

**Table 25. Glasrud Artificial Reef Fathometer Survey Results.**

Time	Latitude	Longitude	Depth	Water Temp
	(DD)	(DD)	(ft)	(°C)
12:41:00	27.211	80.005	186.9	30.9
12:41:04	27.211	80.005	184.6	30.8
12:41:08	27.211	80.005	184.9	30.8
12:41:12	27.211	80.005	187.9	30.8
12:41:16	27.211	80.005	186.9	30.9
12:41:20	27.211	80.005	186.2	31
12:41:24	27.211	80.005	189.5	30.8
12:41:28	27.211	80.005	188.8	30.9
12:41:32	27.211	80.004	192.1	30.8
12:41:36	27.211	80.004	186.9	30.9
12:41:40	27.211	80.004	186.5	30.8
12:41:44	27.211	80.004	189.8	30.9
12:41:48	27.211	80.004	189.8	30.8
12:41:52	27.211	80.004	190.2	30.9
12:41:56	27.212	80.004	192.8	30.9

Note: All information obtained using a Hummingbird 1197c/997c, depths are relative to NAD83 Horizontal Datum

## 5.10 CLIFTON S. PERRY MEMORIAL ARTIFICIAL REEF

- Location: Donaldson Reef
- Materials: Concrete slabs, pilings, roadway sections, pile caps, sidewalk sections, steel I beams, braces, piping, plating, rods, guardrails, grating, and Z sheetpiling
- Maximum Depth: 64 feet
- Reef High Point: 49 feet
- Year Created: 2005
- Monitoring Date: 09/19/2012
- Total Cost: \$6,832 (Martin County and FDOT)

### 5.10.1 History of the Clifton Perry Memorial Reef

Nine barge loads of concrete and steel materials were deployed at the Clifton Perry Memorial Reef site in the winter and spring of 2005. The reef materials came from the demolished Jensen Beach Causeway/Frank Wacha draw bridge that spanned the Indian River Lagoon at Jensen Beach. The new reef was named in honor of one of the Florida Oceanographic Society's (FOS) original founders. FOS was the first non-profit environmental advocacy group in the area and Mr. Perry's early efforts in the organization helped establish the original artificial reef deployments offshore of Martin County. This reef is located in the northeastern corner of the Donaldson Artificial Reef Site. Figure 31 shows a chart with the location of the Perry reef within the permitted artificial reef area.

