

Family/ Common Name	Species	2009		2008		2007	
		Abundance	Size	Abundance	Size	Abundance	Size
Vermillion snapper	<i>Rhomboplites aurorubens</i>			A	A	F	
Haemulidae							
Black margate	<i>Anisotremus surinamensis</i>			F	A		
Pigfish	<i>Orthopristis chrysoptera</i>	F	A	M	A		
Tomtate	<i>Haemulon aurolineatum</i>	A	A,J	A	A	A	
Sparidae							
Sheepshead	<i>Archosargus probatocephalus</i>	M	A	F	A	F	
Sheepshead porgy	<i>Calamus penna</i>	M	A	M	A	F	
Sciaenidae							
Cubbyu	<i>Equetus umbrosus</i>	M	A	M	A,J	S	
Chaetodontidae							
Reef butterflyfish	<i>Chaetodon sedentarius</i>					F	
Spotfin butterflyfish	<i>Chaetodon ocellatus</i>			S	A		
Pomacanthidae							
Blue angelfish	<i>Holocanthus bermudensis</i>	F	A,J				
Pomacentridae							
Beaugregory	<i>Pomacentrus leucostictus</i>			F	A		
Bicolor damselfish						F	
Yellowtail reeffish	<i>Chromis enchrysurus</i>	M	A,J	F	A		
Labridae							
Slippery dick	<i>Halichoeres bivittatus</i>	M	A				
Spanish hogfish	<i>Bodianus rufus</i>	F	A				
Spotfin hogfish	<i>Bodianus pulchellus</i>	M	A				
Scorpaenidae							
Spotted scorpionfish	<i>Scorpaena plumeiri</i>	F	A				
Tetraodontidae							
Bandtail puffer	<i>Sphoeroides spengleri</i>	F	A	F	J	F	
	Total	25		19		17	

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 9. PCL Deep Artificial Reef fish census.

3.5 Sirotkin Diamond South Artificial Reef

- Location: Sirotkin Reef
- Materials: Reef modules (steel and concrete)
- Maximum Depth: 100 feet
- Reef High Point: 90 feet
- Year Created: 2005
- Monitoring Date: 12/21/2008

3.5.1 History of the Sirotkin Diamond Artificial Reef

Martin County received a grant in 2005 from the FFWCC to enhance existing artificial reef sites by deploying sixty Reefmaker “Florida Special” artificial reef modules adjacent to existing reef

materials in the Donaldson and Sirotkin reef sites. These modules are large three-sided pyramids fabricated using concrete and steel. Fifteen of these modules were deployed in three groups of five modules within the Sirotkin Reef site on May 21, 2005. The placement pattern is roughly diamond-shaped with one central module surrounded by the remaining four, spaced about 100 feet away. Color coded zip ties at the top of each unit help to simplify identification of individual modules during monitoring.

