South Carolina Department of Environmental Services

OFFICE OF LAW ENFORCEMENT

SHELLFISH MANAGEMENT AREA 13

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 13
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 13

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

Classification Change:
___Yes __X__No

Shoreline Survey Completed: Yes

Prior Report & Date: 2024 Annual Update Comprehensive Report

(I)ncreased/(D)ecreased/(N)one:
__N__ Approved
__N__ Conditionally Approved
__N__ Restricted
__N__ Prohibited

SUMMARY

For this 2025 Annual Update Comprehensive Report, Shellfish Management Area 13 (SFMA 13) will have one downgrade at Station 13-24. Station 13-24 was already located in a restricted area, so it will not require a classification or map change during this review period. Data revealed that eleven (11) of the twenty (20) shellfish water quality monitoring stations meet the statistical criteria for the Approved classification for the 2025-2026 shellfish harvesting season.

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 (SCDES) 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 National Shellfish Sanitation Program (NSSP) Guide for the Control of Molluscan Shellfish is used by the United States Food and Drug Administration (USFDA) 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 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

Shellfish Management Area 13 consists of approximately 31,572 acres of shellfish growing area habitat located in Colleton and Charleston counties. It is comprised of portions of the South Edisto River and its tributaries including St. Pierre, Big Bay, Scott, Fishing, Sand, Store, Shingle, and Bailey Creeks. The Pine/Otter/South Fenwick Islands southwest of Edisto Beach, including Fish Creek and its tributaries are also part of the management area. There are two small inlets including their associated creeks. They are Frampton Inlet, leading into Frampton Creek, and Jeremy Inlet that leads into Scott Creek.

The area's northern boundary lies slightly north of the Watt's Cut reach of the Atlantic Intracoastal Waterway (AIWW). The eastern boundary follows S.C. Highway 174 to the point where it crosses Store Creek and is then defined by an imaginary line that extends southeastward to the northern shore of Frampton's Inlet. The Atlantic Ocean and the mouth of the South Edisto River that separates Edisto Beach and Pine/Otter Islands define the southern boundary. The western boundary is defined by the shoreline of Otter Island, the South Fenwick Islands, and the eastern shore of the Ashepoo River to Fenwick Cut. The boundary continues along the western shore of the South Edisto River, including Alligator Creek, and terminates at Watts Cut. Most of the shellfish resources and harvesting activity is in the Pine Island/Otter Island area, and in Frampton's Inlet.

A portion of this shellfish management area was incorporated into the Lowcountry - Charleston Shellfish Growing Area 12B in January 2011. This area was in the northern portion of Shellfish

Management Area 13 on Russell Creek and all associated adjacent tidal creeks and marshlands. Station 13-31A was added in January 2011 to determine the influence on water quality at the Bailey Creek confluence with the South Edisto River.

The shellfish industry in South Carolina is based on the harvest of the eastern oyster (*Crassostrea virginica*) and hard clams (*Mercenaria mercenaria*). Areas in South Carolina designated for commercial harvest by the South Carolina Department of Natural Resources (SCDNR) include State shellfish grounds, culture permits, and Kings Grant areas.

There are four (4) Shellfish Culture Permit Grounds and one (1) Mariculture Lease in SFMA 13. Two (2) State Shellfish Grounds are in SFMA 13; S140 (Pine Island) and S152 (Scott Creek); two (2) Grant Grounds which are G141 (South Fenwick Island) and G164 (Jehossee). Recreational harvesting of clams and oysters is allowed on open State Shellfish Grounds and on open Culture Permit Areas with permission from the Culture Permit holder. Permits are required to commercially harvest shellfish from Culture Permit Areas or State Shellfish Grounds.

The shellfish harvesting season in South Carolina normally 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 (SCDES) 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 13 **prior** to this survey were as follows:

PROHIBITED

1. Watts Cut, from its confluence with the South Edisto River, including North Creek, to the boundary of SFMA 13 at the Highway 174 Bridge.
2. All portions of the South Edisto River upstream of Station 13-20.
3. Portions of Big Bay Creek, from its confluence with the South Edisto River at Station 13-02 to Station 13-01, Scott Creek at the Indian Mound.

RESTRICTED

1. Russell Creek (including tributaries and adjacent marshlands), from its headwaters to the boundary of SFMA 13 at Highway 174.
2. Shingle Creek and Milton Creeks (including tributaries and adjacent marshlands) from their mouth at St. Pierre to the headwaters of both creeks.
3. Sandy Creek (including tributaries and adjacent marshlands), from its headwaters to its confluence with Fishing Creek at Station 13-05.
4. Scott Creek (including tributaries and adjacent marshlands), from Station 13-01 at The Mound to Highway 174.
5. Big Bay Creek (including tributaries and adjacent marshlands), from Station 13-01 to Station 13-10 in Fishing Creek.
6. Fishing Creek (including tributaries and adjacent marshlands), from headwaters to Station 13-04 at Peters Point.
7. Store Creek (including tributaries and adjacent marshlands), from headwaters to confluence with St Pierre Creek.
8. Scott Creek from SC Highway 174 to the Atlantic Ocean at Jeremy Inlet, including 13-23.

9. All marshlands and tidal creeks between Stations 13-22 and 13-24 including Frampton Inlet Creek to the confluence of Frampton Inlet with the Atlantic Ocean.
10. Bailey Creek (including tributaries and adjacent marshlands), from its confluence with St. Pierre Creek near Station 13-29, past its confluence with the South Edisto River to Station 13-31A.
11. Portions of the South Edisto River 1000' southwest of station 13-30.

