REPORT OF SANITARY SURVEY

BROAD CREEK AREA

AREA E-1

MAY 1991 - SEPTEMBER 1994

February 1995

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TABLE OF CONTENTS

AREA E-1

SANITARY SURVEY REPORT

CONTENTS PAGE

LIST OF EXHIBITS	i
PREFACE	ii
INTRODUCTION	1
SHORELINE SURVEY	1
HYDROGRAPHIC & METEOROLOGICAL SURVEY	3
BACTERIOLOGICAL SURVEY	4
SUMMARY & AREA CLASSIFICATION	4

LIST OF EXHIBITS

AREA E-1

EXHIBIT I	AREA MAP AND STATION LOCATIONS
EXHIBIT II	SHORELINE SURVEY ROUTE AND SUBDIVISIONS
EXHIBIT III	SAMPLING DATA BY STATION
EXHIBIT IV	BACTERIOLOGICAL RESULTS AND MPN MEDIANS
EXHIBIT V	SUMMARY OF BACTERIOLOGICAL DATA ANALYSIS
EXHIBIT VI	RAINFALL INFORMATION
EXHIBIT VII	TEMPORARY CLOSURES
EXHIBIT VIII	PROCLAMATION AND CLOSED AREA MAP

PREFACE

Total Acreage	4700 ACRES
Closed Acreage	133 ACRES
Oyster Production	POOR
Clam Production	GOOD
Commercial Value	FAIR TO GOOD (CLAMS)
Recommended Changes	CLOSE 15 ACRES AT MOUTH OF OF BROAD CREEK

REPORT OF SANITARY SURVEY

BROAD CREEK AREA

E-1

By

SHELLFISH SANITATION BRANCH
NORTH CAROLINA DIVISION OF ENVIRONMENTAL HEALTH

I. INTRODUCTION

Area E-1 is composed of those waters of Bogue Sound, located between Intracoastal Waterway Beacons #21 and #28. It includes the waters of Gales and Broad Creeks and that portion of Bogue Banks between Salter Path and Cat Island. (See Exhibit I for map of area.) The area is small (approximately 4700 acres) and drains an area of approximately 16 square miles. Oyster production is poor in the area with most catches by sportsmen for individual usage. Clam production is good throughout the area.

The north shore of the area, the Broad and Gales Creek section, is basically permanent inhabitants. This area has experienced growth since the previous survey and will be discussed in the shoreline survey section of this report. The south shore of the area, the Bogue Banks section, is mainly summer vacationers. The permanent population for the area is estimated at 3,700.

There are no wastewater treatment plants or major point sources of pollution located in the area.

II. SHORELINE SURVEY OF SOURCES OF POLLUTION

A shoreline survey for Area E-1 was completed November 17, 1994. The Carteret County Environmental Health Section was informed of the survey before the shoreline activities began.

The shoreline survey for Area E-1 consists of Broad Creek, Gales Creek and a section of Bogue Sound between Salter Path and Emerald Isle. (See Exhibit II for shoreline survey route.) The population has increased by approximately 700 people (23 %) since the 1991 shoreline survey. The majority of the growth has not been on the immediate shoreline. The following table is a list of the active subdivisions (see Exhibit II for location):

#	Name	# Homes 1991	# Homes 1994	# Of lots	Comments
1	Blue Water Banks	20	38	68	Boat ramp, 400 ft. dock.
2	Adams Harbor	4	8	39	
3	Foxlair	18	44	68	No waterfront homes.
4	Rolling Wood Acres	62	87	140	Boat ramp.

There are three mobile home parks that are not on the shoreline but have contributed to the overall population.

Active Mobile Home Parks

#	Name	# Homes 1991	# Homes 1994
1	Whispering Pines	38	53
2	Karobi	2	24
3	Bogue Pines	67	139

The soils in E-1 are suitable for ground absorbing septic systems with the exception of a few low lying areas where soils may become saturated during the winter months.

Broad Creek Family Restaurant, recently reopened, had a septic system drain line discharging into a ditch that drained to Broad Creek. The violation was corrected by installing new drain lines into a mound system.

The Bogue Banks section of the survey has changed very little since the last report. Approximately 5 new homes have been constructed. This area is almost completely developed with residential housing used mostly as seasonal homes.

Waterfowl and other aquatic birds are abundant in the waters of E-1. The headwaters of Broad and Gales Creeks extend into the Croatan National Forest that is also abundant with raccoons and other game.

There are no large concentrations of farm animals and very little cropland in the area. Two small soybean fields exist on the Broad Creek Loop Road.

There is one marina in E-1 and a mooring area at R. W. Jones Fish Company that were inspected. Private dockage is considerable throughout the area.

Nonpoint pollution from residential development probably has the most impact on the water quality in this area.

III. EVALUATION OF HYDROGRAPHIC FACTORS RESPONSIBLE FOR THE SPREAD OF POLLUTION

Current patterns are influenced by Beaufort Inlet, located approximately 12 miles to the east of the area. Water movements

have been established throughout the area by checking direction and velocity at individual sampling stations. There are no point sources located in this area and hydrographic studies are not needed.

Area E-1 is a relatively small area comprising approximately 4700 acres of Bogue Sound. Broad and Gales Creeks drain the majority of the watershed of the area. Both creeks are located on the mainland side of the area and water quality is affected after heavy rainfall events. Closures in all areas of Bogue Sound have been "emergency" closures and at present Bogue Sound is not considered a conditional area. As Bogue Sound continues to develop and closures become more frequent the classification could change and a management plan would be developed. (See Exhibit VI for rainfall data.)

Salinities have been high throughout the survey period and have ranged between 24 ppt and 37 ppt (parts per thousand).

IV. BACTERIOLOGICAL SURVEY OF SHELLFISH GROWING WATERS

The bacteriological survey was begun in May, 1991 and extended through September, 1994. During the survey 400 samples were collected from 20 stations during 20 trips. (See Exhibit I for station locations.) Results of the survey indicate very little change in bacteriological water quality. Stations #6 and #7 were the only stations that exceeded program criteria for approved areas. (See Exhibit III for sampling data by station.) Station #7 is located in Broad Creek at the bridge and station #6 is at the closure line in Broad Creek. All other stations had satisfactory results. (See Exhibit IV for bacteriological results and MPN medians.)

V. SUMMARY AND RESULTANT AREA CLASSIFICATION

Overall results from the bacteriological survey indicate little change in water quality since the last survey. The only exception would be the Broad Creek section as indicated by sample station #6 that exceeds the 10% rule. This station has been collected just outside the current closed area line. An additional 15 acres were closed on February 8, 1995, at the mouth of Broad Creek to include station #6.

