

**AR-130****Average Depth: 57'****Buoy Location in GPS ddm: 36° 00.192' / 075° 31.800'****LORAN Coordinates: 26979.1 / 40726.0****General Location: 004° M, 12.5 nm from the Oregon Inlet sea buoy**

<b>Material</b>	<b>Deployment Date(s)</b>	<b>GPS (Decimal Minutes)</b>
<b>Railroad boxcars: 10</b>	<b>23-Nov-86 12-Dec-86</b>	<b>36° 00.243' / 075° 31.872' 36° 00.184' / 075° 31.883'</b>
<b>Reef Balls®: 300</b>	<b>28-Nov-00</b>	<b>36° 00.179' / 075° 31.840'</b>
		<b>36° 00.180' / 075° 31.805'</b>
		<b>36° 00.182' / 075° 31.880'</b>
		<b>36° 00.139' / 075° 31.813'</b>
		<b>36° 00.210' / 075° 31.881'</b>
		<b>36° 00.210' / 075° 31.861'</b>
		<b>36° 00.120' / 075° 31.827'</b>
<b>Concrete pipe: 265 tons, 227 Pieces of 18" &amp; 30" by 8'</b>	<b>30-Sept-02 08-Nov-02</b>	<b>36° 00.176' / 075° 31.876' to 36° 00.145' / 075° 31.876'</b>
<b>Bridge piling cutoffs</b>	<b>1-Dec-99</b>	<b>36° 00.217' / 075° 31.867'</b>

**AR-140****Average Depth: 57'****Buoy Location in GPS ddm: 35° 56.741' / 075° 31.781'****LORAN Coordinates: 26975.0 / 40690.0****General Location: 001° M, 8.9 nm from the Oregon Inlet sea buoy**

<b>Material</b>	<b>Deployment Date(s)</b>	<b>GPS (Decimal Minutes)</b>
<b>Railroad boxcars: 10</b>	<b>23-Nov-86</b>	<b>35° 56.741' / 075° 31.880' 35° 56.751' / 075° 31.887'</b>
<b>130' barge</b>	<b>13-Jun-89</b>	<b>35° 56.745' / 075° 31.887'</b>
<b>130' barge</b>	<b>15-Jun-89</b>	<b>35° 56.677' / 075° 31.922'</b>
<b>Concrete pipe: 1000 tons</b>	<b>14-Nov-98</b>	<b>35° 56.750' / 075° 31.750' 35° 56.767' / 075° 31.750' 35° 56.783' / 075° 31.733' 35° 56.767' / 075° 31.717'</b>
<b>Concrete pipe: 1000 tons</b>	<b>23-Nov-98</b>	<b>35° 56.933' / 075° 31.600' 35° 56.883' / 075° 31.800' 35° 56.917' / 075° 31.767' 35° 56.917' / 075° 31.750'</b>

## AR-145

Average Depth: 65'

Buoy Location in GPS ddm: 35° 54.017' / 075° 23.883'

LORAN Coordinates: 26941.4 / 40685.7

General Location: 049° M, 8.1 nm from the Oregon Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
115' Landing Craft (LCU 1468)	12-Jan-87	35° 54.067' / 075° 23.933'
Rubble from Washington Baum Bridge	1991	35° 53.967' / 075° 23.933' 35° 53.883' / 075° 23.950' 35° 53.950' / 075° 23.983'
185' vessel "ADVANCE II"	Jun-94	35° 54.000' / 075° 23.867'
Concrete pipe: small load	17-Nov-98	35° 54.100' / 075° 23.867' to 35° 54.067' / 075° 23.817'
Concrete pipe: large load	29-Nov-98	35° 53.983' / 075° 23.967'
Aircraft: USCG HU-25 Falcon 2101	04-May-05	35° 53.946' / 075° 23.783'
Aircraft: USCG HU-25 Falcon 2111	08-Jun-06	35° 53.918' / 075° 23.778'

# OREGON INLET REEF

AR-160

Average Depth: 66'

Buoy Location in GPS ddm: 35° 43.888' / 075° 26.771'

LORAN Coordinates: 26940.7 / 40574.1

General Location: 150° M, 4.0 nm from the Oregon Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
441' Liberty Ship "ZANE GREY"	12-Dec-74	Bow 35° 43.837' / 075° 26.776' Stern 35° 43.769' / 075° 26.776'
83' wooden trawler "IRVING H."	Mid 1970's	35° 43.790' / 075° 26.746'
441' US Navy Repair Ship "DIONYSUS"	30-Nov-78	35° 44.055' / 075° 26.733'
"DIONYSUS" Northern section		35° 44.040' / 075° 26.756'
"DIONISUS" Southern section		35° 44.020' / 075° 26.750'
Concrete "Waffle-Crete"® units: 8	1997	35° 43.910' / 075° 26.851' 35° 43.873' / 075° 26.860'
Concrete piling cutoffs: 107 tons; 60 pieces, piling tops	08-Dec-99	35° 43.933' / 075° 26.900'
Reef Balls®: 43	08-Dec-99	35° 43.883' / 075° 26.833'
Reef Balls®: 26	15-Aug-00	35° 43.867' / 075° 26.817'
Concrete piling cutoffs: 115	16-Aug-00	35° 43.917' / 075° 26.883'
Concrete pipe: 271 tons; 122 pieces 36" by 8'	13 & 23- Sept-02	35° 43.865' / 075° 26.764'
Concrete "Waffle-Crete"® units: 8	19-Jun-05	35° 43.910' / 075° 26.851' to 35° 43.873' / 075° 26.860'

**AR-220****Average Depth: 64'****Buoy Location in GPS ddm: 35° 08.117' / 075° 40.633'****LORAN Coordinates: 26951.0 / 40182.0****General Location: 111° M, 4.9 nm from the Hatteras Inlet sea buoy**

<b>Material</b>	<b>Deployment Date(s)</b>	<b>GPS (Decimal Minutes)</b>
<b>Railroad boxcars: 9</b>	<b>12-Dec-86</b>	<b>35° 08.150' / 075° 40.803' 35° 08.102' / 075° 40.696' 35° 08.093' / 075° 40.755' 35° 08.105' / 075° 40.752'</b>
<b>Concrete items: 5 (75 tons)</b>	<b>15-Dec-86</b>	<b>35° 08.111' / 075° 40.822'</b>
<b>Miscellaneous concrete items</b>	<b>1993</b>	<b>35° 08.067' / 075° 40.633'</b>
<b>Reef Balls®: 200 (large area)</b>	<b>Jan-01</b>	<b>35° 08.110' / 075° 40.574' 35° 08.099' / 075° 40.550' 35° 08.066' / 075° 40.540' 35° 08.055' / 075° 40.613' 35° 08.055' / 075° 40.540'</b>

## AR-225

Average Depth: 69'

Buoy Location in GPS ddm: 35° 06.750' / 075° 39.233'

LORAN Coordinates: 26945.0 / 40175.0

General Location: 120° M, 6.2 nm from the Hatteras Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 8	12-Dec-86	35° 06.868' / 075° 39.541' 35° 06.868' / 075° 39.556' 35° 06.788' / 075° 39.343'
Miscellaneous concrete items: 7 105 tons	15-Dec-86	35° 06.773' / 075° 39.250' 35° 06.716' / 075° 39.321' 35° 06.673' / 075° 39.360'

# MR. J.C. REEF

AR-230

Average Depth: 72'

Buoy Location in GPS ddm: 35° 06.133' / 075° 42.933'

LORAN Coordinates: 26957.0 / 40155.0

General Location: 167° M, 3.5 nm from the Hatteras Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
105' tug "MR. J.C."	15-Sep-87	35° 06.121' / 075° 42.951'
130' yard freighter	1991	35° 06.183' / 075° 42.967'
75' landing craft	1991	35° 06.208' / 075° 42.950'