CONDITIONALLY APPROVED

None

APPROVED

1. South Edisto River from Station 13-08, continuing downstream to its confluence with the Atlantic Ocean, excluding the Restricted zone associated with Bailey Creek.
2. Mud Creek from its headwaters to its confluence with the South Edisto River.
3. Fish Creek (including tributaries and adjacent marshlands), from its confluence with the South Edisto River to its confluence with the Atlantic Ocean.
4. Jefford Creek, (including tributaries and adjacent marshlands) from its headwaters to the confluence with Fish Creek.
5. Pine Island Creek, (including tributaries and adjacent marshlands) from its headwaters to the confluence with Fish Creek.
6. St. Pierre Creek to Station 13-04.
7. South Edisto River at the Northern confluence of Alligator Creek (station 13-20), continuing down-stream to sample 13-08, at the Fenwick Cut.

Station Addition/Re/Deactivation/Modification: None

POLLUTION SOURCE SURVEY

SURVEY PROCEDURES

The South Carolina Department of Environmental Services, Lowcountry – Beaufort, Shellfish Sanitation Staff routinely conduct shoreline survey activities in SFMA 13. Extensive visual examination of lands adjacent to the waters of SFMA 13 was conducted to determine type of activities, location of significant concentrations of domestic animals and other actual and potential sources of pollution entering shellfish growing waters.

POINT SOURCE POLLUTION

A. **Municipal and Community Waste Treatment Facilities** - On Edisto Beach**,** sewer is provided by the Town of Edisto Beach/Edisto Beach Golf Club Inc. to the Wyndham Ocean Ridge resort and other multiple-unit developments, restaurants, and commercial areas on the beach. Municipal sewers are also available to homes along Big Bay Creek.

The Town of Edisto Beach/Edisto Beach Golf Club Inc. wastewater treatment system is located at the end of Holmes Street. The treatment system consists of aerated lagoons, gas chlorination and holding pond. The effluent is discharged by spray irrigation to the golf course at Wyndham Ocean Ridge. In April 2001 the facility was upgraded, and the permitted discharge increased from 260,000 to 350,000 gallons per day. The permit discharge limits for fecal coliform have been decreased from 200/400 to 14/43 to match the SFH standard of the adjacent water body (Big Bay Creek).

Historically, Edisto State Park had septic issues but has since been corrected with upgrades to their eight facilities.

Jeremy Cay at Eddingsville Beach has a small sewer system designed to serve up to 42 homes. The Hammocks at Jeremy Inlet has a septic tank and drip irrigation system designed to serve up to 51 homes.

B. Industrial Waste - There is one permitted industrial discharge in SFMA 13. This is from the West Bank Construction Co., Inc. sand mining operation. The discharge consists of groundwater and rainwater pumped during dewatering operations only. A General Mining NPDES permit has been issued for this site.

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 incorporated the following 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); (3) any facility which has effective docking space of greater than 250 linear feet or provides moorage for more than 10 boats; (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, such as a mooring field; or (5) a dry stack facility.

Currently, there are three marina locations in SFMA 13: Edisto Marina, Edisto Water Sports and Tackle and Edisto Yacht Club. Only the Edisto Marina has a pump-out facility. Locations of these facilities are shown in Figure 1.

D. Radionuclides - Sources of radionuclides have not been identified within SFMA 13 and no other sources of poisonous or deleterious substances have been identified within the area.

NONPOINT SOURCE POLLUTION

A. Urban and Suburban Stormwater Runoff - Stormwater runoff impacts water quality by transporting fecal coliform bacteria (and other pollutants) from land to the shellfish growing area. Stormwater from roads, residences, and agricultural land is directed to the lowest point of elevation that is typically the nearest creek or marsh. In addition, there are freshwater wetland areas, ditches, and impoundments that drain into tidal creeks.

On Edisto Beach, stormwater from roads and residences is directed toward Big Bay Creek and Scott Creek. Stormwater from the area south of Lybrand Street is directed toward the golf course lagoons that discharge through pipes at three separate locations into Big Bay Creek. A series of lagoons on the northern end of the beach discharges from a pipe at Whaley Street into an area known as the yacht basin, which is a tributary of Scott Creek. There are four 42-inch

culverts located where roads cross Cowpens Canal. The canal discharges into the headwaters of Fishing Creek. The purpose of these culverts is to reduce flooding of roadways. Two other drainage ditches near Cowpens Canal also discharge stormwater into the headwaters of Fishing Creek. Stormwater discharge and runoff appear to have the greatest impact to any elevated fecal coliform concentrations in Fishing Creek.

Most land disturbing activities in South Carolina must comply with the Stormwater Management and Sediment Reduction Act of 1991. The final regulations, effective on June 28, 2002, establish the procedures and minimum standards for a statewide stormwater management program. For activities in the eight coastal counties, additional water quality requirements are imposed. For all projects, regardless of size, which are located within one-half mile of a receiving water body in the coastal zone, the criteria for permanent water quality ponds having a permanent pool are that they are designed to store the first inch of runoff from the entire site over a 24-hour period or storage of the first one inch of runoff from the built-upon portion of the property, whichever is greater. Storage may be accomplished through retention, detention, or infiltration systems, as appropriate for the specific site. In addition, for those projects located within 1,000 feet of shellfish beds, the first one and one-half inches of runoff from the built-upon portion of the property must be retained on site. Since 1992, these regulations have been applied to the development of residential subdivisions, golf courses, and business areas.

B. Agricultural Runoff - A small number of cattle are located adjacent to the headwaters area of Sandy Creek that may be contributing to elevated fecal coliform concentrations at Station 13-05. Overall, there is a great amount of land dedicated for agricultural use in the northern part of SFMA 13. This could be a contributing cause for the substandard water quality in this section of the management area.

