parts of the City of Charleston, including portions of James Island, Johns Island, and West Ashley. Charleston Water Systems also services the St. Andrews PSD in West Ashley. James Island PSD and the Town of Hollywood have their own satellite wastewater collection systems in SFMA 11. The Plum Island WWTP (SC0021229), operated by Charleston Water Systems, receives wastewater from all these collection systems. Plum Island is located on the Ashley River adjacent to Dill Creek, and discharges treated wastewater into the Charleston Harbor (SFMA 10B). Charleston Water Systems, St. Andrews PSD, and James Island PSD reported sixty-five (65) sanitary sewer overflows (SSO's) for 2022-2024 with two impacting the growing area. No emergency closure was needed because of the size of the spill and/or the location of the spill already being in Restricted waters. The Town of Hollywood had seven (7) reported SSO's for 2022-2024.

Sanitary Sewer Overflows – 2022-2024				
Hollywood				
Date	**Location**	**Gallons Released**	**Waterbody Entered**	**SFMA**
6/21/2022	In front of pump house	600	N/A	12B
9/30/2022	Hollywood Sewer Collection System	1,700	N/A	11
11/9/2022	Davidson Rd Town of Hollywood	1,500	N/A	11
7/27/2024	Hollywood Sewer Collection System	2,000	N/A	11
8/6/2024	Hollywood Sewer Collection System	1,300,000	N/A	11
8/8/2024	Hollywood Sewer Collection System	2,500	N/A	11
9/4/2024	Hollywood Sewer Collection System	1,500	N/A	11
Chas Water Systems/St. Andrews PSD/James Island PSD				
Date	**Location**	**Gallons Released**	**Waterbody Entered**	**SFMA**
1/31/2022	Charleston CPW Plum Island	4,500	Church Creek	12A
5/23/2022	Charleston CPW Plum Island	1,800	STORM INLET TO UNKNOWN LOCATION	N/A
7/10/2022	Charleston CPW Plum Island	3,000	STORM WATER POND TO MARSH TO ASHLEY RIVER	10B
7/23/2022	Charleston CPW Plum Island	30,000	DITCH TO MARSH ASHLEY RIVER	10B
7/23/2022	Charleston CPW Plum	36,000	STORM WATER	10B

	Island		POND TO MARSH TO ASHLEY RIVER	
8/29/2022	Charleston CPW Plum Island	9,000	STORM WATER POND TO MARSH TO ASHLEY RIVER	10B
9/1/2022	Charleston CPW Plum Island	32,250	STORM WATER POND TO MARSH TO ASHLEY RIVER	10B
9/2/2022	Charleston CPW Plum Island	200	MARSH LEADING TO WAPPOO CUT TO THE ASHLEY RIVER	10B
9/2/2022	Charleston CPW Plum Island	1,400	STORM SYSTEM TO A DITCH TO MARSH ASHLEY RIVER	10B
9/9/2022	Charleston CPW Plum Island	16,500	STORM SYSTEM TO THE MARSH ABOUT A MILE FROM ASHLEY RIVER	N/A
9/30/2022	Charleston CPW Plum Island	150,000	Dill Creek	10B
9/30/2022	Charleston CPW Plum Island	4,200	STORM WATER POND TO MARSH TO ASHLEY RIVER	10B
9/30/2022	Charleston CPW Plum Island	4,950	STORM COLLECTION SYSTEM, UNKNOWN FROM THERE	N/A
9/30/2022	Charleston CPW Plum Island	500	STORM COLLECTION SYSTEM, UNKNOWN FROM THERE	N/A
9/30/2022	Charleston CPW Plum Island	1,350	STORM DITCH TO CREEK TO MARSH ASHLEY RIVER	10B
9/30/2022	Charleston CPW Plum Island	500	POSSIBLE OVERLAND FLOW TO A SMALL BACKYARD CREEK	N/A
10/1/2022	Charleston CPW Plum Island	1,200	STROMWATER COLLECTION SYSTEM TO	10B

			ASHLEY RIVER	
10/1/2022	Charleston CPW Plum Island	500	STORMWATER RETENTION POND	N/A
10/1/2022	Charleston CPW Plum Island	2,350	MARSH TO ASHLEY RIVER	10B
1/17/2024	Charleston CPW Plum Island	100	STORMWATER INLET TO UNKNOWN DESTINATION	N/A
1/17/2024	Charleston CPW Plum Island	100	Stormwater inlet to unknown destination	N/A
3/5/2024	Charleston CPW Plum Island	850	Stormwater Inlet to No Name Creek to Wando River	9B
3/9/2024	Charleston CPW Plum Island	10,000	Dill Creek	10B
3/9/2024	Charleston CPW Plum Island	4,500	N/A	N/A
3/9/2024	Charleston CPW Plum Island	600	Stormwater inlet to marsh to Wappoo Cut to Ashley River	10B
3/9/2024	Charleston CPW Plum Island	2,700	Drainage ditch to Marsh to Wappoo Cut to Ashley River	10B
3/9/2024	Charleston CPW Plum Island	9,000	Stormwater ditch to Wappoo Cut to Ashley River	10B
4/3/2024	Charleston CPW Plum Island	9,950	Charleston Harbor	10B
4/9/2024	Charleston CPW Plum Island	180	Stormwater Inlet to unknown destination	N/A
4/11/2024	Charleston CPW Plum Island	4,800	Drainage ditch to marsh to Wappoo Cut to Ashley River	10B
4/11/2024	Charleston CPW Plum Island	3,000	Stormwater pond to marsh to Ashley River	10B
4/11/2024	Charleston CPW Plum Island	720	Drainage ditch to stormwater inlet to Stono River	11
4/11/2024	Charleston CPW Plum Island	1,500	Storm system to a dtich to marsh to Ashley River	10B