**AR-250****Average Depth: 83'****Buoy Location in GPS ddm: 34° 56.900' / 075° 54.867'****LORAN Coordinates: 26987.3 / 40024.0****General Location: 156° M, 5.1 nm from the Ocracoke Inlet sea buoy**

<b>Material</b>	<b>Deployment Date(s)</b>	<b>GPS (Decimal Minutes)</b>
<b>Railroad boxcars: 10</b>	<b>14-Nov-86</b>	<b>34° 56.679' / 075° 55.104'</b>
<b>Concrete rubble: 500 tons</b>	<b>1990 - 1992</b>	<b>34° 56.917' / 075° 54.767'</b>
		<b>34° 56.967' / 075° 54.783'</b>
		<b>34° 56.917' / 075° 54.817'</b>
		<b>34° 56.933' / 075° 54.833'</b>
		<b>34° 56.983' / 075° 54.833'</b>
		<b>34° 56.983' / 075° 54.817'</b>
<b>Old Fairfield Bridge truss span, 220'</b>	<b>steel 03-May-01</b>	<b>34° 56.787' / 075° 54.811' - SW end</b>
		<b>34° 56.794' / 075° 54.804' - NE end</b>
<b>Concrete box sections: tons; 188 pieces Laid in a rectangular pattern running NE to SW</b>	<b>450 07&amp;09-Nov-05 and 07-Feb-06</b>	<b>34° 56.929' / 075° 54.985' - NE corner 34° 56.907' / 075° 54.985' - SE corner 34° 56.899' / 075° 54.018' - Site Center 34° 56.876' / 075° 54.061' - NW corner 34° 56.874' / 075° 54.043' - SW corner</b>

# AR-255

**Average Depth: 84'**

**Buoy Location in GPS ddm: 34° 55.483' / 075° 57.917'**

**LORAN Coordinates: 26995.9 / 39998.0**

**General Location: 184° M, 6.1 nm from the Ocracoke Inlet sea buoy**

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 10	14-Nov & 15-Dec 1986	34° 55.533' / 075° 57.867' 34° 55.467' / 075° 57.950'
Concrete pipe		34° 55.483' / 075° 57.953'
High Profile units: 10 steel pyramids	1-Dec-95	34° 55.500' / 075° 57.900'
Concrete rubble: 80 tons	15-Jun-95	34° 55.533' / 075° 57.950' to 34° 55.517' / 075° 57.867'
Old Hobucken Bridge steel truss span, 150'	1998	34° 55.517' / 075° 57.867' to 34° 55.467' / 075° 57.950'

# BILLY SMITH REEF

AR-275

Average Depth: 55'

Buoy Location in GPS ddm: 34° 50.093' / 076° 16.880'

LORAN Coordinates: 27052.0 / 39870.2

General Location: 140° M, 2.0 nm from the north end of Drum Inlet

**Warning: Drum Inlet is not a maintained inlet. Please exercise caution when using this inlet.**

Material	Deployment Date(s)	GPS (Decimal Minutes)
Concrete pipe: 740 pieces 48" by 8'	1991, 1993	34° 50.067' / 076° 17.017' to 34° 50.033' / 076° 17.017' and 34° 50.100' / 075° 16.983'
65' crew boat "MISS CLARA"	21-Jul-92	34° 50.150' / 076° 16.850'
130' menhaden vessel "GULF COAST"	17-Jun-95	34° 50.117' / 076° 16.617'
Reef Balls®: 100 in one tight group	29-Feb-00	34° 50.083' / 076° 17.033' to 34° 50.133' / 076° 17.066'
5 birdhouse stands, 1/2 "H" unit, 5 inshore sinkers, 10 "H" unit molds	05-Jan-05	34° 50.100' / 076° 16.800'
APAC concrete mixing drum	05-Jan-05	34° 50.085' / 076° 16.801'
Concrete pipe: 179 tons	12-Jun-07	34° 50.127' / 076° 16.729' to 34°50.148' / 076° 16.739'

# GEORGE SUMMERLIN REEF

AR-285

Average Depth: 65'

Buoy Location in GPS ddm: 34° 33.383' / 076° 26.350'

LORAN Coordinates: 27062.2 / 39682.7

General Location:

013° M, 4.4 nm from Cape Lookout Shoal buoy R"2"

Material	Deployment Date(s)	GPS (Decimal Minutes)
130' steel hull fishing vessel "NANCY LEE"	31-Jan-89	34° 33.533' / 076° 26.200' to 34° 33.376' / 076° 26.200'
Concrete pipe: 605 pieces, 60" by 8'	1991	34° 33.567' / 076° 26.250'
Concrete pipe: 50 large pieces	Oct-93	34° 33.467' / 076° 26.300' and 34° 33.500' / 076° 26.283'
High Profile units: 10	1-Nov-95	34° 33.350' / 076° 26.333'
Reef Balls®: 100	06-Mar-00	34° 33.383' / 076° 26.383' to 34° 33.350' / 076° 26.400'
Manhole sections and risers: 80 pieces	7-Jun-07	34° 33.378' / 076° 26.204'

# HARDEE'S REEF

AR-300

Average Depth: 90'

Buoy Location: NO BUOY MAINTAINED

General Location: 149° M, 21.8 nm from the Beaufort Inlet sea buoy,  
500 yards north of buoy R"14"

Material	Deployment Date(s)	GPS (Decimal Minutes)
174' US Navy Yard Oiler FS-26	29-Jan-89	34° 18.517' / 076° 24.133' to 34° 18.543' / 076° 24.125'
Concrete pipe: 1000 pieces 48" by 8'	May-91	34° 18.617' / 076° 24.133'
		34° 18.567' / 076° 24.533'
		34° 18.467' / 076° 24.567'
		34° 18.533' / 076° 24.550'
		34° 18.417' / 076° 24.600'
		34° 18.600' / 076° 24.550' to 34° 18.167' / 076° 24.550'
Concrete pipe: 500 pieces 48" by 8'	15-Sep-93	34° 18.517' / 076° 24.300'
		34° 18.633' / 076° 24.150'

# YANCEY

AR-302

Average Depth: 160'

Buoy Location: NO BUOY MAINTAINED

LORAN Coordinates: 26998.8 / 39567.3 (south end) and 26998.7 / 39568.0 (north end)

General Location: 145° M, 32.0 nm from the Beaufort Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
459' Assault Transport Ship "YANCEY" Southern end	01-Aug-90	34° 10.265' / 076° 13.703'
Concrete pipe: 330 pieces 48" by 8'	17-May-91	34° 10.267' / 076° 13.767' to 34° 10.283' / 076° 13.783' and 34° 10.283' / 076° 13.800'
Concrete pipe: 500 pieces 800 tons	Oct-93	34° 10.267' / 076° 13.750' to 34° 10.233' / 076° 13.733' and 34° 10.200' / 076° 13.733'

# CARTERET COUNTY SPORTFISHING ASSOCIATION REEF

AR-305

Average Depth: 104'

Buoy Location: NO BUOY MAINTAINED

LORAN Coordinates: 27081.4 / 39489.7

General Location: 182° M, 18.5 nm from the Beaufort Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
439' US Navy Cable Layer "AEOLUS"	29-Jul-88	Bow 34° 16.700' / 076° 38.592' Stern 34° 16.683' / 076° 38.650'
183' USCG Buoy Tender "SPAR"	10-Jun-04	Bow 34° 16.663' / 076° 38.685' Stern 34° 16.627' / 076° 38.663'

**ATLANTIC BEACH REEF**

AR-315

Average Depth: 49'

Buoy Location in GPS ddm: 34° 40.333' / 076° 44.667'