C. Individual Sewage Treatment and Disposal (ISTD) Systems - Many homes on Edisto Beach and most of the homes on Edisto Island utilize ISTD's for wastewater treatment and disposal. SCDES On-Site Wastewater Program report that most Edisto Island homes in SFMA 13 have conventional sewage systems, with a limited number of modified or ultra-shallow systems in place. The land is relatively high in elevation and drains well. Soil types are Wando, Wagram, Lakeland and Charleston. A 50’ setback is required for conventional sewage systems and a 150’ setback from the critical line is required for any modified and ultra-shallow systems.

D. Wildlife and Domestic Animals - This area supports populations of white-tailed deer, raccoons, wading birds, migratory waterfowl, and other wildlife, which may contribute to fecal coliform levels in some areas. Domestic animals are also present in the area, which include dogs, cats, horses, and goats.

There are several impoundments along the South Edisto River upstream of Fenwick Cut that is managed for waterfowl. These may impact shellfish waters downstream as water is typically exchanged through tidal action and when ponds are drained in early spring to allow the growth of natural vegetation.

The S.C. Department of Natural Resources operates a wildlife management area/heritage preserve (Botany Bay) in the Frampton Inlet area near Station 13-24.

E. Boat Traffic - The South Edisto River inlet provides ocean access for many recreational and commercial vessels. The Atlantic Intercoastal Waterway (AIWW) is in the South Edisto River between Fenwick Cut and Watts Cut. Commercial and recreational vessels utilize this

North/South route.

F. Hydrologic and Habitat Modification - Hydrographic and habitat modification in estuarine areas requires both State and Federal approval. Portions of the AIWW require maintenance dredging. The U.S. Army Corps of Engineers utilize designated tracts of land adjacent to the AIWW as dredge spoil sites. An earthen causeway, used as a bike path, was installed to connect Edisto Beach to Edisto Island. This earthen causeway crosses the headwaters of Scott Creek. At one time a 40-foot bridge crossed over this tidal creek. In 1939 the causeway was filled in and a road was paved, essentially damming the headwaters. Some local citizens are concerned that this constriction of tidal flow is in part the cause of silting and water quality problems in Scott Creek and have been pursuing actions to replace the causeway with a bridge.

NATURALLY OCCURRING PATHOGENS

A. Marine Biotoxins - Bivalve shellfish contamination from marine biotoxins has not been shown to be a human health concern within SFMA 13. 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 other coastal areas of the state. There have been no documented reoccurrences of this organism at levels requiring emergency response in South Carolina waters after the 1988 event. Due to the possibility of a *Pfiesteria pisicida* related or other marine biotoxin 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 is typically closed from June 1 through September 30th. The Department is currently not opposed to the issuance of special wild-stock harvest permits to Certified Shippers during the closed season if special permit conditions are included. Special permit conditions for mariculture 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 13 is part of the St. Helena Sound estuary. The estuary is a drowned river valley/bar built system containing numerous marsh islands and tidal creeks and is among the largest of the South Atlantic estuaries. The average depth of the estuary is approximately 12 feet at mid-tide level. Although a natural channel exists in the lower South Edisto River, extensive shallow areas and numerous tidal flats are evident within the estuary. The AIWW (12 feet at MLW) is the only maintained navigational channel (NOAA, 1994).

Tidal occurrences in SFMA 13 are semidiurnal, consisting of two low and high tides each lunar day. Mean tidal range at the mouth of the South Edisto River is 5.9 feet during normal tides and 6.9 feet during spring tides. The highest tidal ranges of the year occur from September through December. Wind speed/direction may produce considerable variation in predicted tidal levels.

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 annual total rainfall in 2024 for Shellfish Management Area 13 was 63.70 inches, which was more than the 10-year annual mean rainfall of 54.66 inches. Approximately 40% of the annual rainfall falls in the three-month period from June to August, with August typically being the wettest month. Weather patterns during this time are often characterized by thunderstorms and shower activity of short duration. The months of July, August, and September historically have the greatest numbers of days with rainfall exceeding 1.00". The months of December through March historically have the greatest number of days with rainfall exceeding 0.10" and 0.50". Rainfall events during these months are typically of a longer duration.

The prevailing wind direction during January through February is generally from the west to northwest with an average speed of 8-12 MPH. During the months of March through August, wind direction is typically a southerly component at an average speed of 7-10 MPH and September through December normally maintains a north-north easterly wind direction with an average speed of 6-8 MPH (NOAA Climatological Data Center.)

The South Edisto River originates in the midlands of South Carolina and flows approximately 140 miles through the piedmont and coastal plain until it enters the Atlantic Ocean at Edisto Beach. The river discharges an annual mean of 2,457 cubic feet per second, based on data collected at a USGS gauging station (USGS 02175000) located at river mile 59.9 (at the Highway 61 bridge in Dorchester County). There is significant impact from freshwater inflow, in the form of low salinity and high fecal coliform concentrations, to stations in the South Edisto River, particularly in the winter and spring.

Water flows from the South Edisto River and enters the headwaters of Bailey Creek through tidal flats located between the two water bodies as well as a direct confluence. During heavy discharges from the Edisto River, salinity levels from Bailey Creek to the confluence of St. Pierre Creek with Saint Helena Sound are affected. There is a direct correlation between the Edisto River flow data and salinity. The salinity reduction is proportional to the increase in river flows. On average, it appears that higher flows recorded at USGS gauging station USGS 02175000 take approximately 6 to 8 days to impact the salinity in Area 13. The effects on salinity appear to occur during river discharges greater than 400 cubic feet per second. Lower salinities have an influence on fecal coliform results. River flow data may be found at the following USGS site: http://waterdata.usgs.gov/sc/nwis/current/?type=flow.