4/11/2024	Charleston CPW Plum Island	210	Drainage ditch to stormwater inlet to Stono River	11
4/14/2024	Charleston CPW Plum Island	270	Stormwater inlet to unknown destination	N/A
5/26/2024	Charleston CPW Plum Island	750	Storm ditch to creek to Ashley River	10B
7/1/2024	Charleston CPW Plum Island	1,800	N/A	N/A
7/9/2024	Charleston CPW Plum Island	100	Stormwater pond to marsh to Ashley River	10B
8/6/2024	Charleston CPW Plum Island	3,500	Storm drain to marsh to Ashley River	10B
8/6/2024	Charleston CPW Plum Island	5,700	Drained to an adjacent marsh	10B
8/6/2024	Charleston CPW Plum Island	1,000,000	Dill Creek	10B
8/6/2024	Charleston CPW Plum Island	5,000	Unnamed Creek	N/A
8/6/2024	Charleston CPW Plum Island	5,500	Drainage ditch to unknown destination	N/A
8/6/2024	Charleston CPW Plum Island	5,700	Drainage ditch to unknown destination	N/A
8/6/2024	Charleston CPW Plum Island	14,000	Drainage ditch to unknown destination	N/A
8/6/2024	Charleston CPW Plum Island	150,000	Stormwater pond to marsh to Ashley River	10B
8/6/2024	Charleston CPW Plum Island	1,500	Drainage ditch to unknown destination	N/A
8/6/2024	Charleston CPW Plum Island	2,800	Marsh leading to Ashley River	10B
8/6/2024	Charleston CPW Plum Island	55,000	Drainage ditch to unknown destination	N/A
8/6/2024	Charleston CPW Plum Island	5,700	Storm inlet to unknown destination	N/A

8/6/2024	Charleston CPW Plum Island	8,000	Ditch to marsh to Ashley River (a mile away)	10B
8/6/2024	Charleston CPW Plum Island	10,000	Marsh leading to Wappoo Cut to the Ashley River	10B
8/7/2024	Charleston CPW Plum Island	1,500	Stormwater inlet to unknown destination	N/A
8/7/2024	Charleston CPW Plum Island	8,600	Marsh to the Ashley River	10B
8/7/2024	Charleston CPW Plum Island	15,000	Storm system to a ditch to marsh to Ashley River	10B
8/8/2024	Charleston CPW Plum Island	7,000	Marsh to Ashley River	10B
8/8/2024	Charleston CPW Plum Island	3,000	Drainage ditch to unknown destination	N/A
8/9/2024	Charleston CPW Plum Island	7,200	Drainage ditch to unknown destination	N/A
9/3/2024	Charleston CPW Plum Island	2,200	Storm inlet to unknown destination	N/A
9/3/2024	Charleston CPW Plum Island	500	Ditch to unknown Destination	N/A
9/12/2024	Charleston CPW Plum Island	6,000	Creek to Stono River	11
9/27/2024	Charleston CPW Plum Island	550	Drainage ditch to unknown destination	N/A
10/3/2024	Charleston CPW Plum Island	5,500	Drainage inlets to stormwater pond to Wando River	9B
10/23/2024	Charleston CPW Plum Island	100	Stormwater inlet to unknown destination	N/A
10/23/2024	Charleston CPW Plum Island	8,200	Marsh to Stono River	11

B. **Industrial Waste (Discharges)**

There are twelve permitted industrial wastewater discharges located within the boundary of SFMA 11 (see Table below). There are four (SCG731015, SCG731016, SCG730126 and SCG730353) that are located outside the Area but are still within the watersheds of Logbridge

and Rantowles creeks. All sixteen permits are for mineral mine dewatering, issued to address dewatering of excavated sand pits/granite mines. Their discharges are depicted on the attached Potential Pollution Source map (Figure 1).

National Pollutant Discharge Elimination System (NPDES) Permitted Facilities		
Permit #	**Facility Name**	**Facility Type**
SCG730355	Sunnyside Farms / Canal Bridge	Industrial-Discharge-Mine Dewatering
SCG730681	Massenburg Const / Bedrock	Industrial-Discharge-Mine Dewatering
SCG730083	Three Oaks/Chicken Farm	Industrial-Discharge-Mine Dewatering
SCG730617	Charleston Co. / Kinsey-Blake	Industrial-Discharge-Mine Dewatering
SCG730374	W Frazier Const. / Murray Woods Pt.	Industrial-Discharge-Mine Dewatering
SCG730126	W Frazier Const. / Ravenel	Industrial-Discharge-Mine Dewatering
SCG730139	Murray Sand / Dungannon Pit	Industrial-Discharge-Mine Dewatering
SCG730353	Rogers and Sons / Ravenwood	Industrial-Discharge-Mine Dewatering
SCG730983	Paul D. McCraw / Brownswood	Industrial-Discharge-Mine Dewatering
SCG731015	Palmetto Grading & Drainage / Hyde #1	Industrial-Discharge-Mine Dewatering
SCG731016	Palmetto Grading & Drainage / Hyde #2	Industrial-Discharge-Mine Dewatering
SCG731050	County Line Investors / Poplar Grove Tract B Mine	Industrial-Discharge-Mine Dewatering
SCG731004	Murray Sand Co. / Woodland	Industrial-Discharge-Mine Dewatering
SCG731001	Dirt Supply Inc. / Bluemel Mine	Industrial-Discharge-Mine Dewatering
SCG731009	D.H. Hankins Trucking Co.	Industrial-Discharge-Mine Dewatering
SCG731036	James O'Neal / Legareville Mine	Industrial-Discharge-Mine Dewatering

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, there were two marinas in SFMA 11. One is St. Johns Yacht Harbor, a large recreational marina on the Stono River adjacent to Maybank Highway.