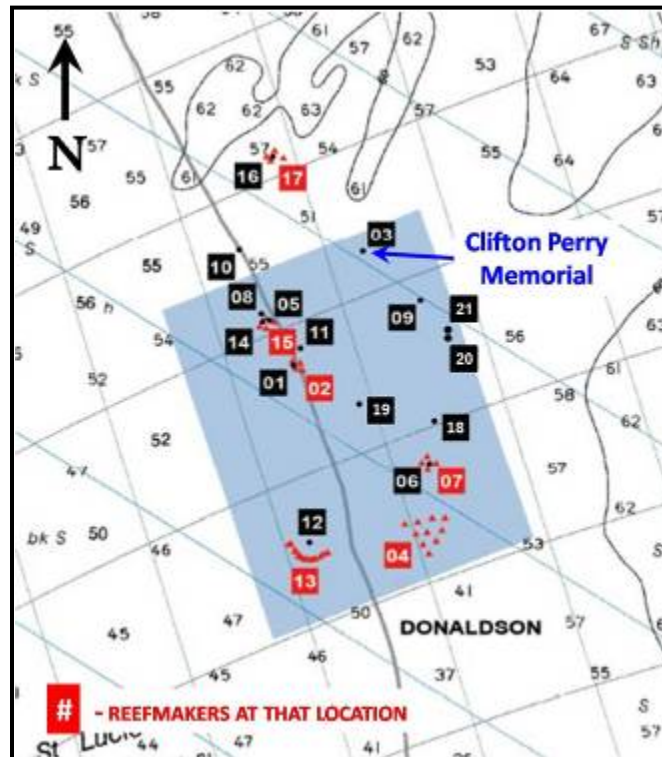
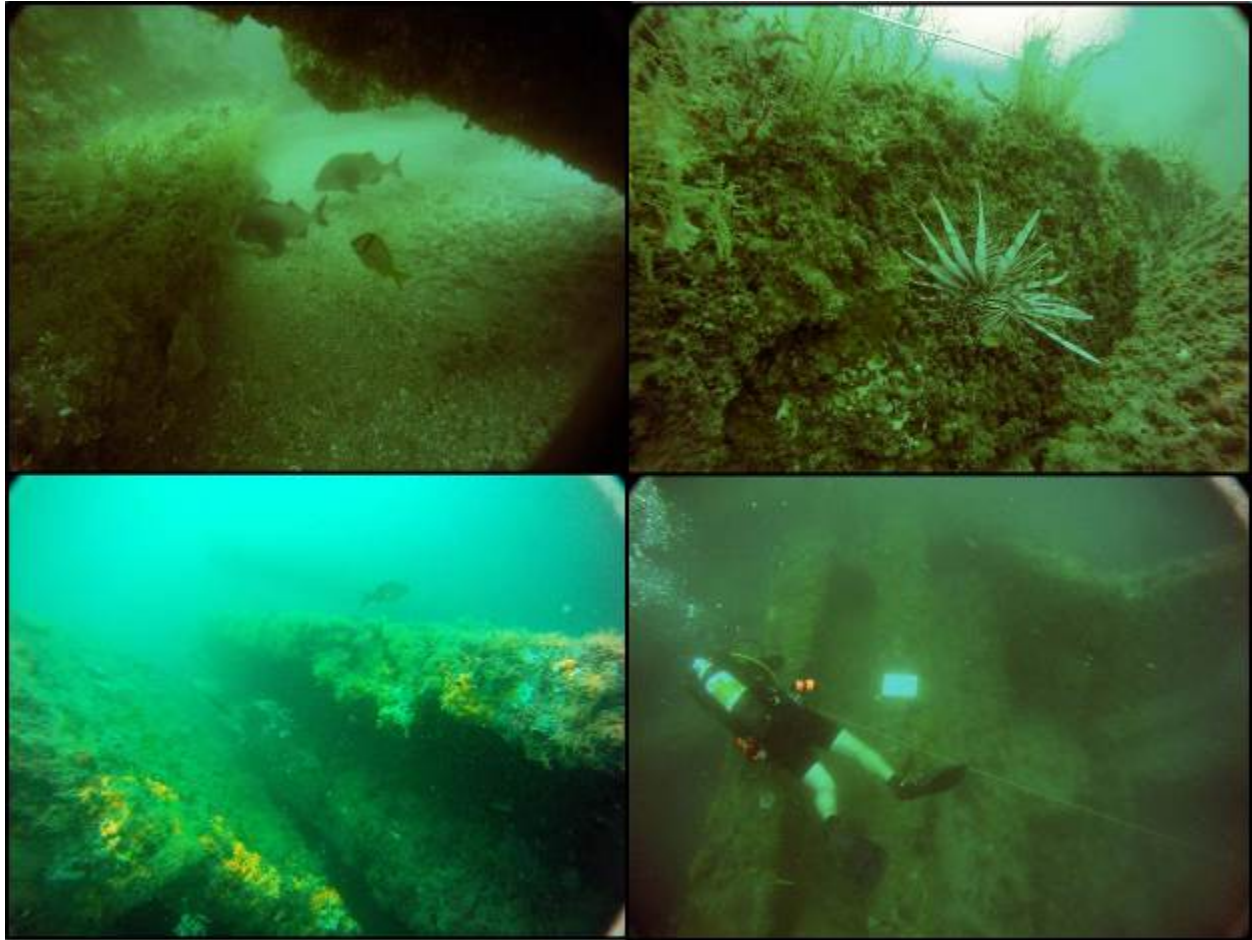


Figure 31. Chart of the Donaldson Reef site showing the Clifton Perry Memorial Reef location.

### 5.10.2 Structural Summary

The reef lies in an elliptical array on an east-southeast to west-northwest axis. The overall footprint gathered from GPS data is 330 feet by 280 feet, or approximately 2 acres. The average profile at this reef site was determined from eight (8) profile measurements taken along the ridge of the reef's highest peaks, and is currently 12 ft above the seafloor. The measurements ranged from a low of 9 feet to a high of 16 feet. There has obviously been settlement of the reef over time. It has been determined that most of this settlement occurred during hurricane Wilma in October 2005, which caused significant damage to resources on land and the below sea-level terrain of the natural and artificial reefs. The Clifton Perry Reef was finished just months before the hurricane struck; therefore, many concrete and steel components had not yet settled into locking position.

Depth measurements taken at along the reefs perimeter and in the surrounding seafloor indicate a scour depth of at least two feet around the reef. This is likely due to the shifting sediments, as well as past storm events. The photographs in Figure 32 show the general condition of the Clifton Perry Reef and some of the species observed during the monitoring dive.



**Figure 32. Clifton Perry Memorial Reef 2012 photographs.**

Identification of species in the photographs shown above, clockwise from the upper-left photograph are (1) black margate and porkfish, (2) lionfish, (3) none, and (4) scamp.