WATER QUALITY STUDIES

DESCRIPTION OF PROGRAM

The Department utilizes a systematic random sampling (SRS) strategy within SFMA 13 in lieu of sampling under adverse pollution conditions. 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 calendar year 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 data analysis 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 samples, lab error, breakdowns, etc. This also allows each annual report to meet the NSSP Triennial Review sampling criteria.

During the period January 1, 2022 through December 31, 2024, six hundred eighty-four (684) surface water samples (<1.0 ft. deep) were collected for bacteriological analyses and classification purposes from the twenty (20) active water quality-sampling stations in SFMA 13, in accordance with the Department's systematic random sampling plan. Samples were collected in 120 ml bottles, immediately placed on ice and transported to the South Carolina Department of Environmental Service's Lowcountry - Beaufort laboratory in Burton, South Carolina. An additional 120 ml water sample was included with each shipment as a temperature control. Upon receipt at the laboratory, sample sets that exceeded a 30-hour holding time or contained a temperature control greater than ten (10) degrees Celsius were discarded. Samples collected after September 1, 1986 have been analyzed using the five-tube/three dilution modified A-1 method described by Nuefeld (1985).

Surface water temperatures were measured utilizing hand-held, laboratory-quality calibrated centigrade thermometers. Salinity measurements were measured in the laboratory using automatic temperature compensated refractometers. Additional field data include ambient air temperature, wind direction, tidal stage and date and time of sampling. Tidal stages were determined utilizing the National Oceanic and Atmospheric Administration, 2018 Tides and Currents Predictions website located at http://tidesandcurrents.noaa.gov/curr_pred.html.

MONITORING RESULTS

Eleven (11) of SFMA 13's twenty (20) stations meet minimum standards of fecal coliform indicator organism criteria with an MPN geometric mean value of 14 or less and the estimated 90th percentile value of 43 or less. Therefore, these stations meet statistical criteria for an Approved classification.

Stations 13-10, 13-05, 13-10, 13-22, 13-29, and 13-30 exceed the minimum fecal coliform MPN geometric mean value of 14.

Stations 13-01, 13-05, 13-10, 13-22, 13-23, 13-24, 13-29, 13-30, and 13-31 exceed a fecal coliform MPN 90th percentile value of 43.

No stations exceeded a fecal coliform MPN geometric mean of 88.

No stations exceeded a fecal coliform MPN 90th percentile value of 260.

A fecal coliform bacteriological data summary is included in Table #2.

CONCLUSIONS AND RECOMMENDATIONS

During this review period there will be no classification changes recommended for the upcoming shellfish harvesting season in SFMA 13. Station 13-24 (Frampton Inlet at north end of Jeremy Cay) was downgraded and now meets the criteria for a restricted water quality classification but was already in a Restricted area so no classification or map changes will be necessary during this review period.

Based on the review of fecal coliform bacteriological data and the pollution source survey, SFMA 13 has impacts from point source and non-point source pollution that may attribute to surface water quality degradation.

Storm water runoff is a significant source of fecal coliform bacteria contamination and may have a significant impact to waters adjacent to and near the portions of SFMA 13. The impact of rainfall on water quality in tidal creeks in developed areas appears to be greater than in the undeveloped areas such as Pine and Otter Islands. Individual localized rainfall events could have a greater negative impact than freshwater inflow and on water quality at stations in tidal creeks in SFMA 13. Possible sources of fecal coliform bacteria contamination include drainage ditches, freshwater wetlands, failing septic systems, pets, domestic animals (dogs, cats, horses, and cows), wildlife, and boats. SFMA 13 tidal creeks are shallow with dilution rates that vary significantly during diurnal tidal changes.

Portions of SFMA 13 receive appreciable freshwater inflow from the South Edisto River and the surrounding wetlands on Edisto Island that drain through ditches into the tidal creeks. There is a direct relationship between lower salinity and elevated fecal coliform bacteria concentrations. Lower salinity and elevated bacteria concentrations occur following significant rainfall events (usually >4.00 inches) and more significantly when these samples are collected at low tide. Rain in the Piedmont and Coastal Plains areas of the state also affect salinities through freshwater flows from the South Edisto River.

Sewage overflows are infrequent and will continue to be managed in accordance with National Shellfish Sanitation Program emergency closure guidelines.

All existing marinas should retain their administrative Prohibited classification. Additionally, during the harvest season, all Approved portions of the estuary should continue to be placed under a precautionary closure upon issuance of an official National Weather Service Hurricane Warning or upon receipt of four or more inches of rainfall within twenty-four hours, as recorded by the National Weather Service, Southeastern River Forecast Center.

There will be no classification changes recommended for the 2025-2026 shellfish harvesting season in SFMA 13.

Based upon the findings of this Annual Update Comprehensive Report, the following classifications are recommended:

PROHIBITED

1. Watts Cut, from its confluence with the South Edisto River, including North Creek, to the boundary of SFMA 13 at the Highway 174 Bridge.
2. All portions of the South Edisto River upstream of Station 13-20.

3. Portions of Big Bay Creek, from its confluence with the South Edisto River at Station 13-02 to Station 13-01, Scott Creek at the Indian Mound.