Permitted in 2007, St. Johns Yacht Harbor combined the former Buzzards Roost Marina and Stono Marina into a single, large marina. As originally permitted, it was to be built with 322 finger pier slips, side-tie moorage for 21 boats, and 61 boatlifts, accommodating boats from 26 to 100+ feet in length. However, at this time only the Buzzards Roost portion has been rebuilt. It consists of 230 boat slips and 61 boatlifts, offering fuel and sewage pump-out services, including a sewage pump-out boat. Ten live-aboards are currently present at St. John's Yacht Harbor. Completion of the Stono Marina portion of the project is on hold at the present time due to the economy. A closure zone is in place, extending approximately 1,000 feet south to approximately 1,000 feet north of St. Johns Yacht Harbor. Additionally, Ross Marine is a small boat repair facility located on the Stono River, totaling 1,416 linear feet of dockage and holding approximately 15 boats. It is primarily a recreational boat repair facility, whose dockage is used for boats awaiting haul-out for land-based repair. It offers diesel fuel service to the public and has gasoline for facility use. There are no sewage pump-out services at Ross Marine. It has a permit in-hand to expand the facility to add dry-stack storage, however those plans for expansion are currently on hold due to the economy. A closure zone is in place extending approximately 1,000 feet from the Ross Marine facility. Table #7 is included at the end of this report, providing additional details on SFMA 11 boating facilities.

D. **Radionuclides** - Sources of radionuclides have not been identified within SFMA 11 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 Area 11 revealed the highest concentration of homes to be along the Stono River around Elliott Cut. The remaining portions of the Stono and the Kiawah Rivers have single-family residences along the shoreline. Residential construction continues at a rapid rate, along the Stono River from Limehouse Bridge south to Goshen Point, and along both Bass and Cinder Creeks.

The Stono and the AIWW require routine maintenance dredging by The Army Corps of Engineers. The Army Corps of Engineers has not conducted any dredging activities in the area recently.

The uplands surrounding the shellfish growing waters of SFMA 11 consist of various soil textures. The United States Department of Agriculture (USDA), Soil Conservation Service (Charleston Co.1971) utilizing general classifications and descriptions, has defined these soils. Although lands within SFMA 11 consist of numerous soil types, the area is generally comprised of Yonges-Hockley-Edisto soils made up of low broad plains, which are randomly spaced drainage-ways that lead to tidal streams. The USDA (1971) further describes these soils as moderately well drained to poorly drained, nearly level soils that have a sandy surface layer and predominantly loamy subsoil.

B. **Agricultural Runoff** - There are no permitted agricultural facilities located in SFMA 11. Previous shoreline surveys found a significant amount of pasture and farmland throughout Johns Island. The Clemson Extension Station located on U.S. Highway 17 utilizes various types of crop fertilizers on their property for research purposes.

C. **Individual Sewage Treatment and Disposal Systems** - In SFMA 11, the southern half of Johns Island is entirely served by individual septic systems. The public sewer also does not serve the area west of Main Road. There are sporadic septic tanks on Kiawah Island, mostly along the eastern end of the island. There are also septic tanks serving portions west of the Upper Stono, outside of Hollywood town limits, which drain to Logbridge Creek, Rantowles Creek and the Stono River. Each system is required to be inspected by the South Carolina Department of Environmental Services, Lowcountry-Charleston, On-site Wastewater Section, and approved before final installation.

D. **Wildlife and Domestic Animals** - SFMA 11 supports a large population of domestic animals attributable to the number of private residences along its shores. There are many small tidal creeks throughout the Area. This creek system provides a conduit for animal fecal coliform bacteria to be transported to the adjacent growing waters.

There are limited amounts of wildlife on James Island and Johns Island due to the amount of urban and suburban development on James Island and cultivated/pasture lands of Johns Island. An elaborate wildlife management program exists throughout Kiawah Island, including an intensive deer population control project. A lake and pond system on Kiawah Island consists of 116 freshwater and brackish ponds, many of which ultimately drain into Bass and Cinder Creek. The large wildlife populations on Kiawah Island make them a likely contributor to fecal coliform levels in the area. Information on Kiawah Island's lake management system can be found at the following web address:

http://kica.us/about/departments/maintenance/

Bird Key - Stono Heritage Preserve is a DNR managed heritage preserve, a sandpit island formed in the mouth of the Folly and Stono River. The preserve provides nesting, roosting and foraging habitat for a variety of sea and shore birds. Beginning in the mid-1980's, thousands of eastern brown pelicans, several species of terns, black skimmers, laughing gulls, two species of herons and other incidental species successfully nested on Bird Key Stono every year. Due to bird nesting activity, this Preserve is closed to public use from March 15 through October 15. (Source: https://www.dnr.sc.gov/mlands/lookup/). Bird Key is a likely contributor to fecal coliform levels in the area during that time; however, those levels are likely mitigated by Bird Key's proximity to Stono Inlet and the immediate ocean water tidal flushing ocean inlets provide.

E. **Boat Traffic** - Recreational boat traffic is moderate throughout the year. Commercial fisheries boats, ranging in size from 16 to approximately 50 feet, operate in the area in accordance with product demand. The northern portion of the Stono River (from Goshen Point to Elliott Cut) is part of the AIWW. The waterway supports most of the recreational boat traffic.