LORAN Coordinates: 27128.0 / 39660.8

General Location: 260° M, 3.5 nm from Beaufort Inlet at the Fort Macon jetty

Material	Deployment Date(s)	GPS (Decimal Minutes)
440' Liberty Ship "THEODORE PARKER"	04-Jun-74	34° 40.350' / 076° 44.717' to 34° 40.350' / 076° 44.767'
Tires: 177,168	1974-1984	Throughout area N of Liberty Ship
Steel-hull sportfishing vessel "FINEST KIND"	02-Aug-77	34° 40.200' / 076° 44.703'
Atlantic Beach Bridge rubble	1989	34° 39.967' / 076° 45.050' and 34° 39.983' / 076° 45.033'
60' lash barge "#1" with 450 tons of concrete rubble	09-Jun-89	34° 40.233' / 076° 44.600'
60' lash barge "#2"	09-Jun-89	34° 40.400' / 076° 44.483'
Atlantic Beach Bridge steel framing	11-Jun-89	34° 40.350' / 076° 44.583' 34° 40.383' / 076° 44.583'
Aircraft: F-4	25-Mar-92	34° 40.350' / 076° 44.650'
Aircraft: F-4	25-Mar-92	34° 40.352' / 076° 44.636'
Aircraft: A-4E (2)	30-Mar-92	34° 40.367' / 076° 44.650'
Aircraft: CH-46 & OV10	30-Mar-92	34° 40.378' / 076° 44.655'
Concrete rubble: 80 tons	1991, 1992	34° 40.383' / 076° 44.650' to 34° 40.383' / 076° 44.667'
Concrete pipe: 150 tons ~60 pieces	05-Apr-99	34° 40.305' / 076° 44.516' 34° 40.305' / 076° 44.503'
Reef Balls®: 100	21-Feb-00	34° 40.383' / 076° 44.500' to 34° 40.400' / 076° 44.517' and 34° 40.400' / 076° 44.500' 34° 40.400' / 076° 44.483'
104' US Navy tug "TAKOS"	02-Nov-00	34° 40.329' / 076° 44.780'
Concrete pipe: Newport DOT	Dec-02	34° 40.316' / 076° 44.804'
Concrete pipe: Newport DOT Miscellaneous concrete items, Radio Island pilings	25-Jan-03	34° 40.330' / 076° 44.793'
Radio Island ramp pilings, T.D. Eure Construction (6-12' length ~500 pieces in each of two areas)	2003	34° 40.280' / 076° 44.534' - NE end and 34° 40.217' / 076° 44.617' - SW end
Concrete pipe (Heavy Concentration) Carteret County Sportfishing Association	Jan-Feb 2003	34° 40.243' / 076° 44.600'
Radio Island ramp pilings, T.D. Eure Construction (Round Dispersal Pattern)	Feb-03	34° 39.908' / 076° 45.189'
Broadcast of pilings and concrete pipe: This area is ideal for casual drift bottom fishing that is away from the heaviest reef trolling and diving activity. Carteret County Sportfishing Association and T.D. Eure Construction	Feb-03	Four corner area coordinates: 34° 39.957' / 076° 45.129' - NW 34° 39.925' / 076° 45.062' - NE 34° 39.863' / 076° 45.085' - SE 34° 39.839' / 076° 45.156' - SW

Miscellaneous concrete scrap and ramp pilings: approximately 190 tons	19&20-Feb-03	and 34° 40.329' / 076° 44.792' 39.911' / 076° 45.188' 34°
Scrap concrete ramp pilings: 87 pieces	5-Mar-03	34° 39.903' / 076° 45.177'
Scrapped USCG buoy anchors	Ongoing	Center point is 34° 40.333' / 076° 44.770' ; spread between "THEODOR PARKER" and "TAKOS"
22 pieces concrete scrap	18-Mar-04	34° 40.200' / 076° 45.187'
Reef Balls®: 50 Ultra Reef Ball®: 1	19-Mar-04	34° 39.955' / 076° 44.800'
Bay balls: 2	21-Sep-04	34° 40.206' / 076° 44.767'
Assorted concrete pipe and headers	22-May-07	34° 40.200' / 076° 44.499'
Assorted manhole boxes & risers: 74 pieces	30-May-07	34° 39.996' / 076° 44.640'
Concrete pipe: 157 tons	18-Nov-08	34° 40.297' / 076° 44.525'
Concrete pipe: 160 tons	20-Nov-08	34° 40.368' / 076° 44.477'
Concrete pipe: 162 tons	3-Dec-08	34° 40.336' / 076° 44.487'
Concrete pipe: 161 tons	4-Dec-08	34° 40.384' / 076° 44.459'

# CLIFTON MOSS REEF

AR-320

Average Depth: 50'

Buoy Location in GPS ddm: 34° 39.533' / 076° 48.417'

LORAN Coordinates: 27138.6 / 39637.3

General Location: 259° M, 7.3 nm from Beaufort Inlet at the Fort Macon jetty

Material	Deployment Date(s)	GPS (Decimal Minutes)
140' menhaden vessel "NOVELTY"	09-Jul-86	34° 39.483' / 076° 48.433'
Atlantic Beach Bridge rubble: 2 rows running N to S 100' E and 300' W of "NOVELTY"	26-May-87 to 31-Dec-87	34° 39.483' / 076° 48.450' to 34° 39.400' / 076° 48.450' and 34° 39.517' / 076° 48.433' to 34° 39.517' / 076° 48.467'
Atlantic Beach Bridge, steel truss span	1987	34° 39.483' / 076° 48.450' to 34° 39.517' / 076° 48.467'
Concrete "Waffle-Crete"® units	1997	34° 39.543' / 076° 48.452'
Concrete manhole sections: 33 units	06-Apr-06	34° 39.341' / 076° 48.405' to 34° 39.307' / 076° 48.405'

# HOWARD CHAPIN REEF

AR-330

Average Depth: 62'

Buoy Location in GPS ddm: 34° 33.634' / 076° 51.267'

LORAN Coordinates: 27139.7 / 39569.5

General Location: 228° M, 11.8 nm from Beaufort Inlet at the Fort Macon jetty;

118° M, 12.8 nm from the Bogue Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 10	1986	34° 33.633' / 076° 51.350' to 34° 33.633' / 076° 51.367' and 34° 33.550' / 076° 51.333' 34° 33.583' / 076° 51.367' 34° 33.550' / 076° 51.317'
Pre-fabricated fiberglass domes	1990	34° 33.783' / 076° 51.267' 34° 33.767' / 076° 51.250' 34° 33.733' / 076° 51.333'
Concrete pipe: 160 pieces	1990	34° 33.583' / 076° 51.200'
320' Landing Craft Repair Ship "INDRA"	05-Aug-92	Bow 34° 33.700' / 076° 51.100' to Stern 34° 33.738' / 076° 51.091'
C-130 aircraft: 2	15-Nov-94	34° 33.633' / 076° 51.367' and 34° 33.633' / 076° 51.383'
F-4 aircraft: 1	1995	34° 33.633' / 076° 51.350'
Concrete pipe: 41 pieces	1999	34° 33.617' / 076° 51.200'
"H" units: 43	1999	34° 33.690' / 076° 51.385'
Reef Balls®: 45	1999	34° 33.712' / 076° 51.354'
"H" units: 45	11-Sep-00	34° 33.450' / 076° 51.450' to 34° 33.450' / 076° 51.483'
Reef Balls®: 45	11-Sep-00	34° 33.430' / 076° 51.400' to 34° 33.444' / 076° 51.396'
Concrete pipe: 600 tons Carteret County Sportfishing Association	Feb-03	34° 33.589' / 076° 51.438' 34° 33.587' / 076° 51.445' 34° 33.580' / 076° 51.442'
55' steel sailboat "NEPOMUK"	11-Jun-09	34° 33.724' / 076° 51.106'