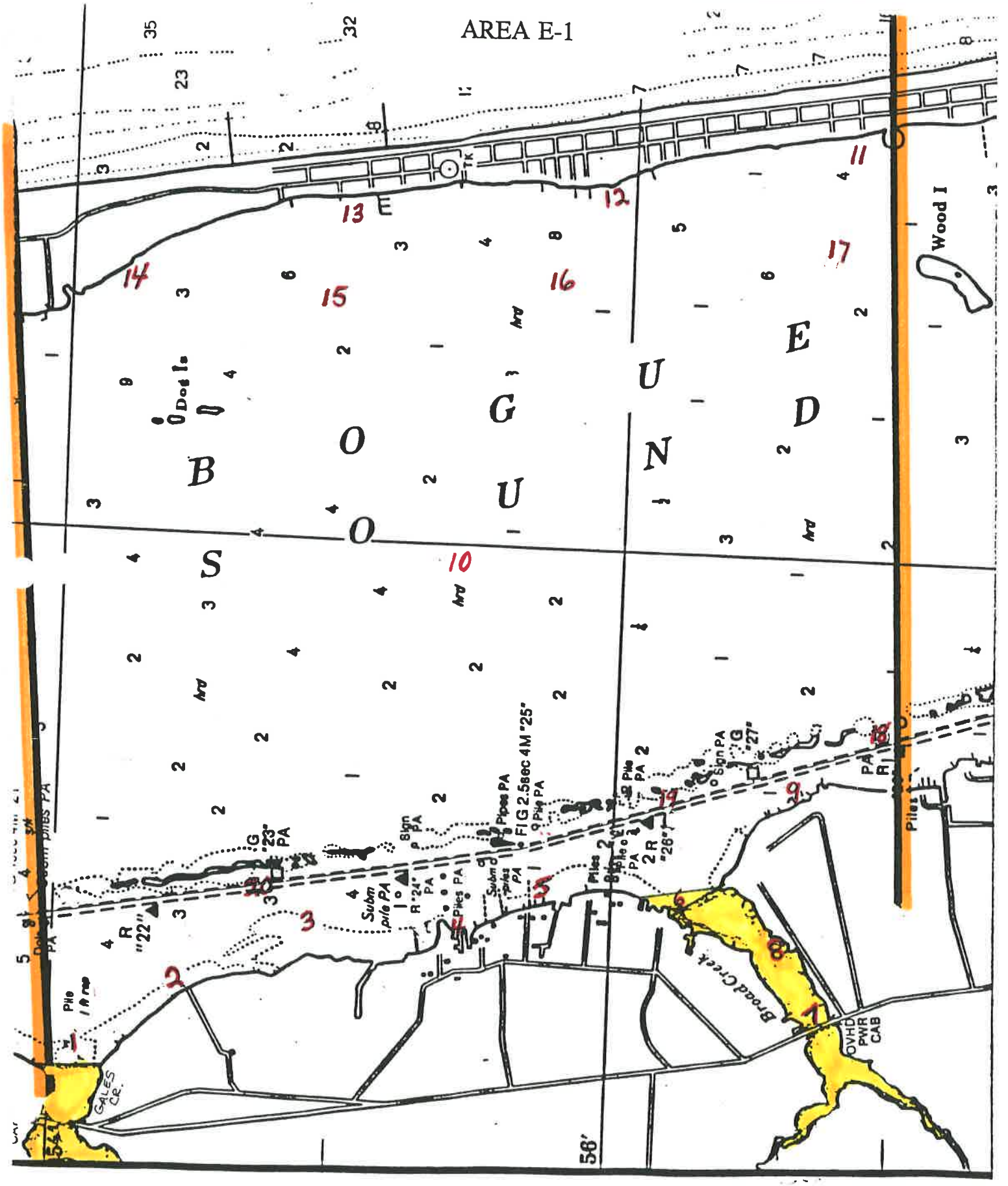
The shoreline survey indicates continued growth along the mainland and "emergency" closures have been more frequent. No specific management plans have been developed for the area although the mainland shoreline is normally closed following a 2 inch rainfall event in a 24 hour period. The entire area has been closed on occasion but only after unusual storm events. (See Exhibit VI for rainfall information and Exhibit VII for temporary closures.)

The closure of station #6 is the only change needed in classification at this time. (See Exhibit VIII for proclamation and closed area map.)

EXHIBIT I

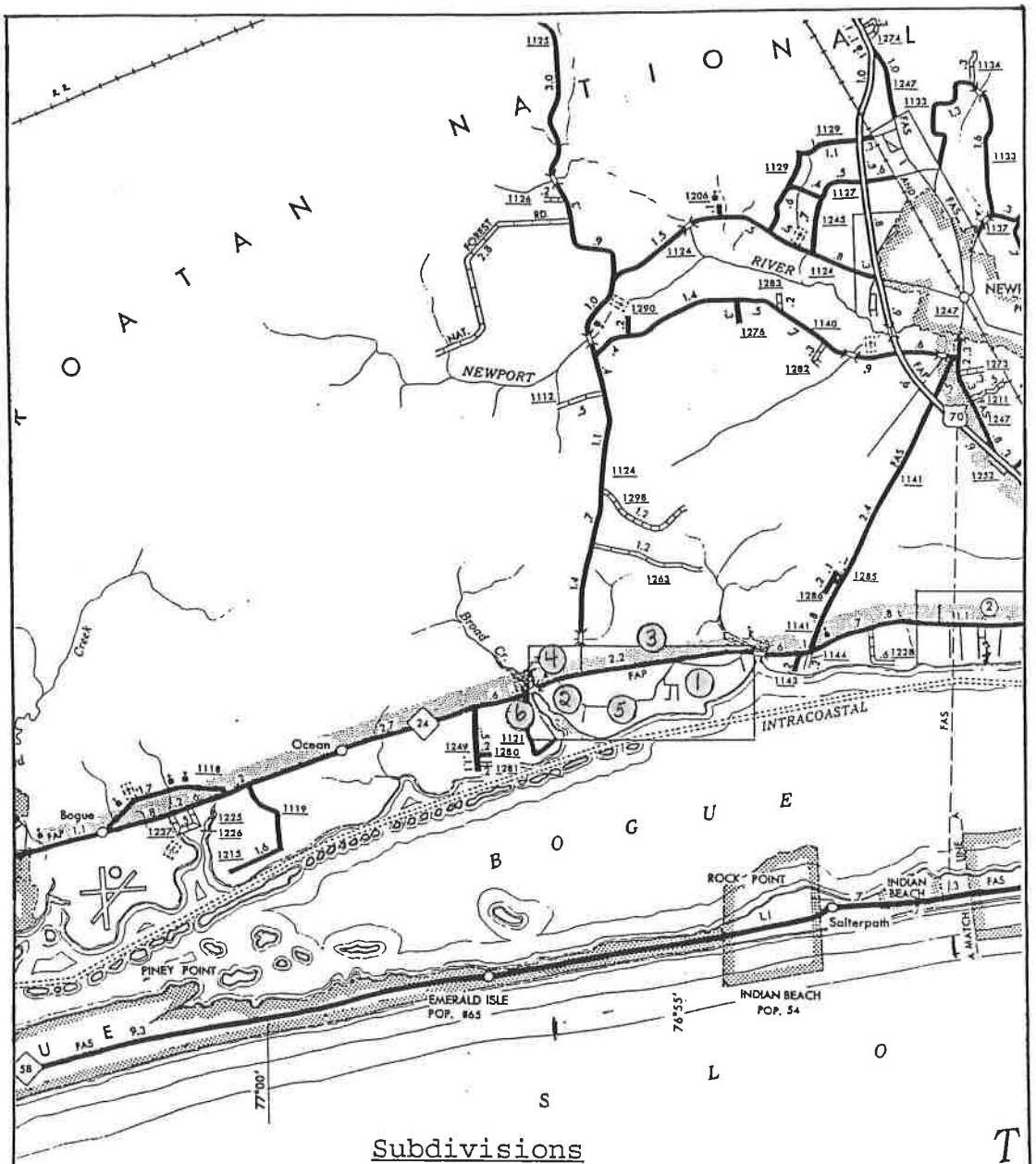
STATION LOCATIONS

AREA E-1



CLOSED SHELLFISHING AREA

Exhibit II
Shoreline Survey



Subdivisions

1. Blue Water Banks
2. Adams Harbor
3. Foxlair
4. Rolling Wood Acres

Marinas and Mooring Areas

5. R. W. Jones Fish Co.
6. Osprey Oak Marina

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	1	1/4 EBB	33	1.8	0.2552725051
07/09/91	1	1/4 EBB	31	4.5	0.6532125138
07/24/91	1	1/2 EBB	32	33.0	1.5185139399
09/05/91	1	1/2 EBB	28	22.0	1.3424226808
01/29/92	1	3/4 EBB	28	23.0	1.3617278360
03/30/92	1	1/2 EBB	30	11.0	1.0413926852
05/11/92	1	1/2 EBB	30	33.0	1.5185139399
09/17/92	1	1/3 FLD	30	11.0	1.0413926852
11/12/92	1	LAST FLD	33	4.5	0.6532125138
06/17/93	1	1/4 EBB	33	1.7	0.2304489214
07/13/93	1	1ST FLD	31	4.5	0.6532125138
08/17/93	1	HI SLACK	35	1.7	0.2304489214
09/14/93	1	1ST EBB	35	6.8	0.8325089127
10/21/93	1	1ST FLD	35	2.0	0.3010299957
03/01/94	1	1/2 FLD	30	4.5	0.6532125138
04/07/94	1	1/4 EBB	27	33.0	1.5185139399
06/09/94	1	2/3 FLD	37	1.7	0.2304489214
07/21/94	1	1ST EBB	35	2.0	0.3010299957
08/08/94	1	2/3 FLD	35	1.7	0.2304489214
09/29/94	1	1/2 EBB	35	49.0	1.6901960800