F. **Hydrographic and Habitat Modification** - Hydrographic and habitat modification in estuarine areas requires both State and Federal approval. Portions of the Stono and the AIWW require maintenance dredging. The United States Army Corps of Engineers utilizes designated tracts of land adjacent to the AIWW 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 11. 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 after 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 11 consists of the Stono River and its tributaries including Elliott Cut, Abbapoola, Green, Hut, Log Bridge and Rantowles Creek and a portion of New Cut as well as the Kiawah River and its tributaries including Bass, Bryans, Captain Sams, Cinder and Mullet Hall Creeks. Due to minimal shoaling in both the Stono and Kiawah Rivers, dredging occurs on an infrequent basis. Freshwater can flow into the area through Elliott Cut from the Ashley River; however, most freshwater enters the area by way of overland runoff from rainfall events. High salinity ocean water enters the area from the Stono Inlet at the southeast corner of the area and Captain Sam's Inlet, which is shared by Kiawah and Seabrook Islands at the southwest corner of the area. The entire area is approximately 16 miles wide (west to east) and 19 miles long (north to south).

Tides in SFMA 11 are semidiurnal, consisting of two low and two high tides occurring each lunar day. Mean tidal ranges in the Stono River at Elliott Cut are 5.2 feet during normal tides and 6.8 feet during spring tides. Wind direction and intensity, as well as atmospheric pressure, typically cause variations in predicted tidal ranges.

Precipitation in SFMA 11 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 rapid 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.

On September 30, 2022, Hurricane Ian brought heavy rainfall totaling 4.65 inches of rain during the storm event. The area was closed for shellfish harvesting until samples justified reopening the growing area on October 12, 2022. On December 18th, 2023, SFMA 11 received 2.38 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 11 was not affected. On August 6-8, 2024, Tropical Storm Debby brought a significant amount of rain to SFMA 11 triggering a precautionary rainfall closure. On September 27th, 2024, Hurricane Helene also impacted areas of Charleston, SC. However, in SFMA 11, Hurricane Helene did not produce more than 4 inches of rain in a 24-hour period. As a result, SFMA 11 was not affected. The 2024 precipitation total recorded for SFMA 11 was 57.12 inches, which was slightly above the 10-year average of 56.47 inches.

The 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 occasionally occur.

Freshwater rivers do not discharge directly into SFMA 11. Freshwater can flow into the area through Elliott Cut from the Ashley River; however, most freshwater influence is primarily due to rainfall, associated runoff and feeder creeks from low-lying depressional wetlands.

WATER QUALITY STUDIES

DESCRIPTION OF THE PROGRAM

The Department currently utilizes a systematic random sampling (SRS) strategy within SFMA 11 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.

Eight-hundred and fifty-seven (857) SRS routine surface water quality samples (<1.0 ft deep) were collected for bacteriological analyses and classification purposes from twenty-six (26) active water quality sampling stations in SFMA 11 during the period 01/01/22 through 12/31/24. Multiple special samples were taken for non-classification purposes, associated with reopening the area following precautionary closures. The samples were collected in 120 ml amber glass bottles, immediately placed on ice, and transported to the South Carolina Department of Environmental Control, Lowcountry – Charleston Laboratory in North Charleston, South Carolina. An additional 120 ml water sample was included with each shipment for the purpose of temperature control. At the laboratory, sample sets exceeding a 30-hour holding time or containing a temperature control more than 10 degrees Centigrade 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 11-06A, 11-16, and 11-18 exceeded a fecal coliform geometric mean MPN value of 14.

No Stations exceeded a fecal coliform geometric mean MPN value of 88.

Stations 11-01, 11-02A, 11-06A, 11-11, 11-12, 11-16, 11-17, 11-18, 11-27, and 11-35 exceeded a fecal coliform MPN estimated ninetieth percentile value of 43.

No stations exceeded an estimated ninetieth percentile fecal coliform MPN value of 260.

CONCLUSIONS

During the past several years this area has been impacted by major storms. On September 30, 2022, Hurricane Ian brought heavy rainfall totaling 4.65 inches of rain during the storm event. The area was closed for shellfish harvesting until samples justified reopening the growing area on October 12, 2022. On December 18th, 2023, SFMA 11 received 2.38 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 11 was not affected. On August 5-7, 2024, Tropical Storm Debby brought a significant amount of rain to SFMA 11 triggering a precautionary rainfall closure. On September 27th, 2024, Hurricane Helene also impacted areas of Charleston, SC. However, due to both storms occurring during the closed season and Hurricane Helene producing less than 4 inches of rain in a 24-hour period in SFMA 11. The 2024 precipitation total recorded for SFMA 11 was 57.12 inches, which was slightly above the 10-year average of 56.47 inches.

Based on review of fecal coliform bacteriological data and the pollution source survey, SFMA 11 appears to be impacted primarily by non-point source pollution.

NONPOINT SOURCE RUNOFF

Stormwater runoff appears to be the primary route of fecal coliform bacteria contamination into the area. Development of the surrounding upland is occurring along the upper Stono River, between the Limehouse Bridge and Goshen Point, and on the northern half of Kiawah Island, adjacent to Bass and Cinder Creeks. Natural vegetation is often removed from these waterfront properties. Overland runoff from residential outdoor water use could lower water quality by allowing fecal coliform bacteria to be transported more quickly to shellfish harvesting areas.

RECOMMENDATIONS

Upland shores along the northern part of the Stono River, as well as along Bass Creek, Cinder Creek and Kiawah River all are being heavily developed, bacteriological water quality in Shellfish Management Area 11 appears to be directly affected. Annual water quality oscillations, primarily rainfall-induced, appear to directly affect the management area.

Based upon the findings of this report, the following SFMA 11 harvesting classifications are recommended:

PROHIBITED

1. Those waters of Elliott Cut and Wappoo Creek and all adjacent marshlands.
2. Those waters of the Stono River approximately 1,000 feet south and 1,000 feet north of the St. Johns Yacht Harbor.
3. Those waters within approximately 1,000 feet of the Ross Marine facility.

