

5.0 RESULTS

The following sections summarize the monitoring results for each artificial reef monitored in 2011. A brief history and description of each artificial reef is followed by structural details and biological survey results along with selected photographs of each artificial reef.

5.1 GLASRUD – “BIG AL” REEF

- Location: Sirotkin Reef
- Materials: “Big Al” Tugboat (Steel)
- Maximum Depth: 191 feet
- Reef High Point: 162 feet
- Year Created: 2010
- Monitoring Date: 9/13/2011
- Total Cost: \$40,000 (MCAC)

5.1.1 History of the Glasrud “Big Al” Artificial Reef

On Wednesday February 24th 2010 the 69-foot steel tug boat “Big Al” was deployed offshore as an estimated 100 spectators aboard 20 boats watched, photographed and took video of the sinking. The deployment of the “Big Al” was made possible by a \$40,000 donation from the Martin County Anglers Club (MCAC), a non-profit organization, to cover the costs associated with the new reefs’ construction. The tug sank quickly after it was properly positioned in line with other artificial reefs created. The crews working aboard the “Regina T” tug and Molly work boat owned by McCulley Marine Services, and Treasure Coast reef consultant Kerry Dillon had to contend with current, wind and the edge of the severe midday squall during the deployment. The tug reached bottom in 187 feet of water near the Wickstrom, a 168 foot long steel freighter deployed in January 2003. It is part of Martin County's Sirotkin permitted reef area located in deep water. Figure 5 shows a chart with the location of the Glasrud Reef.

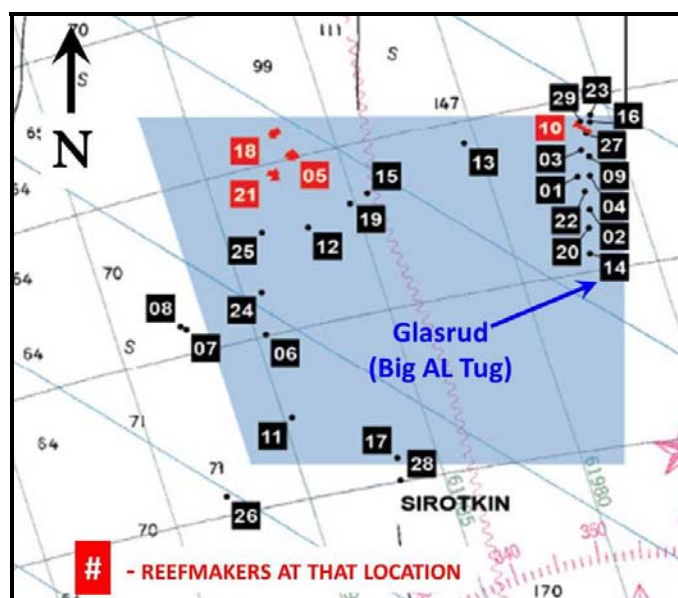


Figure 5. Chart view of the Glasrud Reef in the Sirotkin Reef site.

5.1.2 Structural Summary

The Glasrud appears to have suffered very little damage to the hull as it impacted the seafloor. During the deployment video cameras were attached to the railing on the aft wheelhouse deck to record the sinking. From the audio of that recording we were able to time the descent, 187 feet, to the seafloor. The tugboat took a total of 14 seconds to sink to the bottom once it had submerged. The video shows an explosion of bubbles and debris from the seafloor as the tugboat hit the bottom. Other than the steel sign bolted to the top of the wheelhouse being bent over at the legs from the impact, the tugboat was in good structural condition. The photographs in Figure 6 show the general condition of the Glasrud and some of the large schools of round scad observed around the vessel during the monitoring dive.