LOG AVG	0.8128580468
GEO MEAN	6
MEDIAN	4.5

DATA DISTRIBUTION

==========

FC	
14	14
43	5
	1
% > 43	5

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	2	1/4 EBB	33	2.0	0.3010299957
07/09/91	2	1/4 EBB	33	1.7	0.2304489214
07/24/91	2	1/2 EBB	32	1.7	0.2304489214
09/05/91	2	1/2 EBB	27	23.0	1.3617278360
01/29/92	2	3/4 EBB	29	13.0	1.1139433523
03/30/92	2	1/2 EBB	32	1.7	0.2304489214
05/11/92	2	1/2 EBB	32	2.0	0.3010299957
09/17/92	2	1/3 FLD	30	9.3	0.9684829486
11/12/92	2	LAST FLD	33	23.0	1.3617278360
06/17/93	2	1/4 EBB	35	1.7	0.2304489214
07/13/93	2	1ST FLD	32	1.7	0.2304489214
08/17/93	2	HI SLACK	35	1.7	0.2304489214
09/14/93	2	1ST EBB	35	2.0	0.3010299957
10/21/93	2	1ST FLD	35	1.7	0.2304489214
03/01/94	2	1/2 FLD	31	2.0	0.3010299957
04/07/94	2	1/4 EBB	30	33.0	1.5185139399
06/09/94	2	2/3 FLD	37	1.7	0.2304489214
07/21/94	2	1ST EBB	35	2.0	0.3010299957
08/08/94	2	2/3 FLD	35	1.7	0.2304489214
09/29/94	2	1/2 EBB	37	4.0	0.6020599913

LOG AVG	0.5252823087
GEO MEAN	3
MEDIAN	2

DATA DISTRIBUTION

==========

FC

14	17
43	3
	0
% > 43	0

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	3	1/4 EBB	34	1.7	0.2304489214
07/09/91	3	1/4 EBB	33	1.7	0.2304489214
07/24/91	3	1/2 EBB	32	2.0	0.3010299957
09/05/91	3	1/2 EBB	28	2.0	0.3010299957
01/29/92	3	3/4 EBB	29	7.8	0.8920946027
03/30/92	3	1/2 EBB	31	2.0	0.3010299957
05/11/92	3	1/2 EBB	33	1.7	0.2304489214
09/17/92	3	1/3 FLD	30	79.0	1.8976270913
11/12/92	3	LAST FLD	32	7.8	0.8920946027
06/17/93	3	1/4 EBB	33	2.0	0.3010299957
07/13/93	3	1ST FLD	32	1.7	0.2304489214
08/17/93	3	HI SLACK	35	4.5	0.6532125138
09/14/93	3	1ST EBB	35	130.0	2.1139433523
10/21/93	3	1ST FLD	35	2.0	0.3010299957
03/01/94	3	1/2 FLD	32	7.8	0.8920946027
04/07/94	3	1/4 EBB	30	1.7	0.2304489214
06/09/94	3	2/3 FLD	37	2.0	0.3010299957
07/21/94	3	1ST EBB	35	1.7	0.2304489214
08/08/94	3	2/3 FLD	35	2.0	0.3010299957
09/29/94	3	1/2 EBB	36	4.8	0.6812412374

LOG AVG	0.575610575
GEO MEAN	3
MEDIAN	2

DATA DISTRIBUTION

==========

FC	
14	18
43	0
	2
% > 43	10

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	4	1/4 EBB	34	4.5	0.6532125138
07/09/91	4	1/4 EBB	33	2.0	0.3010299957
07/24/91	4	1/2 EBB	32	4.5	0.6532125138
09/05/91	4	1/2 EBB	30	2.0	0.3010299957
01/29/92	4	3/4 EBB	29	4.0	0.6020599913
03/30/92	4	1/2 EBB	31	1.7	0.2304489214
05/11/92	4	1/2 EBB	32	17.0	1.2304489214
09/17/92	4	1/3 FLD	30	17.0	1.2304489214
11/12/92	4	LAST FLD	32	13.0	1.1139433523
06/17/93	4	1/4 EBB	35	4.0	0.6020599913
07/13/93	4	1ST FLD	32	1.7	0.2304489214
08/17/93	4	HI SLACK	35	11.0	1.0413926852
09/14/93	4	1ST EBB	35	13.0	1.1139433523
10/21/93	4	1ST FLD	35	17.0	1.2304489214
03/01/94	4	1/2 FLD	32	2.0	0.3010299957
04/07/94	4	1/4 EBB	30	4.5	0.6532125138
06/09/94	4	2/3 FLD	37	2.0	0.3010299957
07/21/94	4	1ST EBB	35	2.0	0.3010299957
08/08/94	4	2/3 FLD	35	2.0	0.3010299957
09/29/94	4	1/2 EBB	36	4.8	0.6812412374

LOG AVG	0.6536351366
GEO MEAN	4
MEDIAN	4.25

DATA DISTRIBUTION

==========

FC

14	17
43	3
	0
% > 43	0

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	5	1/4 EBB	34	1.7	0.2304489214
07/09/91	5	1/4 EBB	33	1.7	0.2304489214
07/24/91	5	1/2 EBB	31	13.0	1.1139433523
09/05/91	5	1/2 EBB	30	13.0	1.1139433523
01/29/92	5	3/4 EBB	29	22.0	1.3424226808
03/30/92	5	1/2 EBB	31	1.7	0.2304489214
05/11/92	5	1/2 EBB	32	6.8	0.8325089127
09/17/92	5	1/3 FLD	30	2.0	0.3010299957
11/12/92	5	LAST FLD	33	1.8	0.2552725051
06/17/93	5	1/4 EBB	34	1.7	0.2304489214
07/13/93	5	1ST FLD	33	2.0	0.3010299957
08/17/93	5	HI SLACK	35	1.8	0.2552725051
09/14/93	5	1ST EBB	35	1.8	0.2552725051
10/21/93	5	1ST FLD	34	11.0	1.0413926852
03/01/94	5	1/2 FLD	32	2.0	0.3010299957
04/07/94	5	1/4 EBB	29	13.0	1.1139433523
06/09/94	5	2/3 FLD	37	1.7	0.2304489214
07/21/94	5	1ST EBB	35	7.8	0.8920946027
08/08/94	5	2/3 FLD	35	1.7	0.2304489214
09/29/94	5	1/2 EBB	36	4.5	0.6532125138

LOG AVG	0.5577531241
GEO MEAN	3
MEDIAN	2

DATA DISTRIBUTION

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FC

14	19
43	1
	0

% > 43 0

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	6	1/4 EBB	34	2.0	0.3010299957
07/09/91	6	1/4 EBB	33	70.0	1.8450980400
07/24/91	6	1/2 EBB	29	49.0	1.6901960800
09/05/91	6	1/2 EBB	29	13.0	1.1139433523
01/29/92	6	2/3 EBB	27	7.8	0.8920946027
03/30/92	6	1/2 EBB	31	4.5	0.6532125138
05/11/92	6	1/2 EBB	32	7.8	0.8920946027
09/17/92	6	1/3 FLD	30	17.0	1.2304489214
11/12/92	6	1ST EBB	32	4.5	0.6532125138
06/17/93	6	1/4 EBB	34	33.0	1.5185139399
07/13/93	6	1ST FLD	31	2.0	0.3010299957
08/17/93	6	HI SLACK	35	21.0	1.3222192947
09/14/93	6	1ST EBB	34	4.5	0.6532125138
10/21/93	6	1ST FLD	34	7.8	0.8920946027
03/01/94	6	1/2 FLD	32	7.8	0.8920946027
04/07/94	6	1/4 EBB	28	11.0	1.0413926852
06/09/94	6	2/3 FLD	37	1.8	0.2552725051
07/21/94	6	1ST EBB	35	6.8	0.8325089127
08/08/94	6	2/3 FLD	35	6.1	0.7853298350
09/29/94	6	1/2 EBB	36	79.0	1.8976270913