RESTRICTED

1. All waters of Abbapoola Creek from its headwaters to Station 11-06.
2. Those waters of the Stono River and adjacent marshlands, extending from SFMA 12B boundary to Station 11-03 (Stono River midway between Markers 10 & 11).
3. Those waters of New Cut Creek and adjacent marshlands, extending from 11-15 (AIWW at Marker #63) to the SFMA 12A boundary.
4. Those waters of Bass Creek and adjacent marshlands, including Station 11-35 (Bass Creek at 5th Bend from confluence with Cinder Creek) to boundary Station 11-32 (Bass Creek at Cinder Creek)

CONDITIONALLY APPROVED

None

APPROVED

1. Those waters of Cinder and Bass Creek and adjacent marshlands, including Station 11-34

(Cinder Creek at 3rd Bend from confluence with Bass Creek) to Boundary Station 11-32 (Bass Creek at Cinder Creek)

2. Those waters of the Kiawah River southwest including Station 11-28 (Mullet Hall Creek 300 yards from Kiawah River), Station 11-21 (South Kiawah River on the flats) and Station 11-22 (Kiawah River at Mingo Point).

All other waters in SFMA 11.

Station Additions/Deactivations/Modifications: None

Analysis of sampling data for SFMA 11 demonstrates the probability of a significant impact from rainfall exceeding 4.00" in a 24-hour period. Therefore, a precautionary closure of SFMA 11 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). PMP estimates for the coastal United States are published in a series of hydro-meteorological reports (HMRs) by the National Weather Service (*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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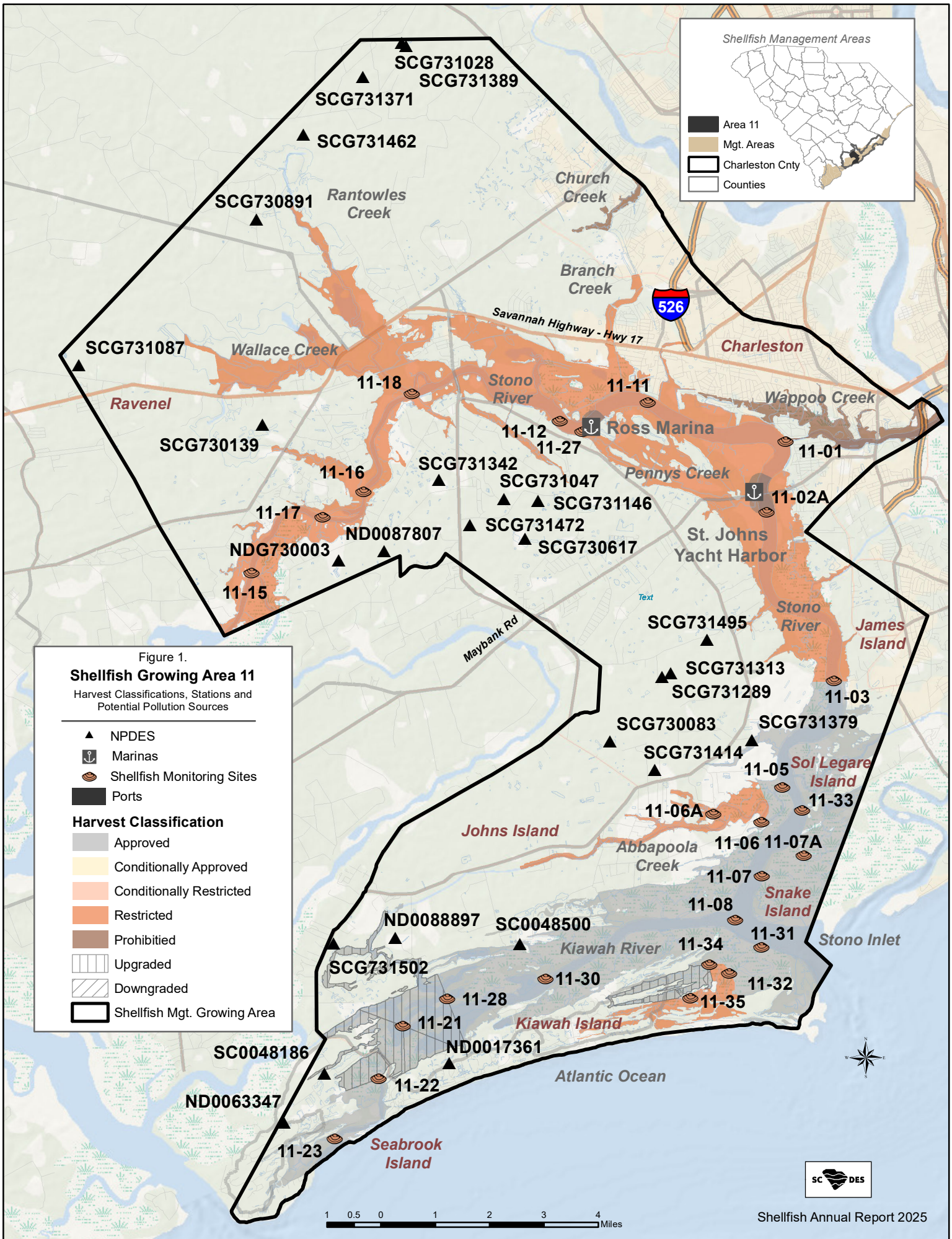

