

anemones, sea urchins, barnacles, sea cucumbers, arrow crabs, hermit crabs and encrusting sponges. Table 19 presents the fish species observed during 2009.

Family/ Common Name	Species	2009	
		Abundance	Size
Elasmobranchs			
Spotted eagle ray	<i>Aetobatus narinari</i>	F	A
Centropomidae			
Common snook	<i>Centropomus undecimalis</i>	F	A
Serranidae			
Black seabass	<i>Centropristis striata</i>	M	A,J
Goliath grouper	<i>Epinephelus itajara</i>	S	A
Scamp	<i>Mycteroperca phenax</i>	M	A/J
Tobaccofish	<i>Serranus tabacarius</i>	F	A
Carangidae			
Amberjack	<i>Seriola dumerili</i>	F	A
Round scad	<i>Decapterus punctatus</i>	A	A
Lutjanidae			
Gray snapper	<i>Lutjanus griseus</i>	F	A,J
Red snapper	<i>Lutjanus campechanus</i>	F	J
Yellowtail snapper	<i>Ocyurus chrysurus</i>	F	A,J
Haemulidae			
Porkfish	<i>Anisotremus virginicus</i>	F	A,J
Tomtate	<i>Haemulon aurolineatum</i>	M	A,J
White margate	<i>Haemulon album</i>	F	A,J
Sparidae			
Sheepshead	<i>Archosargus probatocephalus</i>	F	A
Sheepshead porgy	<i>Calamus penna</i>	F	A,J
Sciaenidae			
Cubbyu	<i>Equetus umbrosus</i>	M	A,J
Pomacentridae			
Beaugregory	<i>Pomacentrus leucostictus</i>	F	A,J
Scorpaenidae			
Spotted scorpionfish	<i>Scorpaena plumeiri</i>	F	A
	Total	19	

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 19. Fogel Capital Management Artificial Reef fish species census.

3.15 Jack MacDonald Artificial Reef

- Location: South County Reef
- Materials: Concrete
- Maximum Depth: 70 feet
- Reef High Point: 63 feet
- Year Created: 2008
- Monitoring Date: 9/1/2009

3.15.1 History of the Jack MacDonald Artificial Reef

Nearly 2,000 tons of large concrete and steel construction waste was delivered to Harbour Pointe Park in Ft. Pierce in 2007 and early 2008 and stockpiled prior to deployment offshore of Martin County. In June 2008, it was loaded on barges and shipped to the South County Artificial Reef area. A total of 272 tons of these materials were dropped in the southwest corner of the reef area from the anchored barge to form the Jack MacDonald Artificial Reef.



Figure 32. Jack MacDonald Reef photographs from 2009.

3.15.2 Structural Summary

The maximum depth at this artificial reef site is about 68 feet with a maximum relief of about 9 feet. The footprint of the site is an irregular form with a southeast-to-northwest axis and occupies about 0.5 acres of seafloor. The deployment barge was securely moored at two points when the reef materials were dropped and the large concrete components settled in a single pile, although a few pieces settled to the bottom a short distance from the reef pile. Several large culvert sections provide cavernous recesses that are used extensively by large and small fish alike. The seafloor at this site is comprised of a shell/coarse sand mixture and appears to provide a solid base for the heavy concrete and steel pieces, as scouring is not significant. Figure 31 shows a chart with the location of the Jack MacDonald Reef.

3.15.3 Biological Survey Results

Fish surveys indicate a diverse assemblage of fishes, although 2009 was only the first year of monitoring since deployment. Seabasses and jacks represented the most numerous species of fishes. As at most of the South County Reef sites, vast schools of adult and juvenile round scad were abundant around and above the reef crest, while the demersal species showed an affinity for the reef itself and the numerous crevices and refugia. Adult and juvenile tomtate grunts were abundant on this reef as at most other artificial reefs off Martin County. Plants and invertebrates observed on the artificial reef included red, brown and green algae, hydroids, sea anemones, sea urchins, barnacles, sea cucumbers, arrow crabs, hermit crabs and encrusting sponges. Table 20 presents the fish species observed during 2009.

Family/ Common Name	Species	2009	
		Abundance	Size
Centropomidae			
Common snook	<i>Centropomus undecimalis</i>	S	A
Serranidae			
Bank seabass	<i>Centropristis ocyurus</i>	F	A
Belted sandfish	<i>Serranus subligarius</i>	F	A
Black seabass	<i>Centropristis striata</i>	M	A,J
Gag grouper	<i>Mycteroperca microlepis</i>	S	J
Goliath grouper	<i>Epinephelus itajara</i>	S	A
Apogonidae			
Twospot cardinalfish	<i>Apogon pseudomaculatus</i>	F	A
Carangidae			
Amberjack	<i>Seriola dumerili</i>	M	A,J
Blue runner	<i>Caranx chrysos</i>	A	A
Round scad	<i>Decapterus punctatus</i>	A	A
Lutjanidae			
Gray snapper	<i>Lutjanus griseus</i>	F	A
Lane snapper	<i>Lutjanus synagris</i>	F	J,A
Haemulidae			
Black margate	<i>Anisotremus surinamensis</i>	F	A
Tomtate	<i>Haemulon aurolineatum</i>	A	A,J
Sparidae			
Sheepshead	<i>Archosargus probatocephalus</i>	F	A
Sheepshead porgy	<i>Calamus penna</i>	F	A
Sciaenidae			
Cubbyu	<i>Equetus umbrosus</i>	F	A,J
Chaetodontidae			
Reef butterflyfish	<i>Chaetodon sedentarius</i>	F	A
Pomacanthidae			
Blue angelfish	<i>Holocanthus bermudensis</i>	S	A
French angelfish	<i>Pomacanthus paru</i>	S	A
Pomacentridae			
Yellowtail reeffish	<i>Chromis enchrysurus</i>	M	A,J
Labridae			
Slippery dick	<i>Halichoeres bivittatus</i>	M	J
Scorpaenidae			
Spotted scorpionfish	<i>Scorpaena plumeiri</i>	F	A
Tetraodontidae			
Bandtail puffer	<i>Sphoeroides spengleri</i>	F	A
Sharpnose puffer	<i>Canthigaster rostrata</i>	F	A
	Total	24	

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 20. Jack MacDonald Artificial Reef fish species census.

3.16 Shirley Artificial Reef

- Location: South County Reef
- Materials: Concrete, steel