LOG AVG	0.9831313301
GEO MEAN	9
MEDIAN	7.8

DATA DISTRIBUTION

==========

FC	
14	14
43	3
	3
% > 43	15

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	7	1/4 EBB	32	49.0	1.6901960800
07/09/91	7	1/4 EBB	31	33.0	1.5185139399
07/24/91	7	1/2 EBB	25	17.0	1.2304489214
09/05/91	7	1/2 EBB	24	11.0	1.0413926852
01/29/92	7	2/3 EBB	27	17.0	1.2304489214
03/30/92	7	1/2 EBB	30	13.0	1.1139433523
05/11/92	7	1/2 EBB	31	6.8	0.8325089127
09/17/92	7	1/3 FLD	30	7.8	0.8920946027
11/12/92	7	1ST EBB	32	2.0	0.3010299957
06/17/93	7	1/4 EBB	35	23.0	1.3617278360
07/13/93	7	1ST FLD	30	49.0	1.6901960800
08/17/93	7	HI SLACK	34	13.0	1.1139433523
09/14/93	7	1ST EBB	33	17.0	1.2304489214
10/21/93	7	1ST FLD	31	27.0	1.4313637642
03/01/94	7	1/2 FLD	27	49.0	1.6901960800
04/07/94	7	1/4 EBB	21	33.0	1.5185139399
06/09/94	7	2/3 FLD	34	33.0	1.5185139399
07/21/94	7	1ST EBB	35	4.5	0.6532125138
08/08/94	7	2/3 FLD	35	17.0	1.2304489214
09/29/94	7	1/2 EBB	34	23.0	1.3617278360

LOG AVG	1.2325435298
GEO MEAN	17
MEDIAN	17

DATA DISTRIBUTION

==========

FC	
14	7
43	10
	3
% > 43	15

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	8	1/4 EBB	34	240.0	2.3802112417
07/09/91	8	1/4 EBB	31	33.0	1.5185139399
07/24/91	8	1/2 EBB	29	23.0	1.3617278360
09/05/91	8	1/2 EBB	27	11.0	1.0413926852
01/29/92	8	2/3 EBB	24	14.0	1.1461280357
03/30/92	8	1/2 EBB	31	1.7	0.2304489214
05/11/92	8	1/2 EBB	30	11.0	1.0413926852
09/17/92	8	1/3 FLD	30	33.0	1.5185139399
11/12/92	8	1ST EBB	32	7.8	0.8920946027
06/17/93	8	1/4 EBB	34	13.0	1.1139433523
07/13/93	8	1ST FLD	31	22.0	1.3424226808
08/17/93	8	HI SLACK	34	25.0	1.3979400087
09/14/93	8	1ST EBB	34	13.0	1.1139433523
10/21/93	8	1ST FLD	33	4.5	0.6532125138
03/01/94	8	1/2 FLD	31	13.0	1.1139433523
04/07/94	8	1/4 EBB	25	23.0	1.3617278360
06/09/94	8	2/3 FLD	34	49.0	1.6901960800
07/21/94	8	1ST EBB	35	11.0	1.0413926852
08/08/94	8	2/3 FLD	34	11.0	1.0413926852
09/29/94	8	1/2 EBB	34	7.8	0.8920946027

LOG AVG	1.1946316518
GEO MEAN	15
MEDIAN	13

DATA DISTRIBUTION

==========

FC	
14	12
43	6
	2
% > 43	10

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	9	1/4 EBB	34	2.0	0.3010299957
07/09/91	9	1/4 EBB	34	1.7	0.2304489214
07/24/91	9	1/2 EBB	32	1.7	0.2304489214
09/05/91	9	1/2 EBB	30	4.5	0.6532125138
01/29/92	9	2/3 EBB	29	4.5	0.6532125138
03/30/92	9	1/2 EBB	31	4.5	0.6532125138
05/11/92	9	1/2 EBB	32	4.0	0.6020599913
09/17/92	9	1/3 FLD	30	1.7	0.2304489214
11/12/92	9	1ST EBB	32	11.0	1.0413926852
06/17/93	9	1/4 EBB	35	1.7	0.2304489214
07/13/93	9	1ST FLD	32	1.7	0.2304489214
08/17/93	9	HI SLACK	35	17.0	1.2304489214
09/14/93	9	1ST EBB	35	4.5	0.6532125138
10/21/93	9	1ST FLD	36	1.7	0.2304489214
03/01/94	9	1/2 FLD	32	4.0	0.6020599913
04/07/94	9	1/4 EBB	31	1.7	0.2304489214
06/09/94	9	2/3 FLD	37	240.0	2.3802112417
07/21/94	9	1ST EBB	35	2.0	0.3010299957
08/08/94	9	2/3 FLD	35	11.0	1.0413926852
09/29/94	9	1/2 EBB	36	4.8	0.6812412374

LOG AVG	0.6203429625
GEO MEAN	4
MEDIAN	4

DATA DISTRIBUTION

==========

FC	
14	18
43	1
	1
% > 43	5

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	10	1/4 EBB	35	1.7	0.2304489214
07/09/91	10	1/4 EBB	34	1.7	0.2304489214
07/24/91	10	3/4 EBB	33	1.7	0.2304489214
09/05/91	10	1/2 EBB	28	1.7	0.2304489214
01/29/92	10	LAST EBB	30	27.0	1.4313637642
03/30/92	10	1/2 EBB	33	2.0	0.3010299957
05/11/92	10	1/2 EBB	32	4.5	0.6532125138
09/17/92	10	1/3 FLD	30	1.7	0.2304489214
11/12/92	10	LAST FLD	32	6.8	0.8325089127
06/17/93	10	1/4 EBB	35	1.7	0.2304489214
07/13/93	10	1ST FLD	33	1.7	0.2304489214
08/17/93	10	HI SLACK	34	1.7	0.2304489214
09/14/93	10	1ST EBB	35	6.8	0.8325089127
10/21/93	10	1ST FLD	35	1.7	0.2304489214
03/01/94	10	1/2 FLD	32	49.0	1.6901960800
04/07/94	10	1/4 EBB	30	1.7	0.2304489214
06/09/94	10	2/3 FLD	36	1.7	0.2304489214
07/21/94	10	1ST EBB	36	1.7	0.2304489214
08/08/94	10	2/3 FLD	35	1.7	0.2304489214
09/29/94	10	1/2 EBB	37	4.8	0.6812412374

LOG AVG	0.4708948697
GEO MEAN	2
MEDIAN	1.7

DATA DISTRIBUTION

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FC

14	18
43	1
	1
% > 43	5

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	11	1/4 EBB	35	1.7	0.2304489214
07/09/91	11	1/4 EBB	34	1.7	0.2304489214
07/24/91	11	3/4 EBB	34	1.7	0.2304489214
09/05/91	11	1/2 EBB	28	1.7	0.2304489214
01/29/92	11	LAST EBB	30	1.7	0.2304489214
03/30/92	11	2/3 EBB	33	1.7	0.2304489214
05/11/92	11	1/2 EBB	32	1.7	0.2304489214
09/17/92	11	1/3 FLD	30	2.0	0.3010299957
11/12/92	11	LAST FLD	31	1.7	0.2304489214
06/17/93	11	1/4 EBB	35	1.7	0.2304489214
07/13/93	11	1ST FLD	33	1.7	0.2304489214
08/17/93	11	HI SLACK	35	2.0	0.3010299957
09/14/93	11	1ST EBB	35	1.7	0.2304489214
10/21/93	11	1ST FLD	36	1.7	0.2304489214
03/01/94	11	1/2 FLD	32	2.0	0.3010299957
04/07/94	11	1/4 EBB	31	1.7	0.2304489214
06/09/94	11	2/3 FLD	37	1.7	0.2304489214
07/21/94	11	1ST EBB	35	1.7	0.2304489214
08/08/94	11	2/3 FLD	36	1.7	0.2304489214
09/29/94	11	1/2 EBB	37	4.8	0.6812412374