Shellfish Management Areas
Area 11
Mgt. Areas
Charleston Cnty
Counties
SCG731028
SCG731389
SCG731371
SCG731462
SCG730891
Rantowles Creek
Church Creek
Branch Creek
526
Savannah Highway - Hwy 17
Charleston
SCG731087
Wallace Creek
11-18
Stono River
11-11
Wappoo Creek
Ravenel
SCG730139
11-12
11-27
Ross Marina
11-01
11-16
SCG731342
Pennys Creek
SCG731047
SCG731146
11-02A
11-17
SCG731472
St. Johns Yacht Harbor
ND0087807
NDG730003
SCG730617
11-15
Text
SCG731495
Stono River
James Island
Maybank Rd
SCG731313
SCG731289
11-03
SCG730083
SCG731379
SCG731414
11-05
Sol Legare Island
11-33
11-06A
Johns Island
Abbapoola Creek
11-06
11-07A
11-07
Snake Island
11-08
ND0088897
SC0048500
11-31
Stono Inlet
Kiawah River
11-34
SCG731502
11-30
11-32
11-28
11-35
11-21
Kiawah Island
ND0017361
SC0048186
Atlantic Ocean
11-22
ND0063347
11-23
Seabrook Island
Figure 1.
Shellfish Growing Area 11
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
1 0.5 0 1 2 3 4 Miles
SC DES
Shellfish Annual Report 2025

Figure 2. - Shellfish Management Area 11 - Point Source Map

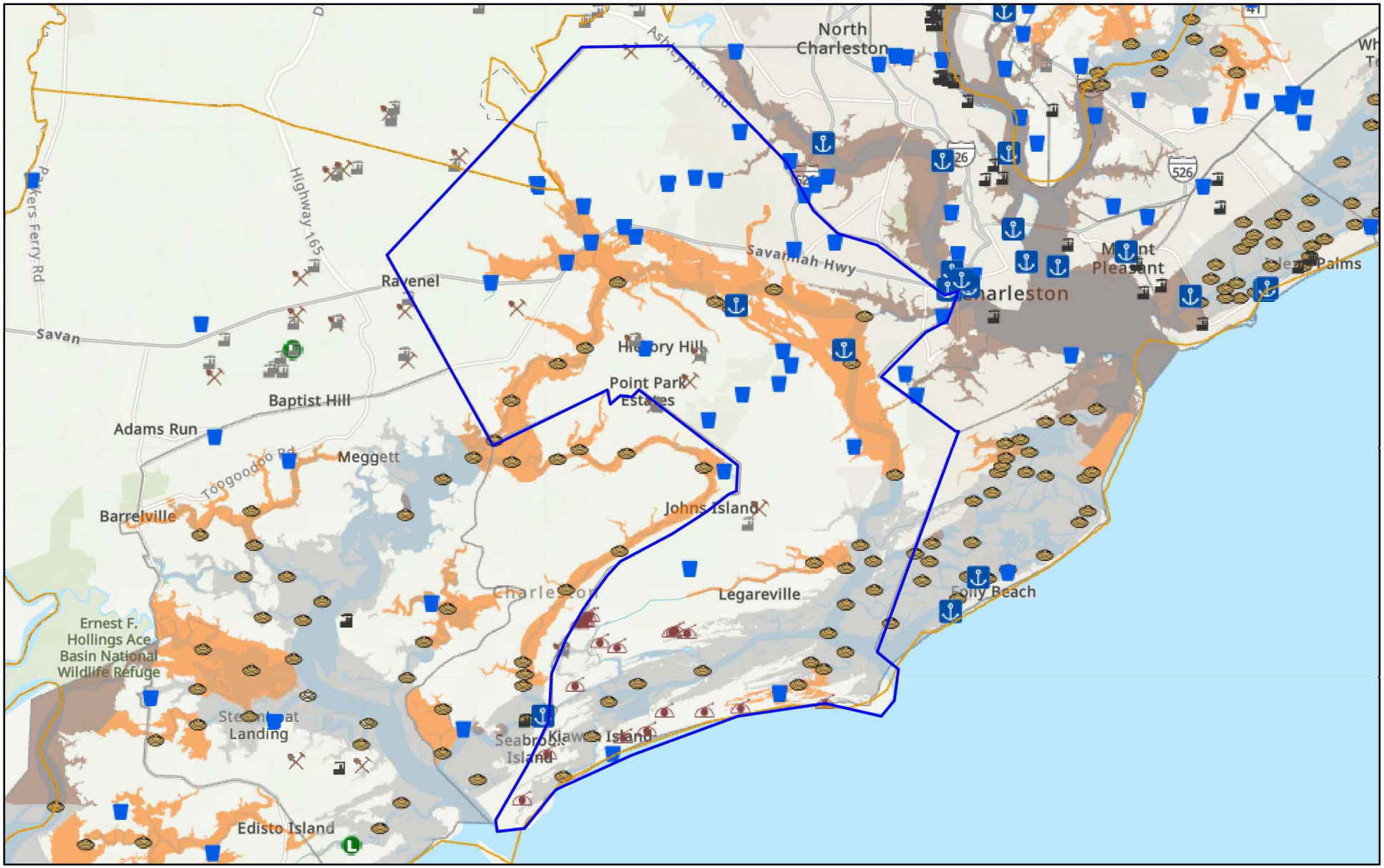


TABLE #1
Shellfish Management Area 11
Water Quality Sampling Station Descriptions