RESTRICTED

1. Russell Creek (including tributaries and adjacent marshlands), from its headwaters to the boundary of SFMA 13 at Highway 174.
2. Shingle Creek and Milton Creeks (including tributaries and adjacent marshlands) from their mouth at St. Pierre to the headwaters of both creeks.
3. Sandy Creek (including tributaries and adjacent marshlands), from its headwaters to its confluence with Fishing Creek at Station 13-05.
4. Scott Creek (including tributaries and adjacent marshlands), from Station 13-01 at The Mound to Highway 174.
5. Big Bay Creek (including tributaries and adjacent marshlands), from Station 13-01 to Station 13-10 in Fishing Creek.
6. Fishing Creek (including tributaries and adjacent marshlands), from headwaters to Station 13-04 at Peters Point.
7. Store Creek (including tributaries and adjacent marshlands), from headwaters to confluence with St Pierre Creek.
8. Scott Creek from SC Highway 174 to the Atlantic Ocean at Jeremy Inlet, including 13-23.
9. All marshlands and tidal creeks between Stations 13-22 and 13-24 including Frampton Inlet Creek to the confluence of Frampton Inlet with the Atlantic Ocean.
10. Bailey Creek (including tributaries and adjacent marshlands), from its confluence with St. Pierre Creek near Station 13-29, past its confluence with the South Edisto River to Station 13-31A.
11. Portions of the South Edisto River 1000’ southwest of station 13-30.

CONDITIONALLY APPROVED

None

APPROVED

1. South Edisto River from Station 13-08, continuing downstream to its confluence with the Atlantic Ocean, excluding the Restricted zone associated with Bailey Creek.
2. Mud Creek from its headwaters to its confluence with the South Edisto River.
3. Fish Creek (including tributaries and adjacent marshlands), from its confluence with the South Edisto River to its confluence with the Atlantic Ocean.
4. Jefford Creek, (including tributaries and adjacent marshlands) from its headwaters to the confluence with Fish Creek.
5. Pine Island Creek, (including tributaries and adjacent marshlands) from its headwaters to the confluence with Fish Creek.
6. St. Pierre Creek to Station 13-04.
7. South Edisto River at the Northern confluence of Alligator Creek (station 13-20), continuing down-stream to sample 13-08, at the Fenwick Cut.