# J. PAUL TYNDALL REEF

**AR-340**

**Average Depth: 58'**

**Buoy Location in GPS ddm: 34° 34.350' / 076° 58.300'**

**LORAN Coordinates: 27162.4 / 39545.3**

**General Location: 129° M, 7.0 nm from the Bogue Inlet sea buoy**

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 9 Railroad flatcars: 1	29-Nov-86	34° 34.300' / 076° 58.393' 34° 34.291' / 076° 58.355' 34° 34.253' / 076° 58.347'
Concrete pipe: 1000 tons (500 tons are 60" by 8')	Mar-91	34° 34.404' / 076° 58.287' 34° 34.379' / 076° 58.295' 34° 34.363' / 076° 58.271' 34° 34.344' / 076° 58.281'      34° 34.317' / 076° 58.317'
Concrete pipe: 500 pieces	Aug-93	34° 34.450' / 076° 58.338' 34° 34.438' / 076° 58.340' 34° 34.426' / 076° 58.334' 34° 34.425' / 076° 58.314' 34° 34.411' / 076° 58.322'
Hatteras boat molds: 12	07-Nov-96 21-Nov-96	34° 34.367' / 076° 58.500' 34° 34.367' / 076° 58.333' 34° 34.383' / 076° 58.500' 34° 34.450' / 076° 58.500' 34° 34.500' / 076° 58.517' 34° 34.417' / 076° 58.483' 34° 34.433' / 076° 58.517' 34° 34.400' / 076° 58.483' 34° 34.400' / 076° 58.533' 34° 34.383' / 076° 58.517' 34° 34.367' / 076° 58.533'
Reef Balls®: 25	03-Oct-00	34° 34.517' / 076° 58.420'
Reef Balls®: 46	05-Oct-00	34° 34.528' / 076° 58.455' 34° 34.547' / 076° 58.435' 34° 34.517' / 076° 58.417' 34° 34.501' / 076° 58.445' 34° 34.517' / 076° 58.433'
Concrete manhole sections: 43 pieces	06-Apr-06	34° 34.394' / 076° 58.436'      to 34° 34.367' / 076° 58.423'
Assorted panels & headers: 67 pieces	4-May-07	34° 34.395' / 076° 58.586'
Assorted dock & roof panels: 67 pieces	15-May-07	34° 34.392' / 076° 58.594'
Assorted dock panels & pipe	17-May-07	34° 34.390' / 076° 58.589'

# ONslow BAY SPORT FISHING CLUB REEF

AR-342

Average Depth: 49'

Buoy Location in GPS ddm: 34° 36.552' / 077° 02.189'

LORAN Coordinates: 27177.0 / 39549.8

General Location: 124° M, 3.0 nm from Bogue Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Tires: 19,488	16-Feb-83	34° 36.467' / 077° 02.167'
Concrete pipe: 160 pieces	20-May-86	34° 36.583' / 077° 02.183'
Concrete pipe: 61 pieces	19-Dec-86	34° 36.444' / 077° 02.177'
40 cubic yard metal containers: 10 units	25-Feb-83	34° 36.475' / 077° 02.179' and 34° 36.495' / 077° 02.185'
Train boxcars: 10	20-May-86	34° 36.467' / 077° 02.167' 34° 36.425' / 077° 02.258'
Concrete pipe: 246 pieces	1994	34° 36.583' / 077° 02.240' to 34° 36.600' / 077° 02.183' and 34° 36.617' / 077° 02.233' to 34° 36.589' / 077° 02.238' and 34° 36.467' / 077° 02.167'
Concrete pipe: 174 pieces Onslow Bay Sport Fishing Club	24 & 25 Mar-04	34° 36.677' / 077° 02.326' to 34° 36.655' / 077° 02.342'
Concrete manhole sections: 78 pieces	23-Feb-06	34° 36.669' / 077° 02.055'
Concrete cones, risers and bases: approximately 75 pieces	10-Apr-07	34 <sup>0</sup> 36.669' / 077 <sup>0</sup> 02.247' 34° 36.666' / 077° 02.244' 34° 36.675' / 077° 02.209'
Assorted concrete items: approximately 55	13-Apr-07	34 <sup>0</sup> 36.664' / 077 <sup>0</sup> 02.150' 34° 36.667' / 077° 02.100'
Concrete pipe: 158 tons	18-Apr-07	34 <sup>0</sup> 36.664' / 077 <sup>0</sup> 02.281'
Concrete pipe: 118 pcs.	19-Apr-07	34 <sup>0</sup> 36.652' / 077 <sup>0</sup> 02.235'
Concrete pipe: 125 pcs.	23-Apr-07	34 <sup>0</sup> 36.658' / 077 <sup>0</sup> 02.191'
Concrete pipe: 125 pcs.	1-May-07	34 <sup>0</sup> 36.670' / 077 <sup>0</sup> 02.155'
Concrete pipe: 128 pcs.	3-May-07	34 <sup>0</sup> 36.642' / 077 <sup>0</sup> 02.114'

# SWANSBORO ROTARY CLUB REEF

AR-345

Average Depth: 60'

Buoy Location in GPS ddm: 34° 32.300' / 076° 58.467'

LORAN Coordinates: 27160.2 / 39542.8

General Location: 143° M, 8.1 nm from the Bogue Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 10	23-Dec-86	34° 32.233' / 076° 58.500' 34° 32.233' / 076° 58.533' 34° 32.333' / 076° 58.550'
Concrete pipe: 750 pieces Manhole sections: 1500 tons	Jan-Feb 1991	34° 32.233' / 076° 58.417' to 34° 32.267' / 076° 58.450' and 34° 32.217' / 076° 58.417'
Concrete pipe	1991	34° 32.300' / 076° 58.533'
Concrete "Waffle-Crete"® units: 8	Oct-97	34° 32.400' / 076° 58.467' 34° 32.400' / 076° 58.483'
Reef Balls®: 75	03-Oct-00	34° 32.333' / 076° 58.333' to 34° 32.333' / 076° 58.367' and 34° 32.352' / 076° 58.317' 34° 32.333' / 076° 58.376'
Ultra Reef Balls®: 50 Reef Balls®: 1	19-Mar-04	34° 32.420' / 076° 58.610'
116' tug "TITAN"	27-Jul-04	34° 32.141' / 076° 58.473'
Reef Balls®: 20 in 4 groups of 5 each	7-Dec-05	34° 32.304' / 076° 58.312'      34° 32.288' / 076° 58.292'      34° 32.252' / 076° 58.268'      34° 32.268' / 076° 58.248'
Manhole bases: 20 in 4 groups of 5 each	07-Dec-05	34° 32.288' / 076° 58.312'      34° 32.304' / 076° 58.292'      34° 32.268' / 076° 58.268'      34° 32.252' / 076° 58.248'
Concrete pipe: 150 tons Craven County DOT	21-Feb-06	34° 32.125' / 076° 58.486'

# NEW RIVER REEF

AR-355

Average Depth: 60'

Buoy Location in GPS ddm: 34° 21.183' / 077° 20.000'

LORAN Coordinates: 27210.0 / 39324.4

General Location: 185° M, 9.7 nm from the New River Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 10	18-Dec-86	34° 21.150' / 077° 19.983'
Hwy. 172 bridge rubble: 10 barge loads of pilings and rails	Jul-Oct 1993	34° 21.233' / 077° 19.900' 34° 21.267' / 077° 19.967' 34° 21.283' / 077° 19.900' 34° 21.250' / 077° 19.983' 34° 21.200' / 077° 20.067' 34° 21.317' / 077° 19.983'
60' ferro-cement vessel "SEA MINT"	1993	34° 21.200' / 077° 20.067'
High Profile units: 11	Jun-95	34° 21.150' / 077° 20.983'