Station	Description
11-01	Stono River at Elliott's Cut
11-02A	Stono River at southern boundary of St. John's Yacht Harbor marina closure zone
11-03	Stono River midway between Markers 10 & 11
11-05	Stono River at Abbapoola Creek
11-06	Abbapoola Creek at first large bend
11-06A	Abbapoola Creek at confluence with small creek on west bank at seventh bend
11-07	Stono River at Green Creek
11-07A	Green Creek, four bends upstream of Station 11-07
11-08	Stono River at Kiawah River
11-11	AIWW at Marker #21A
11-12	AIWW at Marker #27
11-15	AIWW at Marker #63
11-16	AIWW at Marker #51
11-17	AIWW at Marker #54(Log Bridge Creek)
11-18	AIWW at Rantowles Creek
11-21	South Kiawah River on the flats
11-22	Kiawah River at Mingo Point
11-23	Kiawah River at Captain Sam's Creek
11-27	AIWW at Penny Creek near Marker #25
11-28	Mullet Hall Creek 300 yards from Kiawah River
11-30	Kiawah River at Bryans Creek
11-31	Stono River at Bass Creek
11-32	Bass Creek at Cinder Creek
11-33	Stono River at Sol Legare Boat Landing
11-34	Cinder Creek at 3rd Bend from confluence with Bass Creek
11-35	Bass Creek at 5th Bend from confluence with Cinder Creek

(Total Active – 26)

TABLE #2

Shellfish Management Area 11
FECAL COLIFORM BACTERIOLOGICAL DATA SUMMARY
From Shellfish Water Quality Sampling Stations Between

January 01, 2022 to December 31, 2024

Station #	1	2A	3	5	6	6A	7	7A	8	11
SAMPLES	33	31	33	34	33	33	33	33	33	33
GEOMEAN	12.3	8.7	5.9	4	6.7	15.4	2.5	3.1	2.4	11.2
90TH %ILE	66	46	25	14	30	64	5	8	4	78
WATER QLTY	R	R	A	A	A	R	A	A	A	R
CLASSIFICATION	R	P	R	R	R	R	A	A	A	R

Station #	12	15	16	17	18	21	22	23	27	28
SAMPLES	33	33	33	33	33	33	33	33	33	33
GEOMEAN	11.3	9.8	20.7	14.3	27.6	5.2	5.6	4.7	14.1	2.7
90TH %ILE	72	41	85	52	104	39	21	20	60	7
WATER QLTY	R	A	R	R	R	A	A	A	R	A
CLASSIFICATION	R	R	R	R	R	A	A	A	P	A

Station #	30	31	32	33	34	35
SAMPLES	33	33	33	33	33	33
GEOMEAN	2.8	2.5	4.3	2.5	6	10.9
90TH %ILE	8	6	17	6	30	94
WATER QLTY	A	A	A	A	A	R
CLASSIFICATION	A	A	R	A	A	R

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

Table #3 Fecal Coliform Historical Trend Sheet											
Area 11 Stations 90th%ile Values for Annual Updates Related to Rainfall											
Station #	**2024**	**2023**	**2022**	**2021**	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**
11-01	66	91	97	65	59	57	93	80	69	56	47
11-02A	46	61	79	63	67	48	64	60	51	51	34
11-03	25	40	59	47	41	37	55	44	23	25	22
11-05	14	15	23	21	31	30	52	39	35	32	34
11-06	30	34	57	62	81	73	145	117	88	48	37
11-06A	64	80	182	202	185	172	254	279	125	106	81
11-07	5	9	14	15	11	9	14	21	16	13	7
11-07A	8	9	15	17	16	16	20	20	13	10	8
11-08	4	5	9	9	12	15	35	29	18	9	8
11-11	78	85	111	75	97	91	119	70	51	52	50
11-12	72	101	114	111	137	161	210	106	70	65	58
11-15	41	68	87	78	61	58	72	49	39	40	48
11-16	85	128	206	169	153	99	164	126	115	122	93
11-17	52	101	129	118	81	72	98	91	77	73	53
11-18	104	141	205	184	227	219	258	167	123	124	103
11-21	39	48	62	37	32	20	24	19	18	10	8
11-22	21	34	61	60	52	28	44	37	34	23	16
11-23	20	21	38	40	36	16	24	23	27	18	19
11-27	60	95	97	88	93	92	134	80	80	89	77
11-28	7	9	13	12	11	9	17	13	10	7	6
11-30	8	12	14	13	9	8	11	13	9	8	5
11-31	6	9	20	28	25	16	19	17	15	9	9
11-32	17	29	57	61	65	63	89	58	34	18	23
11-33	6	11	19	23	26	28	38	28	19	14	8
11-34	30	45	83	96	92	83	85	61	47	37	43
11-35	94	131	120	115	128	166	209	162	83	62	72
Annual Rainfall (in inches)	**57.12**	**52.36**	**57.97**	**55.56**	**62.60**	**49.17**	**58.30**	**61.3**	**45.49**	**64.58**	**56.76**
ND = No Data Red = Impaired Water Quality											

TABLE #4

WATER QUALITY
SAMPLING STATIONS DATA

Shellfish Management Area 11

Detailed data for each shellfish monitoring station listed in this report's "Fecal Coliform Bacteriological Data Summary Table" and in other shellfish reports, can be obtained by writing 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 11

Source:

2022-2024 Data
National Weather Service - Southeastern River Forecast Center
Location: James Island, South Carolina

2022 Annual Rainfall Summary
Source: National Weather Service - Southeastern River Forecast Center
Location: James Island, South Carolina