Station Addition/Re/Deactivation/Modification: None

Analysis of sampling data for SFMA 13 demonstrates the probability of a significant impact from rainfall exceeding 4.00" in a 24-hour period. Therefore, a precautionary closure of SFMA 13 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 have been 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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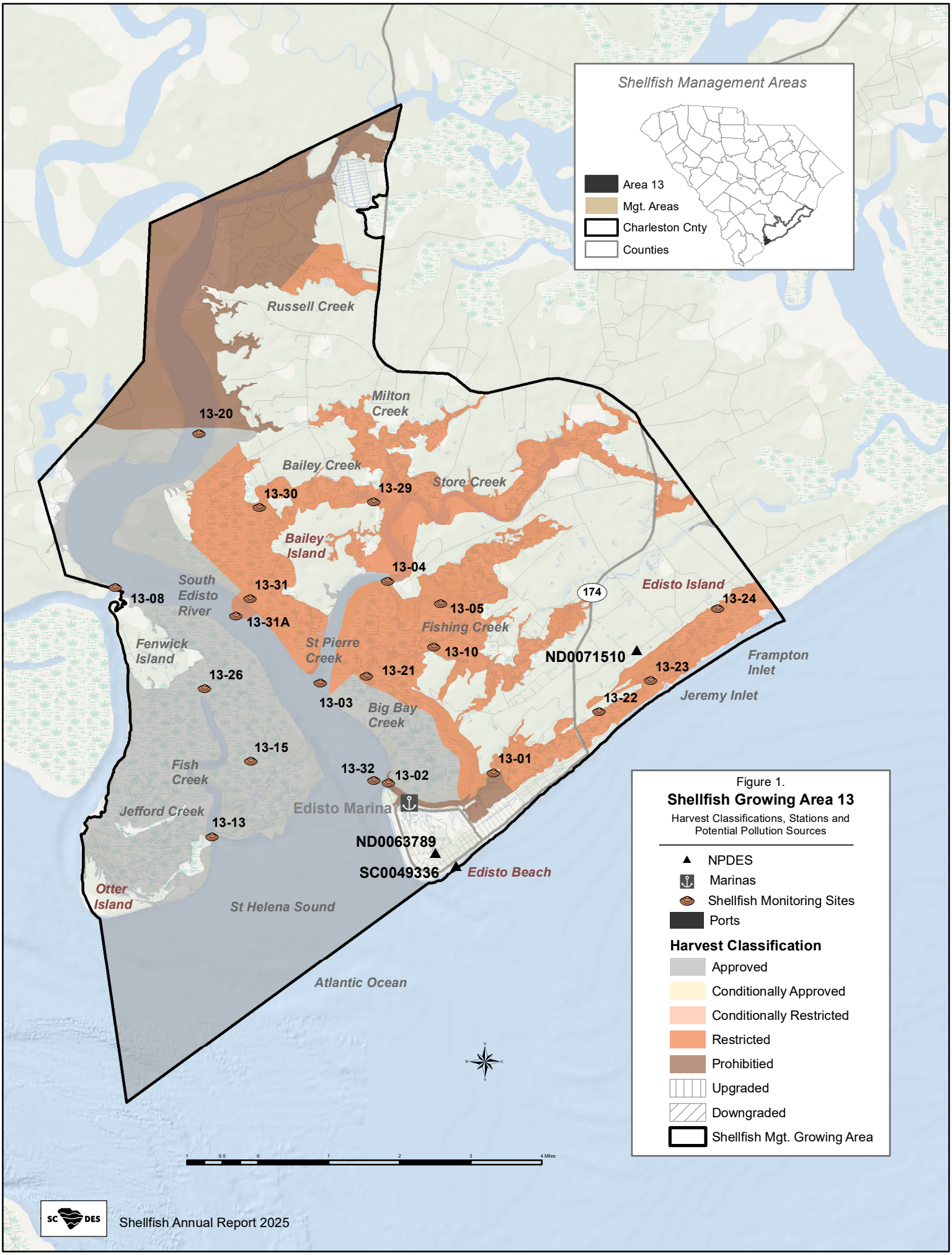
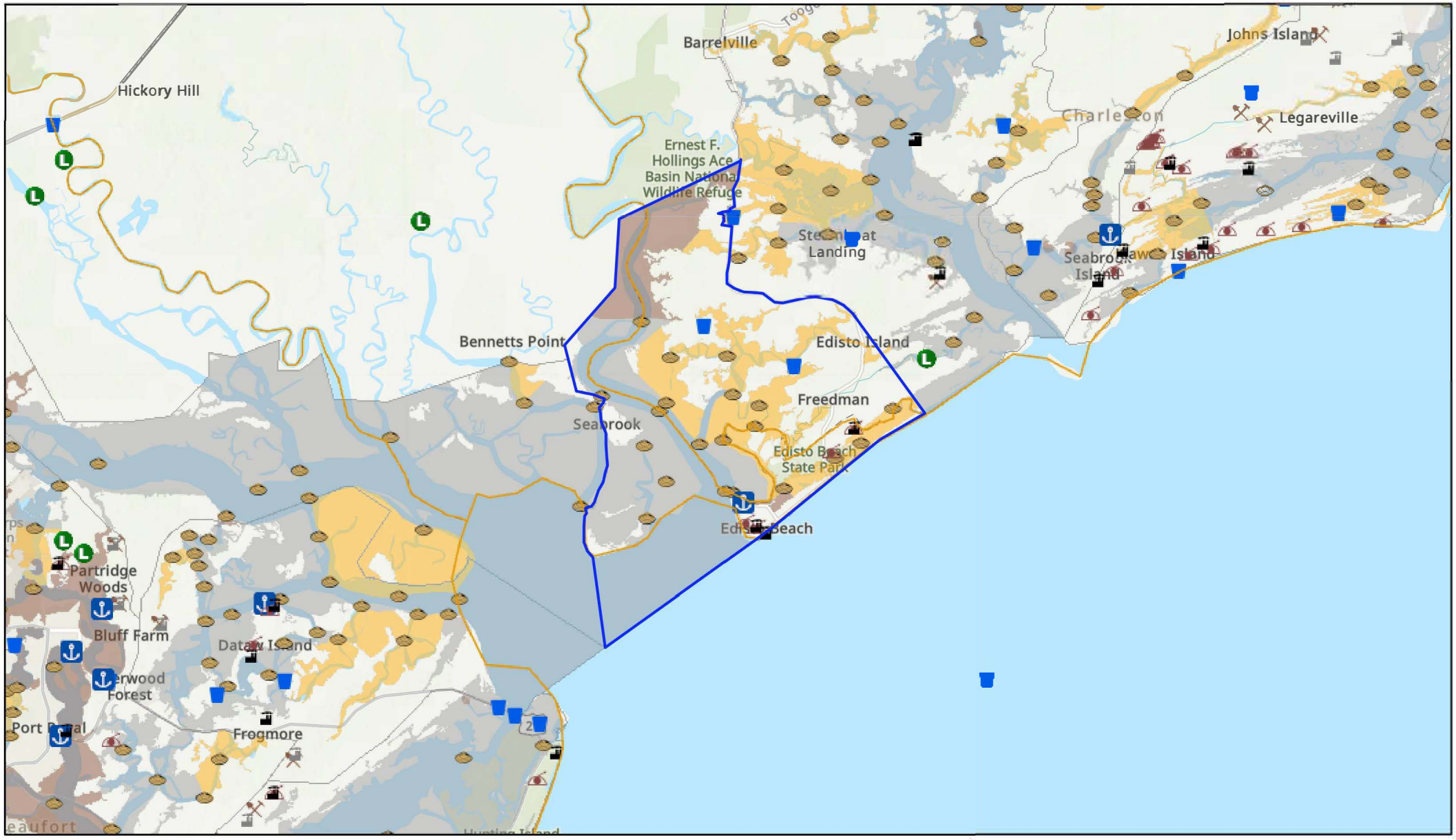

Shellfish Management Areas
Area 13
Mgt. Areas
Charleston Cnty
Counties
Russell Creek
Milton Creek
Bailey Creek
Store Creek
Bailey Island
South Edisto River
Fenwick Island
St Pierre Creek
Fishing Creek
Edisto Island
Frampton Inlet
Jeremy Inlet
Big Bay Creek
Fish Creek
Jefford Creek
Edisto Marina
Edisto Beach
Otter Island
St Helena Sound
Atlantic Ocean
13-20
13-30
13-29
13-04
13-31
13-08
13-31A
13-05
13-10
13-21
13-03
13-26
13-15
13-32
13-02
13-01
13-22
13-23
13-24
13-13
ND0071510
ND0063789
SC0049336
174
Figure 1.
Shellfish Growing Area 13
Harvest Classifications, Stations and Potential Pollution Sources
NPDES
Marinas
Shellfish Monitoring Sites
Ports
Harvest Classification
Approved
Conditionally Approved
Conditionally Restricted
Restricted
Prohibited
Upgraded
Downgraded
Shellfish Mgt. Growing Area
1 0.5 0 1 2 3 4 Miles

Figure 2. - Shellfish Management Area 13 - Point Source Map



SFMA 13 Boundary

Counties (Websites)