# TOPSAIL REEF

AR-360

Average Depth: 44'

Buoy Location in GPS ddm: 34° 20.983' / 077° 36.183'

LORAN Coordinates: 27256.9 / 39252.5

General Location: 085° M, 2.5 nm from the New Topsail Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Tires: 48,700	26-Sep-74	Scattered throughout reef site; mostly buried
Concrete pipe: 850 pieces, 48" by 8'	1992	34° 21.017' / 077° 36.183' 34° 21.033' / 077° 36.200'
Concrete pipe: 140 tons	02-Apr-02	34° 20.781' / 077° 36.148'
Concrete pipe: 140 Tons Topsail Beach Offshore Fishing Club	09-Apr-02	34° 20.776' / 077° 36.156' 34° 20.774' / 077° 36.155' 34° 20.779' / 077° 36.145'
23 reef balls, 1 "H" unit	8-Jun-06	34 <sup>0</sup> 20.880' / 077 <sup>0</sup> 36.220'

# **TOM BOYETTE REEF**

**AR-362**

**Average Depth: 54'**

**Buoy Location in GPS ddm: 34° 15.717' / 077° 30.450'**

**LORAN Coordinates: 27233.1 / 39224.5**

**General Location: 126° M, 8.7 nm from the New Topsail Inlet sea buoy**

<b>Material</b>	<b>Deployment Date(s)</b>	<b>GPS (Decimal Minutes)</b>
<b>Railroad boxcars: 10</b>	<b>05-Dec-86</b>	<b>Throughout Reef</b>
<b>Concrete pipe: 850 pieces, 48" by 8'</b>	<b>1992</b>	<b>34° 15.767' / 077° 30.433' 34° 15.733' / 077° 30.383' 34° 15.767' / 077° 30.417' 34° 15.767' / 077° 30.383'</b>
<b>Concrete pipe: 140 Tons Topsail Beach Offshore Fishing Club</b>	<b>18-Apr-02</b>	<b>34° 15.750' / 077° 30.560' 34° 15.753' / 077° 30.566' 34° 15.755' / 077° 30.566' 34° 15.744' / 077° 30.566' 34° 15.747' / 077° 30.566'</b>

# BILLY MURRELL REEF

AR-364

Average Depth: 44'

Buoy Location in GPS ddm: 34° 14.833' / 077° 42.833'

LORAN Coordinates: 27267.4 / 39160.6

General Location: 050° M, 6.2 nm from the Masonboro Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Tires: 76,873	1974-1984	Throughout Site
32 concrete pieces: 480 tons	18-Dec-86	100-300' S of buoy
65' tug "SOUTHERN CRAFT 8"	12-May-88	34° 14.850' / 077° 42.833'
55' Landing Craft (LCM)	18-Jan-89	34° 14.783' / 077° 42.850'
Pre-fabricated fiberglass units: 24 Domes; 18 Cubes	Dec-89	Positions unverified
52' tug "CAPTAIN TOM"	13-May-92	34° 14.833' / 077° 42.800'
65' tug "CAPTAIN JERRY"	1994	34° 14.850' / 077° 42.833'
297' barge "HT-290"	1997	Bow 34° 14.767' / 077° 42.900' Stern 34° 14.817' / 077° 42.867'

## AR-366

Average Depth: 66'

Buoy Location in GPS ddm: 34° 12.950' / 077° 25.250'

LORAN Coordinates: 27214.6 / 39225.0

General Location: 130° M, 14.0 nm from the New Topsail Inlet sea buoy;  
090° M, 30.0 nm from the Masonboro Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 10	05-07 Dec-86	34° 12.898' / 077° 25.330' 34° 12.911' / 077° 25.332' 34° 12.883' / 077° 25.310' 34° 12.832' / 077° 25.275'
Concrete pipe: 850 pieces, 48" by 8'	1992	34° 12.983' / 077° 25.267' 34° 12.950' / 077° 25.233'
Concrete pipe: 260 Tons Topsail Beach Offshore Fishing Club	15/16-Apr-02	34° 13.018' / 077° 25.160'
Concrete box culvert: 66 Pieces Topsail Beach Offshore Fishing Club	27-Jan-04	34° 12.873' / 077° 25.230' 34° 12.879' / 077° 25.235' 34° 12.885' / 077° 25.256'
Manhole sections: 61 Pieces Topsail Beach Offshore Fishing Club	29-Jan-04	34° 12.921' / 077° 25.255'
Manhole sections: 38 Concrete box culverts: 39 Topsail Beach Offshore Fishing Club	04-Feb-04	34° 12.888' / 077° 25.261' 34° 12.833' / 077° 25.264'

**AR-368****Average Depth: 66'****Buoy Location in GPS ddm: 34° 09.567' / 077° 25.833'****LORAN Coordinates: 27211.7 / 39195.0****General Location: 140° M, 15.5 nm from the New Topsail Inlet sea buoy**

<b>Material</b>	<b>Deployment Date(s)</b>	<b>GPS (Decimal Minutes)</b>
<b>Railroad boxcars: 10</b>	<b>07-Dec-86</b>	<b>34° 09.417' / 077° 25.917'</b>
<b>241' barge "LC-16"</b>	<b>1994</b>	<b>34° 09.583' / 077° 25.917'</b> <b>34° 09.583' / 077° 25.933'</b> <b>34° 09.583' / 077° 25.883'</b>
<b>Scattered rubble</b>	<b>Unknown</b>	<b>34° 09.583' / 077° 25.933'</b> <b>34° 09.583' / 077° 25.883'</b> <b>34° 09.567' / 077° 25.967'</b>
<b>Concrete pipe: 130 tons Topsail Beach Offshore Fishing Club</b>	<b>17-Apr-02</b>	<b>34° 09.667' / 077° 25.832'</b> <b>34° 09.694' / 077° 25.807'</b> <b>34° 09.690' / 077° 25.817'</b> <b>34° 09.684' / 077° 25.828'</b>

# MEARES HARRISS REEF

AR-370

Average Depth: 52'

Buoy Location in GPS ddm: 34° 10.467' / 077° 45.067'

LORAN Coordinates: 27267.8 / 39106.3

General Location: 100° M, 3.5 nm from the Masonboro Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
110' tug "FIREFIGHTER"	02-Jun-70	34° 10.490' / 077° 44.990'
50' truck tank	Summer 1972	Position unverified
90' barges: 2	01-Aug-73	34° 10.467' / 077° 44.800'
Tires: 56,500	1973 - 1974	Throughout site
440' Liberty Ship "ALEXANDER RAMSEY"	26-Aug-74	34° 10.520' / 077° 45.120'
135' barge	25-Sep-80	34° 10.483' / 077° 44.783'
120' tug "SOCONY 8"	15-Dec-82	34° 10.533' / 077° 45.083'
105' tug "STONE BROTHERS"	14-Jan-83	34° 10.330' / 077° 44.790'
Concrete pipe: 155 tons	16-Sep-08	34 <sup>0</sup> 10.454' / 077 <sup>0</sup> 44.950'

**AR-372****Average Depth: 48'****Buoy Location in GPS ddm: 34° 06.217' / 077° 44.950'****LORAN Coordinates: 27261.4 / 39068.9****General Location: 154° M, 5.0 nm from the Masonboro Inlet sea buoy**

<b>Material</b>	<b>Deployment Date(s)</b>	<b>GPS (Decimal Minutes)</b>
<b>Railroad boxcars: 10</b>	<b>07-Nov-86</b>	<b>34° 06.240' / 077° 44.820'</b>
<b>220' barge (Northern)</b>	<b>09-May-90</b>	<b>34° 06.250' / 077° 44.800'</b>
<b>220' barge (Southern)</b>	<b>09-May-90</b>	<b>34° 06.233' / 077° 44.800'</b>
<b>Reef Balls®: 128 in five groups of 25-28 Onslow Bay Artificial Reef Association</b>	<b>08-Oct-01</b>	<b>34° 06.286' / 077° 44.895'</b>
		<b>34° 06.310' / 077° 44.890'</b>
		<b>34° 06.259' / 077° 44.874'</b>
		<b>34° 06.279' / 077° 44.910'</b>
		<b>34° 06.294' / 077° 44.848'</b>