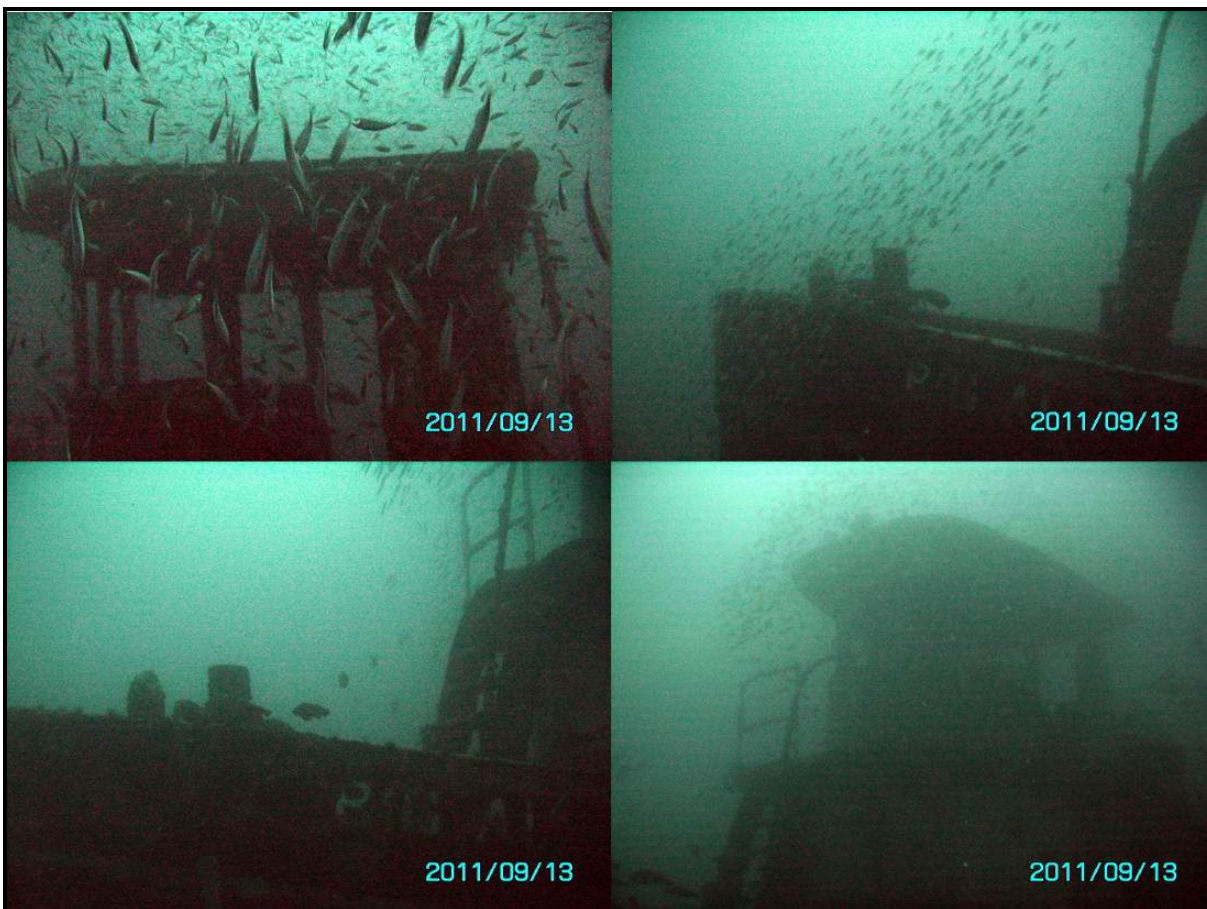


Figure 6. Glasrud Artificial Reef 2011 photographs.

5.1.3 Biological Survey Results

Although this site had only 10 fish species on it when monitored in 2011, the total biomass was very impressive. Thousands of round scad and hundreds of amberjack, vermillion snapper and black sea bass were observed during the monitoring dive. Table 8 and Table 9 list the species/taxa and the relative abundance and size class (adult, intermediate, and juvenile) observed during the monitoring dive.

Table 8. Glasrud Artificial Reef Fish Species Census.

Family/ Common Name	Species	2011	
		Abundance	Size
Carangidae			
Greater Amberjack	<i>Seriola dumerili</i>	M	A
Round scad	<i>Decapterus punctatus</i>	A (1000's)	A
Haemulidae			
Tomtate	<i>Haemulon aurolineatum</i>	M	J & A
Lutjanidae			
Vermilion Snapper	<i>Rhomboplites aurorubens</i>	A	A
Sciaenidae			
Cubbyu	<i>Pareques umbrosus</i>	F	J & A
Serranidae			
Bank sea bass	<i>Centropristis ocyurus</i>	M	J & A
Black sea bass	<i>Centropristis striata</i>	A	J & A
Anthiinae			
Anthias	<i>Anthias</i>	F	A
Sparidae			
Sheepshead porgy	<i>Calamus penna</i>	F	A
Sphyraenidae			
Great barracuda	<i>Sphyraena barracuda</i>	F	A
	Total	10	

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. Glasrud Artificial Reef Benthic Species Census.

	Common Name	Scientific Name
Echinoderms	Rock Boring Urchin	<i>Echinometra lucunter</i>
	3 Rowed Sea Cucumber	<i>Isostichopus badionotus</i>
	Common Arbacia Urchin	<i>Arbacia punctulata</i>
	Sea Star	Unidentified species
Cnidarians	Sea Anemones	<i>Aptasia sp.</i>
	Hydroids	Unidentified species
Ascidians	Overgrowing Tunicates	<i>Didemnidae</i>
	Giant Tunicates	<i>Polycarpa spongiabilis</i>
	Button Tunicates	<i>Distaplia corolla</i>
Crustaceans	Yellowline Arrow Crab	<i>Stenorhynchus seticornis</i>
	Giant Hermit Crab	<i>Anomurans</i>
	Caribbean Spiny Lobster	<i>Panulirus argus</i>
	Rough Box Crab	<i>Calappa gallus</i>

	Common Name	Scientific Name
Mollusca	Rock Snails	<i>Muricidae</i> (Unidentified Species)
	Octopus	Unidentified Species
	Cowery Shell	
Ectoprocta	Encrusting Bryozoans	Unidentified Species
Anthozoa	Gorgonians	