NationWide Permits

State Regulated Dams

Class 1 - High

Class 2 - Significant

Class 3 - Low

Marinas

Livestock Operations

Land Applications-Provisional

Mines

General Permits - NPDES

NPDES Discharges

Shellfish Water Sampling

1:288,895

0 2 4 8 mi

0 3.25 6.5 13 km

Charleston County GIS, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS

SCDES

Esri, NASA, NGA, USGS | Charleston County GIS, Esri, TomTom, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, USDA, USFWS | SCDHEC |

TABLE # 1
Shellfish Management Area 13
WATER QUALITY SAMPLING STATIONS DESCRIPTION

Station	Description
13-01	Scott Creek at the Mound
13-02	Mouth of Big Bay Creek
13-03	Mouth of St. Pierre Creek
13-04	St. Pierre Creek at Peters Point
13-05	Fishing Creek at Sandy Creek
13-08	Edisto River at Ashepoo River
13-10	Fishing Creek at Pollution Line
13-13	Mouth of Fish Creek at Otter Island and Atlantic Ocean
13-15	Headwaters of Pine Island Creek at the fork
13-20	Northern confluence of Alligator Creek and S. Edisto River
13-21	Big Bay Creek headwaters at first bend to right past the Neck
13-22	Headwaters of Scott Creek at Jeremy Inlet at the boat landing
13-23	Jeremy Inlet at Atlantic Ocean
13-24	Frampton Inlet at north end of Jeremy Cay
13-26	4000 ft from the Confluence of Fish Creek and Atlantic Ocean at First "T" in Fish Creek
13-29	Bailey Creek, first bend adjacent to bluff on Bailey Island (near confluence with St. Pierre Creek)
13-30	Bailey Creek at confluence with unnamed tributary near Southwestern point of Scanawah Island
13-31	Bailey Creek at confluence with South Edisto River
13-31A	Located approximately 1000 feet to the southwest of Station 31
13-32	South Edisto River at Western boundary of 1000 foot Restricted radius around Station 13-02 (confluence of Big Bay Creek)

(Total Active - 20)

TABLE #2

Shellfish Management Area 13
Fecal Coliform Bacteriological Data Summary
From Shellfish Water Quality Sampling Stations Between

January 01, 2022 to December 31, 2024

Station #	01	02	03	04	05	08	10	13	15	20
SAMPLES	34	33	34	34	34	35	34	34	34	35
GEOMEAN	16	4.7	4.2	10	15.7	6.3	17.6	3.2	3	13.3
90TH %ILE	71	14	17	40	67	27	52	8	7	40
WATER QLTY	R	A	A	A	R	A	R	A	A	A
CLASSIFICATION	P	P	A	R	R	A	R	A	A	P

Station #	21	22	23	24	26	29	30	31	31A	32
SAMPLES	34	35	35	31	34	34	35	35	36	34
GEOMEAN	6.9	37.2	11.7	8.6	2.9	15.5	18.5	11.2	3.7	3.6
90TH %ILE	25	198	79	45	8	56	73	67	12	12
WATER QLTY	A	R	R	R	A	R	R	R	A	A
CLASSIFICATION	R	R	R	R	A	R	R	R	R	A

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

TABLE #3
Fecal Coliform Historical Trend Sheet
Area 13 Stations 90th%ile Values for Annual Updates Related to Rainfall

Station #	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
13-01	71	75	70	77	95	108	120	72	56	38	67
13-02	14	13	16	23	23	22	15	13	12	13	13
13-03	17	12	9	8	7	7	14	20	24	18	14
13-04	40	27	24	24	28	38	63	73	67	40	30
13-05	67	58	47	63	62	89	105	112	85	73	58
13-08	27	24	21	17	13	16	19	26	20	20	15
13-10	52	43	55	64	93	95	106	89	68	61	81
13-13	8	6	7	6	9	12	14	10	6	4	5
13-15	7	7	7	5	7	7	12	8	7	4	4
13-20	40	41	39	34	36	44	36	42	47	52	40
13-21	25	24	24	27	22	27	31	32	28	23	22
13-22	198	200	238	316	385	418	360	384	352	362	267
13-23	79	63	69	57	96	133	160	148	108	95	64
13-24	45	36	39	39	55	67	77	76	63	68	66
13-26	8	10	11	10	11	14	20	14	14	7	8
13-29	56	41	44	45	49	57	67	62	51	41	37
13-30	73	55	66	64	78	69	97	101	129	115	104
13-31	67	44	35	32	30	31	44	49	42	22	17
13-31A	12	9	8	8	8	9	13	18	17	17	13
13-32	12	8	8	10	14	13	12	8	10	9	8
Annual Rainfall (inches)	**63.70**	**51.47**	**52.00**	**54.36**	**57.49**	**48.71**	**48.29**	**51.49**	**62.08**	**67.67**	**53.05**

ND = No Data **Red = Impaired Water Quality**

TABLE #4

WATER QUALITY
SAMPLING STATION DATA

Shellfish Management Area 13

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 Service's – 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 13

Source:

2022 – 2024 Data
National Weather Service - Southeastern River Forecast Center
Location: Charleston and Colleton County, South Carolina

2022 Annual Rainfall Summary
Source: National Weather Service - Southeastern River Forecast Center
Location: Charleston and Colleton County, South Carolina