2022	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1				0.19			0.63		0.20	*4.65	0.02	0.22
2							3.83		2.65			
3	0.05								0.01			
4						0.14		0.03	0.03			
5		0.37			0.01	0.22	0.10	0.01	0.01		0.02	
6	0.02			0.76		0.30	0.01	0.08	0.21		0.02	0.23
7		0.05		0.60	0.02		0.02	0.20				
8		0.06		0.13		0.01	0.10	0.13				
9			0.51			0.42	0.05	0.44	1.43			
10	0.16		0.35			0.16	0.56	0.01	2.15			0.08
11							2.36	0.02	0.07		1.87	
12			0.09			0.42		0.48	0.01	0.01	0.06	0.05
13		0.05	0.04		0.44		0.04	0.55		0.86		
14		0.01			0.19		0.25					
15							0.26				0.06	0.12
16	0.36		0.03				0.55				0.11	0.13
17	0.92	0.24	0.22	0.09	0.14	0.16	0.09	0.57				
18		0.01		0.37		0.13	0.20	0.49	0.10			
19		0.04	0.12	0.07			0.02	0.53	0.16			
20			0.07				0.45	0.69			0.03	
21	0.14						0.57	0.03				0.90
22	0.27	0.01			0.03			0.53				0.27
23					1.10		2.61	0.94	0.13			0.05
24			0.66			0.01	0.28	0.18				
25			0.70					0.01			0.01	
26	0.01							1.00			0.02	
27				0.05	0.36				0.01		0.01	
28		0.06			0.63	0.01		0.04			0.01	
29	0.03				0.02	1.36		0.63		0.01		
30						0.90		2.81	2.11	0.02		0.02
31					0.07			0.15		0.13		0.01
Total	1.96	0.90	2.79	2.26	3.01	4.24	12.98	10.55	9.28	5.68	2.24	2.08

***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	57.97

2023 Annual Rainfall Summary
Source: National Weather Service - Southeastern River Forecast Center
Location: James Island, South Carolina

2023	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1	0.05	0.05			0.24			0.11				
2												
3		0.36	0.06			0.02						0.05
4		0.22	0.06	0.22		0.01		0.02				0.02
5	0.32	0.02					0.27	1.35				
6		0.19			0.03		0.52					
7						0.60		0.02				
8				0.02	0.01	0.55	0.24	0.25				
9	0.03			0.57	0.04		0.85	0.05	0.02			
10		0.08	0.22		0.21		0.11		0.54			
11		0.66	0.38				0.83		0.53			0.18
12		1.52				0.50		0.18	0.04	0.61	0.11	
13	0.18	0.11	0.35			0.69			0.73	0.43	0.03	
14	0.11			0.33			0.05	0.19	0.26	0.43		
15				0.12	0.13	0.43		0.01	0.28			
16				0.03		0.05		0.10			0.02	
17				0.04	0.02			0.98			0.11	1.06
18		0.07	0.29		0.66		0.18	0.19	2.67		0.09	2.38
19			0.23		0.57		0.02	0.02				
20						1.37	0.08	0.29				
21						0.10	0.12	0.01	0.28	0.33	0.07	
22	0.15			0.57	0.06	0.31		0.04	0.01		0.45	
23	1.41		0.15	0.59		1.18					0.39	
24						0.04	0.70				0.04	
25		0.37					0.02				0.06	
26	0.44		0.01	0.01	0.01			0.06				1.66
27					2.03	0.02	0.02		0.28		0.28	1.77
28			0.16	0.36	0.51		0.16	0.01				
29			0.05				0.61					
30	0.76			0.55			0.68	1.39				
31	0.21						0.44	1.91				
Total	**3.66**	**3.65**	**1.96**	**3.41**	**4.52**	**5.87**	**5.90**	**7.18**	**5.64**	**1.80**	**1.65**	**7.12**

***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** | **52.36**

2024 Annual Rainfall Summary
Source: National Weather Service - Southeastern River Forecast Center
Location: James Island, South Carolina

2024	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1			0.01		0.13		0.05					
2	0.02		2.09		0.27		1.94					
3				0.01			0.02	0.19	0.92			
4	0.16			1.19				0.41				
5		0.88			0.01			0.23		0.08	0.49	
6	0.30	0.62	0.19		0.05	2.10		***7.68**	0.01		0.17	
7	0.13		0.82		0.27	0.01		***1.68**	0.22		0.68	
8								***0.83**	0.04		0.58	
9	0.03		0.79				0.35	***1.63**	0.71			
10	1.35		2.65		0.72	*0.69	0.74	0.01		0.19		0.06
11				1.60	0.13		0.01	0.01		0.01	0.06	0.06
12		0.08		1.92			0.03				0.18	0.22
13	0.06	1.41					0.26	0.03	0.02			
14					0.07		0.01		0.03			
15					0.64		0.05		0.06		0.16	
16			0.05						0.05			
17	0.01						0.23					
18			0.03									0.02
19					0.30							0.02
20					0.83		0.38		0.04		0.03	
21						0.52	0.40					
22				0.48			0.17					
23			1.13			0.17	0.07					
24		0.14				0.17						0.36
25		0.01			0.39	0.13	0.71					0.07
26					0.09	0.07	1.45		0.06			
27			0.01				1.04		2.23		0.01	0.80
28	0.01		0.55		0.03	0.43			0.02			0.02
29			0.05			0.06					0.12	0.01
30						0.06		0.01		0.05	0.01	0.96
31	0.07											
Total	**2.14**	**3.14**	**8.37**	**5.20**	**3.93**	**3.89**	**7.91**	**12.71**	**4.41**	**0.33**	**2.49**	**2.60**

***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** | **57.12**

TABLE #6

Shellfish Management Area 11
Precautionary & Pollution Event Closures
2022 – 2024

Event	Date(s)	Sample Date(s)	Opening Date	Comments
Hurricane Ian	9/30/2022	10/12/2022	10/15/2022	4.65 inches of rain produced during this storm event. SFMA 11 reopened after special sampling indicated it was safe to reopen the area.
Tropical Storm Debby	8/6/24 – 8/8/24	8/12/2024	8/15/2024	SFMA 11 was closed as a precautionary closure due to excessive rainfall within a 24-hour period from TS Debby.

TABLE #7
Shellfish Management Area 11
MARINA INVENTORY

Marina	Total Slips/Linear Ft	Pump-out Facility	Fuel Dock
St. Johns Yacht Harbor	404 Slips	Yes	Diesel-Gas
Ross Marine	1,416 ft	No	Diesel-Gas