LOG AVG	0.2635756983
GEO MEAN	1
MEDIAN	1.7

DATA DISTRIBUTION

==========

FC

14	20
43	0
	0
% > 43	0

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	12	1/4 EBB	35	1.7	0.2304489214
07/09/91	12	1/4 EBB	34	1.7	0.2304489214
07/24/91	12	3/4 EBB	33	1.7	0.2304489214
09/05/91	12	1/2 EBB	29	1.7	0.2304489214
01/29/92	12	LAST EBB	30	4.0	0.6020599913
03/30/92	12	2/3 EBB	32	1.7	0.2304489214
05/11/92	12	1/2 EBB	32	1.7	0.2304489214
09/17/92	12	1/3 FLD	30	1.7	0.2304489214
11/12/92	12	LAST FLD	31	2.0	0.3010299957
06/17/93	12	1/4 EBB	35	1.7	0.2304489214
07/13/93	12	1ST FLD	33	1.7	0.2304489214
08/17/93	12	HI SLACK	35	23.0	1.3617278360
09/14/93	12	1ST EBB	35	1.7	0.2304489214
10/21/93	12	1ST FLD	36	2.0	0.3010299957
03/01/94	12	1/2 FLD	30	1.7	0.2304489214
04/07/94	12	1/4 EBB	30	1.7	0.2304489214
06/09/94	12	2/3 FLD	36	1.7	0.2304489214
07/21/94	12	1ST EBB	35	1.7	0.2304489214
08/08/94	12	2/3 FLD	36	1.7	0.2304489214
09/29/94	12	1/2 EBB	37	4.5	0.6532125138

LOG AVG	0.3337897077
GEO MEAN	2
MEDIAN	1.7

DATA DISTRIBUTION

==========

FC	
14	19
43	1
	0
% > 43	0

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	13	1/4 EBB	36	1.7	0.2304489214
07/09/91	13	1/4 EBB	34	1.7	0.2304489214
07/24/91	13	3/4 EBB	33	2.0	0.3010299957
09/05/91	13	1/2 EBB	29	2.0	0.3010299957
01/29/92	13	LAST EBB	30	2.0	0.3010299957
03/30/92	13	2/3 EBB	33	1.7	0.2304489214
05/11/92	13	1/2 EBB	32	1.7	0.2304489214
09/17/92	13	1/3 FLD	30	6.8	0.8325089127
11/12/92	13	LAST FLD	30	2.0	0.3010299957
06/17/93	13	1/4 EBB	34	1.7	0.2304489214
07/13/93	13	1ST FLD	33	1.7	0.2304489214
08/17/93	13	HI SLACK	35	1.8	0.2552725051
09/14/93	13	1ST EBB	35	2.0	0.3010299957
10/21/93	13	1ST FLD	36	1.7	0.2304489214
03/01/94	13	1/2 FLD	29	23.0	1.3617278360
04/07/94	13	1/4 EBB	30	2.0	0.3010299957
06/09/94	13	2/3 FLD	37	1.7	0.2304489214
07/21/94	13	1ST EBB	36	1.7	0.2304489214
08/08/94	13	2/3 FLD	35	2.0	0.3010299957
09/29/94	13	1/2 EBB	37	2.0	0.3010299957

LOG AVG	0.3465894756
GEO MEAN	2
MEDIAN	1.9

DATA DISTRIBUTION

==========

FC	
14	19
43	1
	0
% > 43	0

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	14	1/4 EBB	35	1.7	0.2304489214
07/09/91	14	1/4 EBB	34	1.7	0.2304489214
07/24/91	14	3/4 EBB	33	17.0	1.2304489214
09/05/91	14	1/2 EBB	29	1.7	0.2304489214
01/29/92	14	LAST EBB	30	1.8	0.2552725051
03/30/92	14	2/3 EBB	32	1.7	0.2304489214
05/11/92	14	1/2 EBB	31	1.7	0.2304489214
09/17/92	14	1/3 FLD	30	6.8	0.8325089127
11/12/92	14	LAST FLD	31	2.0	0.3010299957
06/17/93	14	1/4 EBB	33	1.7	0.2304489214
07/13/93	14	1ST FLD	33	1.7	0.2304489214
08/17/93	14	HI SLACK	35	130.0	2.1139433523
09/14/93	14	1ST EBB	35	2.0	0.3010299957
10/21/93	14	1ST FLD	36	1.7	0.2304489214
03/01/94	14	1/2 FLD	32	2.0	0.3010299957
04/07/94	14	1/4 EBB	30	2.0	0.3010299957
06/09/94	14	2/3 FLD	37	1.8	0.2552725051
07/21/94	14	1ST EBB	35	1.7	0.2304489214
08/08/94	14	2/3 FLD	35	1.7	0.2304489214
09/29/94	14	1/2 EBB	37	4.8	0.6812412374

LOG AVG	0.4438648315
GEO MEAN	2
MEDIAN	1.75

DATA DISTRIBUTION

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FC	
14	18
43	1
	1
% > 43	5

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	15	1/4 EBB	36	1.7	0.2304489214
07/09/91	15	1/4 EBB	34	1.7	0.2304489214
07/24/91	15	3/4 EBB	33	1.7	0.2304489214
09/05/91	15	1/2 EBB	30	1.7	0.2304489214
01/29/92	15	LAST EBB	30	6.8	0.8325089127
03/30/92	15	2/3 EBB	33	1.7	0.2304489214
05/11/92	15	1/2 EBB	32	1.7	0.2304489214
09/17/92	15	1/3 FLD	30	1.7	0.2304489214
11/12/92	15	LAST FLD	31	1.7	0.2304489214
06/17/93	15	1/4 EBB	34	1.7	0.2304489214
07/13/93	15	1ST FLD	33	1.7	0.2304489214
08/17/93	15	HI SLACK	35	1.7	0.2304489214
09/14/93	15	1ST EBB	35	1.7	0.2304489214
10/21/93	15	1ST FLD	35	1.7	0.2304489214
03/01/94	15	1/2 FLD	31	33.0	1.5185139399
04/07/94	15	1/4 EBB	30	1.7	0.2304489214
06/09/94	15	2/3 FLD	37	1.7	0.2304489214
07/21/94	15	1ST EBB	35	1.7	0.2304489214
08/08/94	15	2/3 FLD	36	1.7	0.2304489214
09/29/94	15	1/2 EBB	37	4.8	0.6812412374

LOG AVG	0.3474947877
GEO MEAN	2
MEDIAN	1.7

DATA DISTRIBUTION

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FC	
14	19
43	1
	0
% > 43	0

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	16	1/4 EBB	35	1.7	0.2304489214
07/09/91	16	1/4 EBB	34	1.7	0.2304489214
07/24/91	16	3/4 EBB	33	1.7	0.2304489214
09/05/91	16	1/2 EBB	29	1.7	0.2304489214
01/29/92	16	LAST EBB	30	4.0	0.6020599913
03/30/92	16	2/3 EBB	33	1.7	0.2304489214
05/11/92	16	1/2 EBB	33	1.7	0.2304489214
09/17/92	16	1/3 FLD	30	1.7	0.2304489214
11/12/92	16	LAST FLD	31	4.5	0.6532125138
06/17/93	16	1/4 EBB	35	1.7	0.2304489214
07/13/93	16	1ST FLD	33	1.7	0.2304489214
08/17/93	16	HI SLACK	35	1.7	0.2304489214
09/14/93	16	1ST EBB	35	2.0	0.3010299957
10/21/93	16	1ST FLD	35	1.7	0.2304489214
03/01/94	16	1/2 FLD	31	7.8	0.8920946027
04/07/94	16	1/4 EBB	30	1.7	0.2304489214
06/09/94	16	2/3 FLD	37	1.7	0.2304489214
07/21/94	16	1ST EBB	35	1.7	0.2304489214
08/08/94	16	2/3 FLD	35	1.7	0.2304489214
09/29/94	16	1/2 EBB	37	4.8	0.6812412374

LOG AVG	0.3293186081
GEO MEAN	2
MEDIAN	1.7

DATA DISTRIBUTION

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FC

14	20
43	0
	0
% > 43	0

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	17	1/4 EBB	35	1.7	0.2304489214
07/09/91	17	1/4 EBB	34	1.7	0.2304489214
07/24/91	17	3/4 EBB	33	1.7	0.2304489214
09/05/91	17	1/2 EBB	29	1.7	0.2304489214
01/29/92	17	LAST EBB	30	9.3	0.9684829486
03/30/92	17	2/3 EBB	32	1.7	0.2304489214
05/11/92	17	1/2 EBB	33	1.7	0.2304489214
09/17/92	17	1/3 FLD	30	1.7	0.2304489214
11/12/92	17	LAST FLD	31	1.7	0.2304489214
06/17/93	17	1/4 EBB	35	1.7	0.2304489214
07/13/93	17	1ST FLD	33	2.0	0.3010299957
08/17/93	17	HI SLACK	35	2.0	0.3010299957
09/14/93	17	1ST EBB	35	1.7	0.2304489214
10/21/93	17	1ST FLD	36	1.7	0.2304489214
03/01/94	17	1/2 FLD	30	13.0	1.1139433523
04/07/94	17	1/4 EBB	30	1.7	0.2304489214
06/09/94	17	2/3 FLD	37	1.7	0.2304489214
07/21/94	17	1ST EBB	36	1.7	0.2304489214
08/08/94	17	2/3 FLD	36	1.7	0.2304489214
09/29/94	17	1/2 EBB	36	4.8	0.6812412374