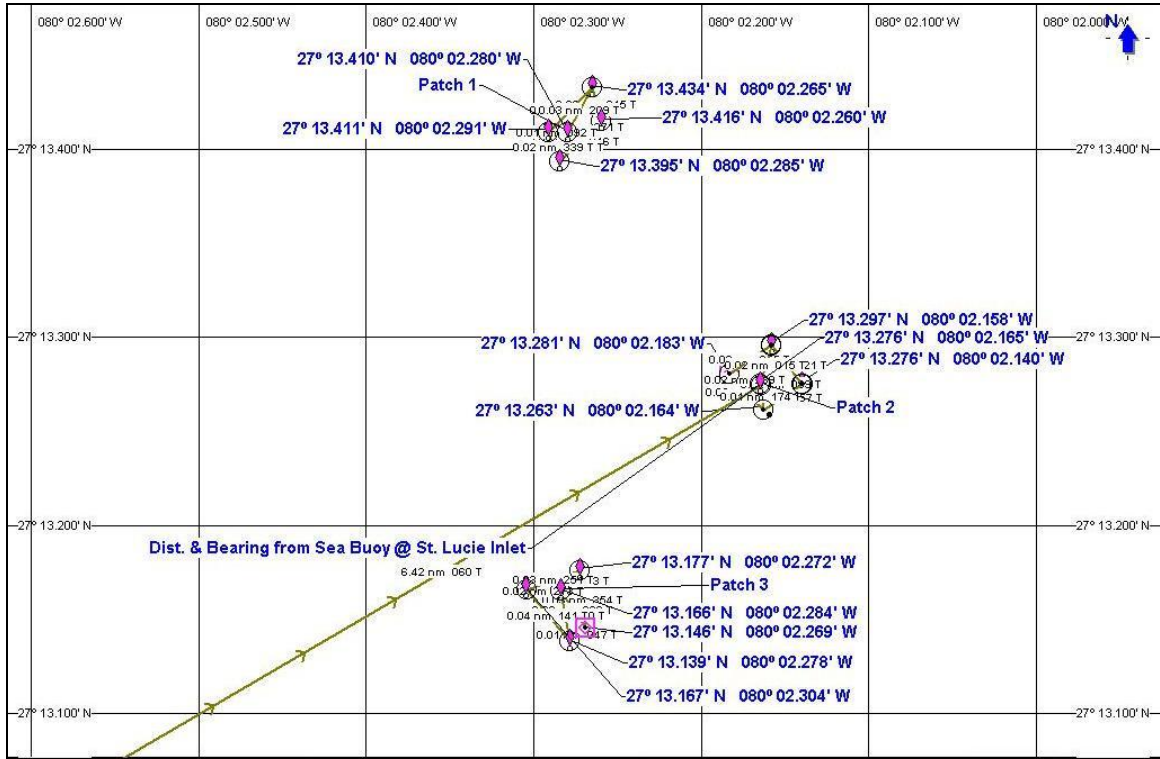


Figure 16. Sirotkin Diamond patch reefs.

3.5.2 Structural Summary

Each of the five modules at the Sirotkin Diamond South location was observed and found to be standing upright, stable and in their original positions. Minimal settling was noted around the feet and/or bases of some modules, ranging from several inches to almost the top of the horizontal footer beam. The bottom substrate is quite firm and composed of coarse sand and shell hash. Each of the three reef areas are separated by approximately 1000 feet. A chart showing the locations of the Reefmaker modules in the three Sirotkin Diamond patch reefs is shown in Figure 16.