## AR-376

Average Depth: 60'

Buoy Location in GPS ddm: 34° 03.283' / 077° 39.633'

LORAN Coordinates: 27243.1 / 39077.2

General Location: 142° M, 9.9 nm from the Masonboro Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 10	1986	34° 03.267' / 077° 39.617'
Concrete pipe: 60" by 8' 850 pieces	Nov-92	34° 03.333' / 077° 39.700'
Concrete "Waffle Crete"® units: 7	Nov-97	34° 03.267' / 077° 39.583' 34° 03.267' / 077° 39.616'

# PHILLIP WOLFE REEF

AR-378

Average Depth: 40'

Buoy Location in GPS ddm: 34° 01.807' / 077° 52.232'

LORAN Coordinates: Chain (GRI) 9960 / 27275.5 / 57509.2 and

Chain (GRI) 7980 / 45336.0 / 58990.4

General Location: 184° M, 2.6 nm from the Carolina Beach Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
98' barges: 3	05-May-82	34° 00.650' / 077° 50.678'
		34° 00.648' / 077° 50.629'
		34° 00.621' / 077° 50.683'
Tires: 111,000	05-May-82	34° 00.783' / 077° 50.664'
195' barge	Oct-93	34° 01.809' / 077° 52.139'
Reef Balls®: 10	May-98	34° 01.950' / 077° 52.083'
Concrete pipe: 134 pieces	1999	34° 01.850' / 077° 52.267' to 34° 01.817' / 077° 52.300'
Reef Balls®: 100 in four groups of 25 each	2001	34° 01.783' / 077° 52.233' 34° 01.783' / 077° 52.233' 34° 01.783' / 077° 52.233' 34° 01.783' / 077° 52.233'
Concrete pipe: 85 pieces	2-Nov-06	34° 01.835' / 077° 50.192'
Assorted concrete pipe, pilings and headers: 114 pieces	29-Nov-06	34° 01.850' / 077° 50.190'
Miscellaneous concrete items: Approximately 115 tons	1-Oct-08	34 <sup>0</sup> 01.901' / 077 <sup>0</sup> 52.268'
Concrete pipe: 138 pieces	2-Oct-08	34 <sup>0</sup> 01.885' / 077 <sup>0</sup> 52.265'

## DREDGE WRECK REEF

AR-382

Average Depth: 58'

Buoy Location in GPS ddm: 33° 58.583' / 077° 41.283'

LORAN Coordinates: 27241.5 / 39047.0

General Location: 134° M, 10.6 nm from Carolina Beach Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Dredge "PLAYA" (marine casualty)	Feb-31	33° 58.500' / 077° 41.283'
105' tug "POCAHONTAS"	26-Feb-85	33° 58.583' / 077° 40.917'
86' tug "R.R. STONE"	01-Mar-85	33° 58.467' / 077° 41.283'
Reef Balls® 100 in a single group starting at the bow of "R.R. STONE"	08-Feb-01	33° 58.483' / 077° 41.283' to 33° 58.467' / 077° 41.383'

## LENNON / HYDE REEF

AR-386

Average Depth: 78'

Buoy Location in GPS ddm: 33° 57.517' / 077° 33.450'

LORAN Coordinates: 27218.3 / 39082.2

General Location: 143° M, 17.8 nm from the Masonboro Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 10	29-Oct-86	33° 57.360' / 077° 33.340' 33° 57.400' / 077° 33.320' 33° 57.330' / 077° 33.280'
150' YTT barge "ALTON LENNON" (AKA "The Schoolhouse" ) Cape Fear Community College Marine Technology Classroom Barge	22-Oct-87	33° 57.633' / 077° 33.400'
215' USACOE dredge "HYDE"	20-May-88	33° 57.450' / 077° 33.433'
320' USACOE dredge "MARKHAM"	20-Oct-95	33° 57.633' / 077° 33.200'

## AR-400

Average Depth: 70'

Buoy Location: NO BUOY MAINTAINED

LORAN Coordinates: 45165.6 / 59218.4

General Location: 18.0 nm, 112° M from the R"4FP" buoy and 43.5 nm from  
Masonboro Inlet, 0.25 nm NE of Frying Pan Light Tower

Material	Deployment Date(s)	GPS (Decimal Minutes)
184' menhaden vessel "CAPT. GREG MICKEY" (ex-"COASTAL MARINER")	4-Aug-07	33° 29.302' / 077° 35.265'

# TOM McGLAMMERY REEF

AR-420

Average Depth: 38'

Buoy Location in GPS ddm: 33° 51.050' / 078° 06.710'

LORAN Coordinates: Chain (GRI) 7980 / 45347.9 / 59184.8

General Location: 345°M, 3.1 nm from the Cape Fear River sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
104' YSD barge	06-Sep-86	33° 51.084' / 078° 06.630'
180' barge "HT-85"	03-Jan-87	33° 51.150' / 078° 06.567'
Bridge span: 230'	12-Feb-87	33° 51.066' / 078° 06.678'
Concrete pipe and manhole sections: 60 pieces	1992	33° 51.045' / 078° 06.670'
110' water barge "YC-794" "Potter Barge"	Mar-00	33° 50.975' / 078° 06.691'
Reef Balls®: 50	Apr-00	33° 51.013' / 078° 06.592' and 33° 51.000' / 078° 06.617'
Assorted concrete pipe: 280 pieces	09-Apr-00	33° 50.952' / 078° 06.802'
Concrete pipe: 62 pieces 36" by 8'	23-Mar-01	33° 50.966' / 078° 06.810'
Concrete pipe: 61 pieces 36" by 8'	26-Mar-01	33° 50.952' / 078° 06.802'
Reef Balls®: 100 in four groups of 25 each	Winter 2001	33° 51.150' / 078° 06.600'
		33° 51.167' / 078° 06.567'
		33° 51.150' / 078° 06.550'
		33° 51.133' / 078° 06.583'
Concrete pipe: Deployment A	Winter 2001	33° 51.017' / 078° 06.617' 33° 51.000' / 078° 06.633' 33° 51.017' / 078° 06.600' 33° 50.983' / 078° 06.617'
Concrete pipe: Deployment B	Winter 2001	33° 50.967' / 078° 06.817' 33° 50.967' / 078° 06.800' 33° 50.950' / 078° 06.817'
Concrete pipe, pilings & scrap: 146 pieces	09-Mar-04	33° 51.008' / 078° 06.741' to 33° 51.029' / 078° 06.759'
Miscellaneous concrete items: 87 pieces	17-Mar-05	33° 51.084' / 078° 06.549'
Miscellaneous concrete items: 88 pieces	18-Mar-05	33° 51.064' / 078° 06.564'
Miscellaneous concrete items: 90 pieces	22-Mar-05	33° 51.065' / 078° 06.570'
Concrete mixing drums: 3 Concrete pipe: 135 pieces	24-Mar-05	33° 51.032' / 078° 06.829'
Miscellaneous concrete items: 89 pieces	29-Mar-05	33° 51.074' / 078° 06.559'