LOG AVG	0.3411230675
GEO MEAN	2
MEDIAN	1.7

DATA DISTRIBUTION

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FC

14	20
43	0
	0
% > 43	0

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	18	1/4 EBB	34	1.7	0.2304489214
07/09/91	18	1/4 EBB	34	2.0	0.3010299957
07/24/91	18	1/2 EBB	32	1.7	0.2304489214
09/05/91	18	1/2 EBB	30	1.7	0.2304489214
01/29/92	18	2/3 EBB	29	79.0	1.8976270913
03/30/92	18	1/2 EBB	30	1.8	0.2552725051
05/11/92	18	1/2 EBB	33	4.5	0.6532125138
09/17/92	18	1/3 FLD	30	1.7	0.2304489214
11/12/92	18	1ST EBB	32	1.7	0.2304489214
06/17/93	18	1/4 EBB	35	1.8	0.2552725051
07/13/93	18	1ST FLD	33	1.7	0.2304489214
08/17/93	18	HI SLACK	35	2.0	0.3010299957
09/14/93	18	1ST EBB	35	1.7	0.2304489214
10/21/93	18	1ST FLD	35	1700.0	3.2304489214
03/01/94	18	1/2 FLD	33	1.7	0.2304489214
04/07/94	18	1/4 EBB	30	2.0	0.3010299957
06/09/94	18	2/3 FLD	37	2.0	0.3010299957
07/21/94	18	1ST EBB	35	1.7	0.2304489214
08/08/94	18	2/3 FLD	35	13.0	1.1139433523
09/29/94	18	1/2 EBB	37	4.8	0.6812412374

LOG AVG	0.5682589201
GEO MEAN	3
MEDIAN	1.8

DATA DISTRIBUTION

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FC	
14	18
43	0
	2
% > 43	10

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	19	1/4 EBB	34	1.7	0.2304489214
07/09/91	19	1/4 EBB	34	2.0	0.3010299957
07/24/91	19	1/2 EBB	32	1.7	0.2304489214
09/05/91	19	1/2 EBB	29	4.5	0.6532125138
01/29/92	19	2/3 EBB	29	17.0	1.2304489214
03/30/92	19	1/2 EBB	31	4.5	0.6532125138
05/11/92	19	1/2 EBB	33	1.7	0.2304489214
09/17/92	19	1/3 FLD	31	6.8	0.8325089127
11/12/92	19	LAST FLD	32	9.3	0.9684829486
06/17/93	19	1/4 EBB	35	4.5	0.6532125138
07/13/93	19	1ST FLD	33	1.7	0.2304489214
08/17/93	19	HI SLACK	35	4.5	0.6532125138
09/14/93	19	1ST EBB	35	2.0	0.3010299957
10/21/93	19	1ST FLD	36	23.0	1.3617278360
03/01/94	19	1/2 FLD	32	13.0	1.1139433523
04/07/94	19	1/4 EBB	30	1.7	0.2304489214
06/09/94	19	2/3 FLD	37	1.7	0.2304489214
07/21/94	19	1ST EBB	35	2.0	0.3010299957
08/08/94	19	2/3 FLD	35	1.7	0.2304489214
09/29/94	19	1/2 EBB	36	4.8	0.6812412374

LOG AVG	0.565871785
GEO MEAN	3
MEDIAN	3.25

DATA DISTRIBUTION

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FC	
14	18
43	2
	0
% > 43	0

DATE	STATION	TIDE	SALINITY	FC	LOG FC
05/13/91	20	1/4 EBB	34	1.7	0.2304489214
07/09/91	20	1/4 EBB	33	1.7	0.2304489214
07/24/91	20	1/2 EBB	32	1.7	0.2304489214
09/05/91	20	1/2 EBB	28	2.0	0.3010299957
01/29/92	20	3/4 EBB	29	240.0	2.3802112417
03/30/92	20	1/2 EBB	30	1.7	0.2304489214
05/11/92	20	1/2 EBB	33	2.0	0.3010299957
09/17/92	20	1/3 FLD	30	33.0	1.5185139399
11/12/92	20	LAST FLD	33	7.8	0.8920946027
06/17/93	20	1/4 EBB	35	1.7	0.2304489214
07/13/93	20	1ST FLD	33	1.7	0.2304489214
08/17/93	20	HI SLACK	35	1.7	0.2304489214
09/14/93	20	1ST EBB	35	6.8	0.8325089127
10/21/93	20	1ST FLD	35	4.5	0.6532125138
03/01/94	20	1/2 FLD	32	2.0	0.3010299957
04/07/94	20	1/4 EBB	30	2.0	0.3010299957
06/09/94	20	2/3 FLD	36	1.8	0.2552725051
07/21/94	20	1ST EBB	35	4.5	0.6532125138
08/08/94	20	2/3 FLD	35	1.7	0.2304489214
09/29/94	20	1/2 EBB	37	4.8	0.6812412374

LOG AVG	0.545698941
GEO MEAN	3
MEDIAN	2

DATA DISTRIBUTION

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FC	
14	18
43	1
	1
% > 43	5

AREA E–1 – BROAD CREEK AREA – FECAL COLIFORM MPN/100ML

STATION #	05/13/91	07/09/91	07/24/91	09/05/91	01/29/92	03/30/92	05/11/92	09/17/92	11/12/92	06/17/93	07/13/93
1	1.8	4.5	33.0	22.0	23.0	11.0	33.0	11.0	4.5	1.7	4.5
2	2.0	1.7	1.7	23.0	13.0	1.7	2.0	9.3	23.0	1.7	1.7
3	1.7	1.7	2.0	2.0	7.8	2.0	1.7	79.0	7.8	2.0	1.7
4	4.5	2.0	4.5	2.0	4.0	1.7	17.0	17.0	13.0	4.0	1.7
5	1.7	1.7	13.0	13.0	22.0	1.7	6.8	2.0	1.8	1.7	2.0
6	2.0	70.0	49.0	13.0	7.8	4.5	7.8	17.0	4.5	33.0	2.0
7	49.0	33.0	17.0	11.0	17.0	13.0	6.8	7.8	2.0	23.0	49.0
8	240.0	33.0	23.0	11.0	14.0	1.7	11.0	33.0	7.8	13.0	22.0
9	2.0	1.7	1.7	4.5	4.5	4.5	4.0	1.7	11.0	1.7	1.7
10	1.7	1.7	1.7	1.7	27.0	2.0	4.5	1.7	6.8	1.7	1.7
11	1.7	1.7	1.7	1.7	1.7	1.7	1.7	2.0	1.7	1.7	1.7
12	1.7	1.7	1.7	1.7	4.0	1.7	1.7	1.7	2.0	1.7	1.7
13	1.7	1.7	2.0	2.0	2.0	1.7	1.7	6.8	2.0	1.7	1.7
14	1.7	1.7	17.0	1.7	1.8	1.7	1.7	6.8	2.0	1.7	1.7
15	1.7	1.7	1.7	1.7	6.8	1.7	1.7	1.7	1.7	1.7	1.7
16	1.7	1.7	1.7	1.7	4.0	1.7	1.7	1.7	4.5	1.7	1.7
17	1.7	1.7	1.7	1.7	9.3	1.7	1.7	1.7	1.7	1.7	2.0
18	1.7	2.0	1.7	1.7	79.0	1.8	4.5	1.7	1.7	1.8	1.7
19	1.7	2.0	1.7	4.5	17.0	4.5	1.7	6.8	9.3	4.5	1.7
20	1.7	1.7	1.7	2.0	240.0	1.7	2.0	33.0	7.8	1.7	1.7