2022	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1				0.19		0.07	0.34		0.20	1.61		0.25
2							1.79	0.01	1.24			
3	0.07											
4						0.15		0.17	0.06			
5	0.02	0.39			0.02	0.55		0.01	0.01		0.01	
6	0.01			0.65		0.31	0.01	0.01	0.25		0.11	0.17
7		0.10		0.62	0.05	0.01	0.02	0.01				
8		0.05		0.13		0.10	0.78	0.21				
9			0.52			0.05	0.06	0.31	2.38			
10	0.27		0.24			0.29	1.11		2.45			0.34
11							0.98	0.01			1.39	
12			0.07			0.45	0.03	0.58	0.02	0.02	0.07	0.01
13		0.04	0.08		0.12			0.73		1.77		
14		0.01			0.13		0.07					
15							0.18				0.01	0.16
16	0.17		0.07				0.47	0.01			0.44	0.16
17	0.96	0.06	0.13	0.12	0.06	0.10		0.24				
18		0.02		0.62		0.27	0.46	0.07	0.11			
19		0.12	0.07	0.07			0.02	0.83	0.04			
20			0.06				1.63	0.59	0.07		0.03	0.03
21	0.22						0.72	0.01				1.04
22	0.23	0.01			0.02			0.19				0.30
23					1.26		0.56	0.89	0.01		0.01	0.06
24			0.61		0.01	0.04		0.27				
25			0.67				0.09	0.01			0.01	
26	0.01							1.69			0.02	
27				0.28	1.13			0.03			0.02	
28		0.09			0.23			0.11			0.03	
29						1.48		0.80		0.06		
30						0.88		1.89	1.90	0.03		0.02
31								0.01		0.12		0.12
Total	**1.96**	**0.89**	**2.52**	**2.68**	**3.03**	**4.75**	**9.32**	**9.69**	**8.74**	**3.61**	**2.15**	**2.66**

***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**	**52.00**

2023 Annual Rainfall Summary
Source: National Weather Service - Southeastern River Forecast Center
Location: Charleston and Colleton County, South Carolina

2023	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1	0.02				0.14			1.00				
2												
3		0.26	0.03					0.03				0.03
4		0.21	0.05	0.31		0.05		0.06				0.01
5	0.34	0.02					0.12	0.89				
6		0.02			0.04		1.12					
7						0.11		0.16				
8					0.01	1.46	0.14	0.33				
9	0.02			0.60	0.01	0.06	0.02	0.06				
10		0.03	0.29			0.02	0.04		0.05			
11		0.68	0.51				0.71		0.19			0.22
12		1.50				0.62		0.18	0.16	0.74	0.05	
13	0.32	0.04	0.46			0.46			1.44	0.44	0.02	
14	0.03			0.19		0.01		0.01	0.10	0.18		
15				0.06	0.03	0.50			0.52			
16				0.02		0.09	0.01	0.21			0.03	
17				0.03	0.09			1.99			0.08	1.22
18		0.06	0.39		0.22		0.04	0.12	1.32		0.09	2.57
19			0.27		0.30							
20						1.67	0.09	0.10				
21						0.35	0.06		0.15	0.71	0.12	
22	0.11			0.09	0.22	0.55	0.05	0.01	0.02		0.59	
23	1.45		0.04	0.29		0.55					0.31	
24					0.01	0.02	0.93				0.04	
25		1.15									0.06	
26	0.52			0.02	0.03							1.03
27					2.05	0.05			0.25		0.21	1.89
28			0.17	0.66	0.22		0.13					
29			0.06				0.49	0.07				
30	1.06			0.58			0.28	1.66				
31	0.33						0.36	1.93				
Total	**4.20**	**3.97**	**2.27**	**2.85**	**3.37**	**6.57**	**4.59**	**8.81**	**4.20**	**2.07**	**1.60**	**6.97**

***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**	**51.47**

2024 Annual Rainfall Summary
Source: National Weather Service - Southeastern River Forecast Center
Location: Charleston and Colleton County, South Carolina

2024	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
1			0.03		0.41							
2	0.03		2.44		0.01		2.69		0.01			
3				0.01			0.01	0.16	0.57			
4	0.07			0.88				0.30			0.02	
5		1.23						0.47		0.05	0.31	
6	0.40	0.67	0.25			2.00		11.26	0.01		0.11	
7	0.14		0.63		0.29			1.42	0.29		1.94	
8								0.92	0.19		0.72	
9	0.06		0.95				0.25	0.33	0.47			
10	1.45		2.52		0.51	0.10	0.61			0.12		0.11
11				2.06	0.25	0.22					0.08	0.08
12		0.03		1.73				0.86			0.22	0.18
13	0.11	1.35					0.40		0.04			
14					0.10		0.08		0.04			
15					0.67				0.05		0.12	
16			0.06						0.01			
17												
18			0.04									0.07
19					0.61							
20					1.35		0.67		0.10		0.02	
21							0.89				0.01	
22				0.89		0.47	0.07					
23			0.97			0.09						
24	0.01	0.09				0.23						0.58
25	0.12				1.23	0.22	0.64					
26							1.12		0.05			
27			0.06				0.76		1.53		0.01	0.73
28	0.01		0.78			0.51						0.10
29			0.03			0.21					0.12	0.15
30										0.03	0.02	0.91
31	0.04											
Total	**2.44**	**3.37**	**8.76**	**5.57**	**5.43**	**4.05**	**8.19**	**15.72**	**3.36**	**0.20**	**3.70**	**2.91**

***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**	**63.70**

TABLE #6
Shellfish Management Area 13
Precautionary & Pollution Closure Events
2022 – 2024

Event	Date(s)	Sample Date(s)	Opening Date	Comments
Tropical Storm Debby	8/5/2024-8/7/2024	8/12/2024	8/15/2024	Storm produced 11.26 inches of rainfall. Summer mariculture is within SFMA 13 and special sampling was performed to reopen the area.

TABLE #7
Shellfish Management Area 13
MARINA INVENTORY

Marina	Total Slips	Pump-out Facility	Fuel Dock
Edisto Yacht Club	12	No	No
The Marina at Edisto Beach	83	Yes	Yes
Edisto Water Sports	4	No	Yes