<b>24" concrete pipe: 170 pieces</b>	<b>30-Mar-05</b>	<b>33<sup>0</sup> 51.034' / 078<sup>0</sup> 06.838'</b>
<b>24" concrete pipe: 159 pieces</b>	<b>31-Mar-05</b>	<b>33<sup>0</sup> 51.031' / 078<sup>0</sup> 06.834'</b>
<b>Assorted pipe and concrete items: 154 tons</b>	<b>17-Sep-08</b>	<b>33<sup>0</sup> 51.168' / 078<sup>0</sup> 06.788'</b>
<b>Concrete manhole bases: 155 tons</b>	<b>22/29-Sept-08</b>	<b>33<sup>0</sup> 51.170' / 078<sup>0</sup> 06.798'</b>

# YAUPON BEACH REEF

AR-425

Average Depth: 30'

Buoy Location in GPS ddm: 33° 53.050' / 078° 06.567'

LORAN Coordinates: Chain (GRI) 7980 / 45354.7 / 59169.6

General Location: 357° M, 5.0 nm from the Cape Fear River sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Concrete rubble: 600 tons	Sep-86	33° 53.050' / 078° 06.588'
Concrete bridge railing: 100 pieces	1989	33° 53.067' / 078° 06.517' 33° 53.050' / 078° 06.483' 33° 53.067' / 078° 06.483'
Floating Drydock (Maritime Casualty)	Late 1950's	33° 53.068' / 078° 06.062'
Concrete pipe and manhole sections: 240 pieces	1992	33° 53.004' / 078° 06.563'
Concrete pipe	1993, 1994	33° 52.998' / 078° 06.523'
		33° 53.062' / 078° 06.516'
		33° 53.100' / 078° 06.567'
		33° 53.033' / 078° 06.567'
Concrete "Waffle-Crete"® units: 8	Oct-97	33° 53.067' / 078° 06.617' to 33° 53.033' / 078° 06.617'
Reef Balls®: 50	Jan-98	33° 53.033' / 078° 06.083'
Reef Balls®: 50		33° 52.983' / 078° 06.567'
Reef Balls®: 50		33° 53.100' / 078° 06.500'
Reef Balls®	Mar-00	33° 53.112' / 078° 06.617' 33° 52.920' / 078° 06.567'
Reef Balls®: 100 in four groups of 25 each	Mar-01	33° 53.172' / 078° 06.576' N section 33° 53.150' / 078° 06.555' E section 33° 53.130' / 078° 06.585' S section 33° 53.149' / 078° 06.607' W section
Concrete pipe: 147 pieces	26-Feb-01	33° 53.015' / 078° 06.621' to 33° 53.004' / 078° 06.610'
Manhole sections: 150 tons	1-Mar-02	33° 53.186' / 078° 06.413'
Manhole sections: 150 tons	1-Mar-02	33° 53.129' / 078° 06.413'
Manhole sections: 150 tons	1-Apr-02	33° 52.995' / 078° 06.700'
		33° 52.962' / 078° 06.646'
		33° 52.954' / 078° 06.683'
Ultra Reef Balls® : 50 units in dense grouping	11-Feb-04	33° 52.899' / 078° 06.700'

<p align="center"><b>Concrete pipe: 132 tons Manhole sections: 24 tons</b></p>	<p align="center"><b>19-Feb-04</b></p>	<p align="center"> <b>33° 52.921' / 078° 06.694'</b>  to  <b>33° 52.909' / 078° 06.679'</b>  and  <b>33° 52.919' / 078° 06.690'</b>  to  <b>33° 52.916' / 078° 06.679'</b> </p>
<p align="center"><b>Reef Balls®: 100 in 2 groups of 50</b></p>	<p align="center"><b>22-Jun-05</b></p>	<p align="center"> <b>33° 53.100' / 078° 06.500'</b>  and  <b>33° 53.033' / 078° 06.083'</b> </p>
<p align="center"><b>Concrete pipe and dock panels: approximately 325 pieces</b></p>	<p align="center"><b>11/30-Oct-06</b></p>	<p align="center"> <b>33° 53.026' / 078° 06.664'</b>  <b>33° 53.104' / 078° 06.753'</b>  <b>33° 53.064' / 078° 06.706'</b> </p>
<p align="center"><b>Concrete dock panels and headers</b></p>	<p align="center"><b>7-Nov-06</b></p>	<p align="center"><b>33<sup>0</sup> 53.054' / 078<sup>0</sup> 06.732'</b></p>
<p align="center"><b>Concrete dock panels and headers</b></p>	<p align="center"><b>8-Nov-06</b></p>	<p align="center"><b>33<sup>0</sup> 53.078' / 078<sup>0</sup> 06.716'</b></p>
<p align="center"><b>Scrap dock panels: approximately 120 tons</b></p>	<p align="center"><b>9-Nov-06</b></p>	<p align="center"><b>33<sup>0</sup> 53.078' / 078<sup>0</sup> 06.723'</b></p>

# BRUNSWICK COUNTY FISHING CLUB REEF

AR-440

Average Depth: 42'

Buoy Location in GPS ddm: 33° 49.800' / 078° 13.083'

LORAN Coordinates: Chain (GRI) 7980 / 43365.8 / 59246.6

General Location: 169° M, 4.5 nm from the Lockwood's Folly Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 7	31-Dec-87	33° 49.660' / 078° 13.050' 33° 49.710' / 078° 13.030' 33° 49.720' / 078° 13.040'
Boiler pieces: 4	03-Jan-87	33° 49.777' / 078° 13.053'
		33° 49.691' / 078° 13.061'
		33° 49.715' / 078° 13.060'
		33° 49.727' / 078° 13.082'
Concrete pipe: 150 pieces	1992-1993	33° 49.817' / 078° 13.100' 33° 49.833' / 078° 13.083'
Concrete items: 4 pieces, 60 tons	1993	33° 49.825' / 078° 13.068'
65' tug "A.T. PINER"	May-93	33° 49.800' / 078° 13.094'
65' tug "COOPEDGE"	May-93	33° 49.812' / 078° 13.127'
Reef Balls®: 100 in 2 groups	Apr-00	33° 49.775' / 078° 13.051' to 33° 49.745' / 078° 13.075'
		33° 49.780' / 078° 13.050' to 33° 49.797' / 078° 13.028'
Concrete pipe: 204 pieces, 30" by 8'	20/21-Feb-01	33° 49.753' / 078° 13.091'
Concrete pipe: 210 pieces, 30" by 8'	04/05-Apr-01	33° 49.733' / 078° 13.095'
Concrete pipe: 151 pieces 24" by 8'	04-Mar-04	33° 49.884' / 078° 13.058' to 33° 49.889' / 078° 13.070'
Concrete pipe, various sizes: approximately 130 pieces	25&30-Oct-06	33 <sup>0</sup> 49.807' / 078 <sup>0</sup> 12.922'
Concrete pipe, various sizes: 219 pieces	6&15-Nov-06	33° 49.803' / 078° 12.956'
		33° 49.807' / 078° 12.923'
		33 <sup>0</sup> 49.800' / 078 <sup>0</sup> 12.919'
Assorted concrete items	6-Dec-06	33 <sup>0</sup> 49.735' / 078 <sup>0</sup> 12.986'

# DALE McDOWELL REEF

AR-445

Average Depth: 53'

Buoy Location in GPS ddm: 33° 44.783' / 078° 14.100'