EXHIBIT IV

AREA E-1 – BROAD CREEK AREA – FECAL COLIFORM MPN/100ML

STATION #	08/17/93	09/14/93	10/21/93	03/01/94	04/07/94	06/09/94	07/21/94	08/08/94	09/29/94	MEDIAN	% > 43
1	1.7	6.8	2.0	4.5	33.0	1.7	2.0	1.7	49.0	4.5	5
2	1.7	2.0	1.7	2.0	33.0	1.7	2.0	1.7	4.0	2	0
3	4.5	130.0	2.0	7.8	1.7	2.0	1.7	2.0	4.8	2	10
4	11.0	13.0	17.0	2.0	4.5	2.0	2.0	2.0	4.8	4.25	0
5	1.8	1.8	11.0	2.0	13.0	1.7	7.8	1.7	4.5	2	0
6	21.0	4.5	7.8	7.8	11.0	1.8	6.8	6.1	79.0	7.8	15
7	13.0	17.0	27.0	49.0	33.0	33.0	4.5	17.0	23.0	17	15
8	25.0	13.0	4.5	13.0	23.0	49.0	11.0	11.0	7.8	13	10
9	17.0	4.5	1.7	4.0	1.7	240.0	2.0	11.0	4.8	4	5
10	1.7	6.8	1.7	49.0	1.7	1.7	1.7	1.7	4.8	1.7	5
11	2.0	1.7	1.7	2.0	1.7	1.7	1.7	1.7	4.8	1.7	0
12	23.0	1.7	2.0	1.7	1.7	1.7	1.7	1.7	4.5	1.7	0
13	1.8	2.0	1.7	23.0	2.0	1.7	1.7	2.0	2.0	1.9	0
14	130.0	2.0	1.7	2.0	2.0	1.8	1.7	1.7	4.8	1.75	5
15	1.7	1.7	1.7	33.0	1.7	1.7	1.7	1.7	4.8	1.7	0
16	1.7	2.0	1.7	7.8	1.7	1.7	1.7	1.7	4.8	1.7	0
17	2.0	1.7	1.7	13.0	1.7	1.7	1.7	1.7	4.8	1.7	0
18	2.0	1.7	1700.0	1.7	2.0	2.0	1.7	13.0	4.8	1.8	10
19	4.5	2.0	23.0	13.0	1.7	1.7	2.0	1.7	4.8	3.25	0
20	1.7	6.8	4.5	2.0	2.0	1.8	4.5	1.7	4.8	2	5

EXHIBIT V

SUMMARY OF BACTERIOLOGICAL DATA ANALYSIS
AREA E-1 – BROAD CREEK AREA

STATION #	N	GEO MEAN	MEDIAN	% > 43	MIN	MAX
1	20	6	4.5	5	1.7	49
2	20	3	2	0	1.7	33
3	20	3	2	10	1.7	130
4	20	4	4.25	0	1.7	17
5	20	3	2	0	1.7	22
6	20	9	7.8	15	1.8	79
7	20	17	17	15	2	49
8	20	15	13	10	1.7	240
9	20	4	4	5	1.7	240
10	20	2	1.7	5	1.7	49
11	20	1	1.7	0	1.7	4.8
12	20	2	1.7	0	1.7	23
13	20	2	1.9	0	1.7	23
14	20	2	1.75	5	1.7	130
15	20	2	1.7	0	1.7	33
16	20	2	1.7	0	1.7	7.8
17	20	2	1.7	0	1.7	13
18	20	3	1.8	10	1.7	1700
19	20	3	3.25	0	1.7	23
20	20	3	2	5	1.7	240

STATION CLOSED TO SHELLFISH HARVESTING

EXHIBIT VI

BROAD CREEK AREA
RAINFALL 1991

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1								0.40				
2								0.32				
3			2.30			0.02		0.60		0.80		0.40
4	0.07											0.40
5	0.02						0.90			0.62		
6					0.04			0.94		2.45		
7		0.70						0.28	0.54	0.44		
8	2.10	0.04						0.05				
9	0.16		0.10					0.28			1.00	
10											0.03	0.03
11	0.10						0.30					
12	0.80							0.42				
13								0.36				
14			0.78				1.03					
15		0.17	0.02	0.01			0.04	0.39				
16	1.05	0.02						0.07				
17	0.08					0.75	0.46			2.48		
18						0.02		0.64	0.02			
19			0.19		0.82	0.17		0.04				
20	1.75			1.60	0.17	1.19		0.25				
21	0.03	0.12		0.06	0.84	0.50		0.04	0.03			
22		0.04				0.52	1.10					
23						0.04		0.17			0.80	
24		0.23				0.48		0.20	0.62			
25		0.20						0.42	0.72			
26								0.94	1.05			
27							2.24	0.15				0.90
28				1.32		0.03	0.98		0.03			
29	1.30				0.15							1.75
30	0.32		1.74	0.90								0.03
31	0.32						1.12					
TOTAL	8.10	1.52	5.13	3.89	2.02	3.72	8.17	6.96	3.01	6.79	1.83	3.51

123\RAINFALL\BROADCRK.91

BROAD CREEK AREA
RAINFALL 1992

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						0.06						
2												
3	4.30										0.38	
4	0.50				0.28			0.18	0.18	4.84		
5	0.05					0.60				0.02		
6	0.02			0.74			0.50	1.23			0.42	0.02
7					0.22			0.10				0.27
8			1.55	0.06	0.44				0.01	0.01	0.24	
9					0.05					3.30		
10						1.70		2.06		0.01		1.04
11										0.04		
12												
13	0.59					0.26		0.12			1.12	
14	0.36							0.60				
15		0.50						0.37				
16			0.50						1.15	0.04		
17						0.06		3.22	0.01			0.09
18		0.36						1.25				
19		0.46	0.60									
20	0.05						0.40	0.82	0.42			0.05
21			0.59	0.50		0.50		0.60	0.02			
22				1.50	0.03	1.00	0.24		0.32			0.12
23			0.40				0.70					
24	0.82	0.56										
25		0.03		0.46					0.02		1.00	
26		0.34	1.00	0.04			0.50		0.02		1.14	
27		0.05									0.44	
28	0.84								1.46			
29												
30												1.06
31	0.15				3.00							0.20
TOTAL	7.68	2.30	4.64	3.30	3.30	4.18	2.34	10.55	3.61	8.26	4.74	2.85

123\RAINFALL\BROADCRK.92

BOGUE SOUND
RAINFALL 1993

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				0.05		0.30						
2						0.24						
3												
4					0.02	0.30	0.08	0.18				
5			2.15	0.04					0.90			0.26
6		0.25		1.24					0.58		0.72	
7				0.52				0.42				
8		1.15						0.07	0.15	1.35		
9	0.70	0.22						0.20		0.21		
10	0.07			0.42				0.16	0.15		0.48	
11		0.10						0.98				
12	0.07	0.40										
13	0.80	0.22										
14			1.45		0.08	0.32		0.28				
15					0.45	0.15						
16	0.18	0.18					1.25			2.25		0.58
17	0.78			0.32			0.15		0.40			
18			1.00						0.30			
19							0.10	1.40	1.85			0.30
20					0.12		0.42					
21		0.80					0.60					
22	0.66				0.32			0.11	0.15	0.10		
23												0.40
24			0.50				0.15					
25												0.38
26	0.04	0.13				0.15	0.94					
27		0.50	1.72	0.13	0.28	0.05				3.62	0.05	
28						0.04			0.20		1.40	
29												
30										0.10		0.10
31										0.80		
TOTAL	3.30	3.95	6.82	2.72	1.27	1.55	3.69	3.80	4.68	8.43	2.65	2.02

123\RAINFALL\BOGUE-SD.93

BOGUE SOUND
RAINFALL 1994

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1						0.28	0.48	0.10			0.18	
2			1.00						0.56			
3			2.30			0.66	0.32		0.18	0.30		
4					1.60					0.20		
5					0.06		0.18					
6		0.05						0.32				0.40
7	0.32											
8	0.68					0.14						
9					0.50							
10			0.54									
11		0.50										0.60
12		0.28				0.45	0.75					
13	0.95			0.32			0.13					
14	0.55							0.10		2.60		0.05
15										0.44		0.40
16							0.05	1.50				
17								0.36				
18	0.95							0.32			1.25	0.65
19			0.05					0.10	2.80		0.15	
20								1.25				
21								1.50		0.30		1.53
22			0.10		0.25		0.55	0.47	0.82		0.26	1.53
23										0.30		1.54
24		0.68					1.20					
25												
26						0.25				0.30		
27												
28					1.45						0.80	
29	0.76		1.24								0.30	
30	0.82					0.13	1.25				0.60	
31	0.98		0.15									
TOTAL	6.01	1.51	5.38	0.32	3.86	1.91	4.91	6.02	4.36	4.44	3.54	6.70