### **5.10.3 Biological Survey Results**

Following the 2012 fish census and in reviewing past monitoring efforts, we noticed an increasing trend in both species diversity and total biomass on the Clifton Perry Memorial Reef since its construction in 2005. The most notable recreational sport/food fish identified on the reef were: common snook, gag grouper, snapper (lane, yellowtail and gray), scamp, and great barracuda. Unfortunately, two venomous fish species were also observed: the spotted scorpion fish (native) and the invasive exotic red lionfish (native to the Pacific Ocean). Lionfish have become a large problem in the western Atlantic and Caribbean Sea waters in recent years, and based on monitoring efforts, are more common in the waters of Martin County, especially over the last 3 years.

Several adult cottonwick were also documented. Although native to Florida, they are seldom found on artificial reefs and prefer the shallow natural reefs close to shore. Overall, the Perry reef supports a uniformly dense assemblage of sessile invertebrates, marine plants, algae and other benthic marine organisms. The fish and invertebrate species observed during the monitoring dive are listed below in Table 26 and Table 27.

**Table 26. Clifton Perry Memorial Artificial Reef Fish Species Census.**

Family/Common Name	Species	2012	
		Abundance	Size
<b>Carangidae</b>			
Blue runner	<i>Caranx crysos</i>	A	A
<b>Centropomidae</b>			
Common snook	<i>Centropomus undecimalis</i>	M	J/A & A
<b>Chaetodontidae</b>			
Reef butterflyfish	<i>Chaetodon sedentarius</i>	M	A
Spotfin butterflyfish	<i>Chaetodon ocellatus</i>	F	A
<b>Dasyatidae</b>			
Southern Stingray	<i>Dasyatis americana</i>	S	A
<b>Diodontidae</b>			
Striped burrfish	<i>Chilomycterus schoepfi</i>	S	A
<b>Haemulidae</b>			
Tomtate	<i>Haemulon aurolineatum</i>	A	J & A
Black margate	<i>Anisotremus surinamensis</i>	F	A
Cottonwick	<i>Haemulon melanurum</i>	F	A
Porkfish	<i>Anisotremus virginicus</i>	M	J & A
<b>Labridae</b>			
Slippery dick	<i>Halichoeres bivittatus</i>	A	J & A
Spanish hogfish	<i>Bodianus rufus</i>	M	J & A
<b>Lutjanidae</b>			
Gray snapper	<i>Lutjanus griseus</i>	M	A
Lane snapper	<i>Lutjanus synagris</i>	M	J & A
Yellowtail snapper	<i>Ocyurus chrysurus</i>	M	J & A
<b>Mullidae</b>			
Spotted goatfish	<i>Pseudupeneus maculatus</i>	S	A
<b>Muraenidae</b>			
Spotted moray eel	<i>Gymnothorax moringa</i>	S	A
<b>Ogcocephalidae</b>			
Shortnose batfish	<i>Ogcocephalus nasutus</i>	S	A
<b>Pomacanthidae</b>			
Blue angelfish	<i>Holacanthus bermudensis</i>	F	A
<b>Pomacentridae</b>			
Yellowtail reeffish	<i>Chromis enchrysurus</i>	M	J & A
Beaugregory	<i>Pomacentrus leucostictus</i>	M	J & A
<b>Sciaenidae</b>			
High hat	<i>Equetus acuminatus</i>	M	J & A
<b>Scorpaenidae</b>			
Red Lionfish	<i>Pterois volitans</i>	F	J
Spotted scorpionfish	<i>Scorpaena plumeiri</i>	S	A
<b>Serranidae</b>			
Belted sandfish	<i>Serranus subligarius</i>	M	J & A
Gag grouper	<i>Mycteroperca microlepis</i>	F	J
Scamp	<i>Mycteroperca phenax</i>	M	J & A
Whitespotted soapfish	<i>Rypticus maculatus</i>	M	J & A
<b>Sparidae</b>			
Sheepshead	<i>Archosargus probatocephalus</i>	F	A
Sheepshead porgy	<i>Calamus penna</i>	M	A

Family/Common Name	Species	2012	
		Abundance	Size
<b>Sphyraenidae</b>			
Great barracuda	<i>Sphyraena barracuda</i>	S	A
<b>Tetraodontidae</b>			
Bandtail puffer	<i>Sphoeroides spengleri</i>	F	J & A
Sharpnose puffer	<i>Canthigaster rostrata</i>	F	J & A
	<b>Total</b>	<b>33</b>	

Abundance Key: S=single, F=few (2-10), M=many (11-100), A=abundant (>100)  
Size Key: A=adult, J=juvenile, A/J=intermediate

**Table 27. Clifton Perry Memorial Artificial Reef Benthic Species Census.**

	Common Name	Scientific Name
<b>Cnidarians</b>	Algae Hydroids	<i>Thyroscyphus ramosus</i>
<b>Crustaceans</b>	Volcano Barnacle	<i>Tetraclita stalactifera</i>
<b>Porifera</b>	N/A	<i>Batzella spp.</i>