LORAN Coordinates: Chain (GRI) 7980 / 45352.0 / 59289.0

General Location: 185° M, 9.3 nm from Lookwood's Folly Inlet

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 10	24-Oct-86	33° 44.792' / 078° 14.210'
174' vessel "JELL II"	10-Jul-91	33° 44.850' / 078° 14.050' 33° 44.833' / 078° 14.067'
Fiberglass and steel boat molds: 100	30-Jan-91	33° 44.829' / 078° 14.313' 33° 44.844' / 078° 14.326' 33° 44.810' / 078° 14.333'
Concrete manhole sections: 160 tons	Dec-93	33° 44.845' / 078° 14.153' 33° 44.840' / 078° 14.139' 33° 44.822' / 078° 14.132'
Concrete pipe: 250 pieces	1994	33° 44.782' / 078° 14.049' 33° 44.742' / 078° 14.025' 33° 44.742' / 078° 14.075' 33° 44.767' / 078° 14.033' 33° 44.750' / 078° 14.083'
Reef Balls®: 100 In three groups of ~33 each	Apr-00	33° 44.767' / 078° 14.167'
		33° 44.800' / 078° 14.267'
		33° 44.867' / 078° 14.350'
Concrete pipe: 182 pieces	27-Feb-01	33° 44.876' / 078° 14.152'
Concrete pipe: 135 pieces	12-Mar-01	33° 44.863' / 078° 14.170'
Concrete pipe	Winter 2001	33° 44.867' / 078° 14.200' 33° 44.850' / 078° 14.200' 33° 44.867' / 078° 14.183' 33° 44.883' / 078° 14.150' 33° 44.867' / 078° 14.167'
Concrete scrap and 5 Scrap Reef Balls®	03-Mar-04	33° 44.880' / 078° 14.023' to 33° 44.861' / 078° 14.003'
Concrete pipe and manhole sections: approximately 450 pieces	4-Mar	33° 44.870' / 078° 14.160'
55' tug "ADMIRAL CHARLIE"	19-Nov-04	33° 44.728' / 078° 14.193'
Assorted concrete pipe: 770 tons	6/20-Aug-08	33° 44.654' / 078° 14.286' 33° 44.664' / 078° 14.192' 33° 44.641' / 078° 14.276' 33° 44.663' / 078° 14.295' 33° 44.645' / 078° 14.310'

## DALE WARD REEF

AR-455

Average Depth: 46'

Buoy Location in GPS ddm: 33° 47.033' / 078° 17.883'

LORAN Coordinates: Chain (GRI) 7980 / 45373.0 / 59306.0

General Location: 272° M, 10.6 nm from the Cape Fear River sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 10	24/27-Oct-86	33° 47.010' / 078° 17.850' 33° 46.990' / 078° 17.810' 33° 46.990' / 078° 17.870'
Concrete pipe: 600 tons	1992, 1993	33° 47.083' / 078° 17.933' 33° 47.050' / 078° 17.900'
Concrete manhole sections: 150 pieces	1993	33° 47.043' / 078° 17.788'
Reef Balls®: 100 in three groups of ~33	2000	33° 47.000' / 078° 17.867'
		33° 47.033' / 078° 17.900'
		33° 47.050' / 078° 17.933'
Concrete pipe: 65 pieces, 36" by 8'	27-Mar-01	33° 47.033' / 078° 17.783'
Concrete pipe: 74 pieces	28-Mar-01	33° 47.000' / 078° 17.767'
Reef Balls®: 100 in four groups of 25	Apr-01	33° 47.000' / 078° 17.942'
		33° 46.967' / 078° 17.938'
		33° 46.957' / 078° 17.982'
		33° 46.992' / 078° 17.991'
Concrete pipe: 230 pieces	16-Apr-01	33° 47.017' / 078° 17.800' 33° 47.000' / 078° 17.800'
"Dale Ward Ultra Ball Reef" Ultra Reef Balls®: 51	10-Feb-04	33° 47.100' / 078° 18.000'
Assorted concrete items: 58 pieces	17-Feb-04	33° 47.093' / 078° 17.973' to 33° 47.078' / 078° 17.956'
Assorted concrete items: 27 pieces	24-Feb-04	33° 47.106' / 078° 17.955'
Assorted concrete items: 272 pieces	24-Feb-04	33° 47.080' / 078° 17.957' and 33° 47.079' / 078° 17.857'
102' US Navy tug "PAWTUCKET"	26-Jul-04	33° 47.130' / 078° 17.920'
Concrete pipe: 155 tons	26-Aug-08	33° 47.021' / 078° 18.016'
Concrete pipe: 154 tons	27-Aug-08	33° 47.024' / 078° 18.026'
Concrete pipe and manhole sections: 156 tons	29-Sep-08	33° 47.024' / 078° 18.008'
Concrete pipe: 175 tons	8-Oct-08	33° 47.021' / 078° 17.998'
Concrete pipe: 160 tons	9-Oct-08	33° 47.037' / 078° 18.006''

# FISHERMAN'S REEF

AR-460

Average Depth: 38'

Buoy Location in GPS ddm: 33° 50.217' / 078° 22.033'

LORAN Coordinates: Chain (GRI) 7980 / 45398.0 / 59323.0

General Location: 183° M, 3.0 nm from the Shallotte Inlet sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
Railroad boxcars: 10	Sep-86	33° 50.100' / 078° 21.000' 33° 50.084' / 078° 22.132' 33° 49.993' / 078° 22.071' 33° 49.960' / 078° 22.146' 33° 49.959' / 078° 22.087' 33° 49.892' / 078° 22.059' 33° 49.897' / 078° 22.117'
330' barge	1990	33° 50.133' / 078° 21.933'
Reef Balls®: 100 in two groups of 50	2000	33° 50.267' / 078° 22.050' 33° 50.267' / 078° 22.000'
Reef Balls®: 100 In four groups of 25	2001	33° 50.241' / 078° 22.000'
		33° 50.241' / 078° 22.048'
		33° 50.200' / 078° 21.967'
		33° 50.150' / 078° 21.983'
Concrete pipe	28-Feb-01	33° 50.183' / 078° 22.083' to 33° 50.167' / 078° 22.083'
Concrete pipe: 126 pieces, 24" by 8'	Feb-04	33° 50.183' / 078° 22.100'
Concrete pipe: 105 pieces, 30" by 8'	Apr-04	33° 50.179' / 078° 22.106'
Assorted manhole sections: approximately 360 tons	21&24 Mar-05	33° 50.238' / 078° 21.904' 33° 50.236' / 078° 21.900' 33° 50.234' / 078° 21.904'
Concrete pipe: 64 pieces	16-Oct-06	33 <sup>0</sup> 50.213' / 078 <sup>0</sup> 22.143'
Concrete pipe: 40 pieces	14/28-Nov-06	33° 50.210' / 078° 22.138' to 33° 50.227' / 078° 22.165'

# GARY ENNIS REEF

AR-465

Average Depth: 90'

Buoy Location: NO BUOY MAINTAINED

General Location: 186°M, 27.2 nm from the Cape Fear River sea buoy

Material	Deployment Date(s)	GPS (Decimal Minutes)
180' menhaden vessel "MANCE LASSITER"	Jun-96	33° 23.423' / 078° 11.052' 33° 23.395' / 078° 11.058'
Reef Balls®: 100 in 2 areas of 50 units each	2000	33° 23.382' / 078° 11.090' and 33° 23.399' / 078° 11.090'
Ultra Reef Balls®: 100 in broadly dispersed pattern	19-Apr-01	33° 23.418' / 078° 11.005' 33° 23.375' / 078° 11.005' 33° 23.350' / 078° 11.005' 33° 23.385' / 078° 10.984'
Manhole sections Adjacent to "MANCE LASSITER" East side, 75' by 150' area	21-Jan-02	33° 23.404' / 078° 11.047' 33° 23.408' / 078° 11.039' 33° 23.414' / 078° 11.047' 33° 23.419' / 078° 11.040'
Mega Pipe Project: 925 tons: 188 pieces of large concrete pipe, 42" to 102" diameter material by 8'. Material is deployed in a 150' radius from position.	14-May-05	33° 23.385' / 078° 11.115' - NW corner 33° 23.337' / 078° 11.091' - SE corner 33° 23.360' / 078° 11.096' - Site Center 33° 23.376' / 078° 11.060' - NE corner 33° 23.347' / 078° 11.127' - SW corner
Concrete pipe concentration	2005	33° 23.781' / 078° 11.094'