TEMPORARY CLOSURES
AREA E-1

CLOSED	REOPENED	AREA
7/30/91	8/09/91	ICWW
8/26/91	8/30/91	ALL
9/25/91	10/01/91	ICWW
10/06/91	10/09/91	ICWW
10/18/91	10/23/91	ICWW
12/29/91		ICWW
1/03/92		ALL
	1/13/92	ALL (except ICWW)
	1/23/92	ICWW
5/31/92	6/10/92	ICWW
8/10/92		ICWW
8/15/92		ALL
	8/23/92	ALL (except ICWW)
	8/25/92	ICWW
10/05/92	10/08/92	ICWW
11/28/92	12/02/92	ICWW
1/08/93		ICWW
1/12/93		ALL
	1/21/93	ALL (except ICWW)
	1/28/93	ICWW
2/09/93	2/20/93	ICWW
3/04/93	3/10/93	ICWW
3/15/93	3/18/93	ALL
4/06/93	4/11/93	ICWW
9/17/93	9/23/93	ICWW
10/28/93	11/03/93	ALL
11/30/93	12/04/93	ICWW
3/02/94		ALL
	3/08/94	ALL (except ICWW)
	3/10/94	ICWW

ICWW = From Intracoastal Waterway to the mainland in Bogue Sound
ALL = All of Bogue Sound

EXHIBIT VIII

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Marine Fisheries

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
Robert J. Jamieson, Interim Director

DEHNR

PA-13-95

PROCLAMATION

RE: SHELLFISH POLLUTED AREA

Robert J. Jamieson, Interim Director, Division of Marine Fisheries, upon the recommendation of Dr. Ronald H. Levine, State Health Director, hereby announces that the following changes in shellfish harvesting areas will **take effect immediately:**

Due to deterioration of water quality in the Broad Creek area of Bogue Sound, the closure lines have been extended as indicated below.

No person shall take or attempt to take any oysters, clams or mussels or possess, sell or offer for sale any oysters, clams or mussels taken from the following polluted area:

CARTERET COUNTY

All those waters in Broad Creek, upstream of a straight line beginning at a point on the east shore at 34° 43′ 02" N - 76° 56′ 04" W; thence to the west shore at 34° 42′ 58" N - 76° 56′ 23" W. **(CLOSES AN ADDITIONAL 15 ACRES).**

NOTES:

(a) This proclamation is issued under the authority of G.S. 113-182; 113-221(e); 143B-289.4 and N.C. Marine Fisheries Rules 15A NCAC 3H .0003 and 3K .0101.

(b) It is unlawful to violate the provisions of any proclamation issued by the Fisheries Director under his delegated authority per 15A NCAC 3H .0003 (b).

(c) This **closure** extends the present closure line in the Broad Creek area.

(d) This action amends NC Marine Fisheries Proclamation PA-1-88 (20) (c).

BY: Robert J. Jamieson
ROBERT J. JAMIESON, INTERIM DIRECTOR
NC DIVISION OF MARINE FISHERIES

February 8, 1995
12:00 NOON
PA-13-95
/sh

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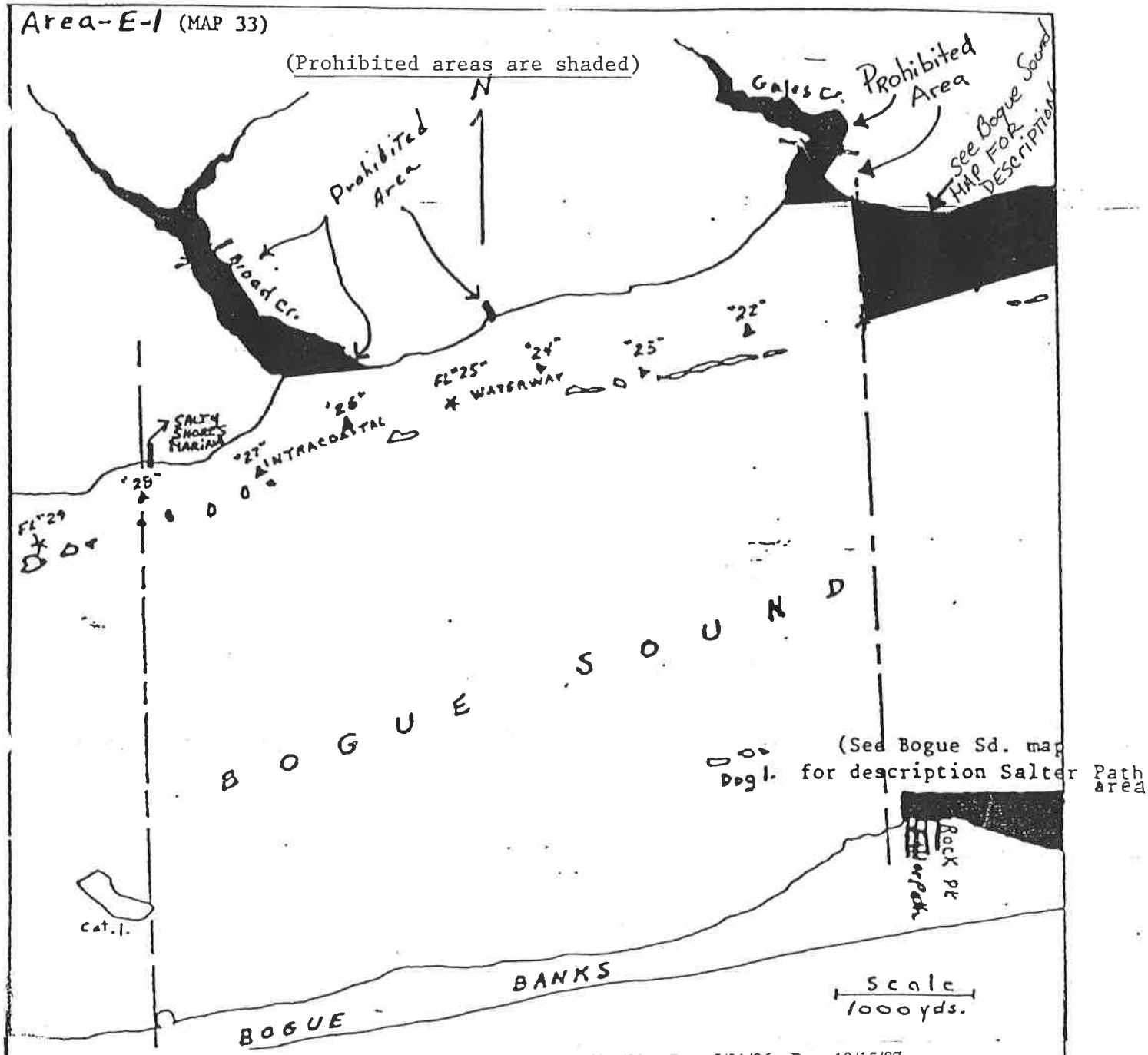

Rev. 2/6/80 ghg Rev. 2/8/82 Tech. Rev. 6/23/83, Rev. 5/21/86 Rev. 10/15/87
Rev. 7/3/89 Rev. 2/8/95
From U.S.C. & G.S. #833

No person shall take or attempt to take any oysters or clams or possess, sell, or offer for sale any oysters or clams taken from the following areas at any time:

Broad Creek Area:
All those waters in Broad Creek, upstream of a straight line beginning at a point on the east shore at 34° 43' 02" N - 76° 56' 04" W; thence to the west shore at 34° 42' 58" N - 76° 56' 23" W.

All waters within the harbor at Roger Jones Fish Company.

Salty Shores Marina:
All those waters within Salty Shores Marina and extending beyond the dockage facilities 200 feet.

Gales Creek:
All those waters in Gales Creek, upstream of a straight line from a point on the east shore at 34° 43' 34" N -76° 53' 57" W, to a point on the west shore at 34° 43' 35" N - 76° 54' 11" W.