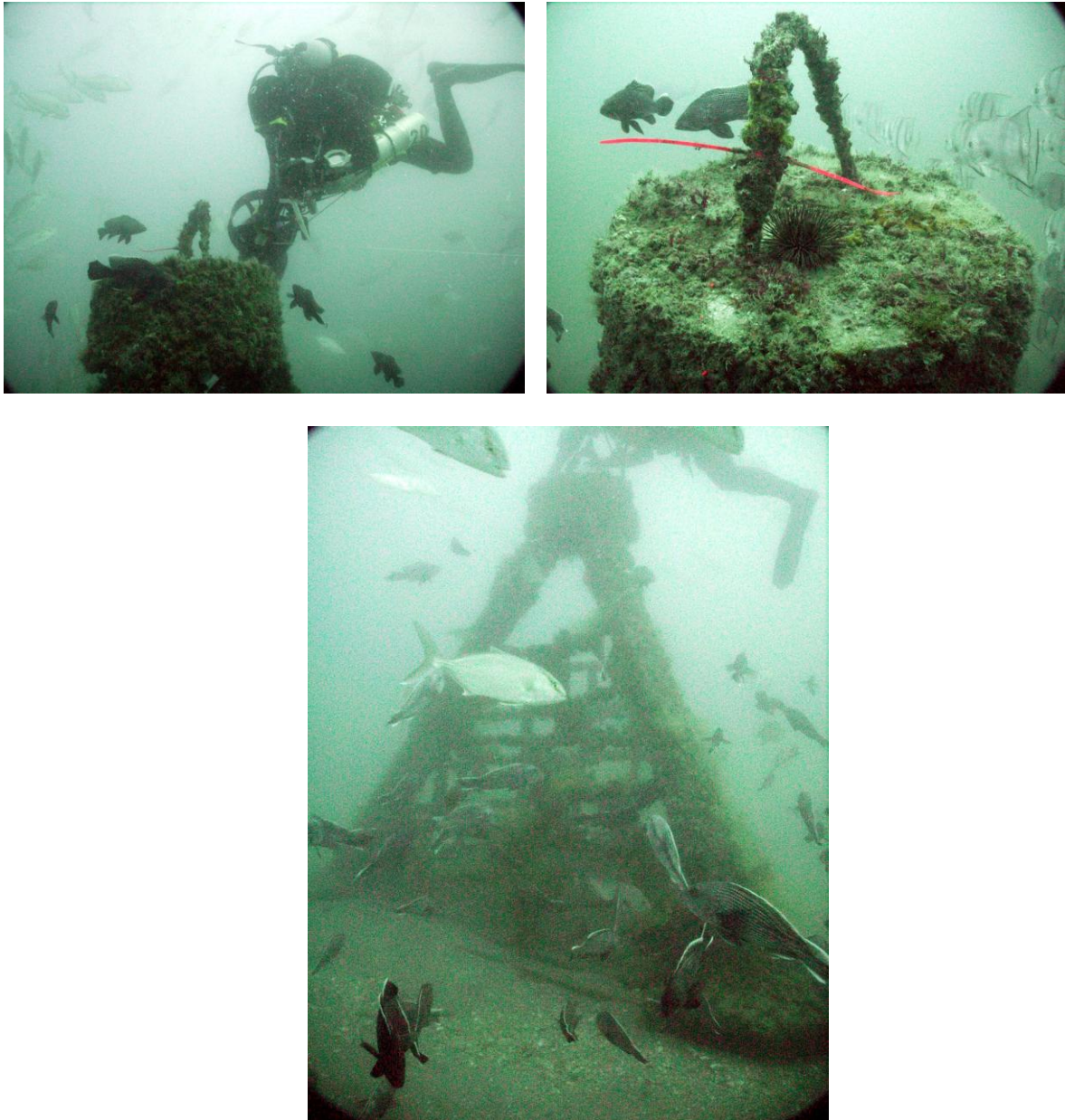


Figure 17. Sirotkin Diamond South Reefmaker module 2008 photos.

3.5.3 Biological Survey Results

Fish surveys indicate an increasing trend in species diversity since 2006 with seabasses and jacks representing the most numerous species in 2008 and 2007, although porgies, grunts and snappers were also common. Large schools of round scad and blue runner were observed around and above the reef modules. Invertebrate biomass on the artificial reef also appeared to have increased since deployment. Some of the most common species included sea urchins, hydroids, tube worms, encrusting sponges, tunicates and sea cucumbers. Various crabs were also observed. Table 10 shows the fish species and abundance observed during 2008 and 2007.

Family/ Common Name	Species	2008		2007	
		Abundance	Size	Abundance	Size
Elasmobranchs					
Southern stingray	<i>Dasyatis americana</i>			S	A
Serranidae					
Bank seabass	<i>Centropristis ocyurus</i>	F	A	F	A
Black seabass	<i>Centropristis striata</i>	M	A,J		
Sand perch	<i>Diplectrum formosum</i>	F	A		
Grammistidae					
Whitespotted soapfish	<i>Rypticus maculatus</i>			F	J
Carangidae					
Amberjack	<i>Seriola dumerili</i>	A	A,J	M	A,J
Blue runner	<i>Caranx crysos</i>	A	A		
Round scad	<i>Decapterus punctatus</i>	A	A		
Lutjanidae					
Lane snapper	<i>Lutjanus synagris</i>	F	A	F	A
Red snapper	<i>Lutjanus campechanus</i>	M	A	M	A
Vermilion snapper	<i>Rhomboplites aurorubens</i>			F	A
Haemulidae					
Porkfish	<i>Anisotremus virginicus</i>			M	A
Tomtate	<i>Haemulon aurolineatum</i>	M	A	M	A
Sparidae					
Sheepshead porgy	<i>Calamus penna</i>	F	A	F	A
Sciaenidae					
Cubbyu	<i>Equetus umbrosus</i>	M	A	M	A
Ephippidae					
Atlantic spadefish	<i>Chaetodipterus faber</i>	A	A,J		
Pomacentridae					
Yellowtail reeffish	<i>Chromis enchrysurus</i>	M	A,J	M	J
	Total	13		12	

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 10. Sirotkin Diamond South Artificial Reef fish census.

3.6 Railroad Tie Stack Artificial Reef

- Location: Sirotkin Reef
- Materials: Concrete railroad ties
- Maximum Depth: 93 feet
- Reef High Point: 72 feet
- Year Created: 2003
- Monitoring Date: 8/5/2008

3.6.1 History of the Railroad Tie Stack Artificial Reef

As part of a grant from the Florida Fish and Wildlife Conservation Commission (FWC) and with additional funding from Martin County, the Railroad Tie Stack Reef was constructed between March and June, 2003 utilizing discarded concrete railroad ties donated by the Florida East Coast Railroad. This was the first artificial reef site built in Martin County using concrete railroad ties.