

5.2 TRAFFIC BARGE - 4 REEFMAKERS

- Location: Donaldson Reef
- Materials: Barge (Steel), concrete jersey barriers & 4 Reefmaker units
- Maximum Depth: 62 feet
- Reef High Point: 51 feet
- Year Created: 1993, Reefmakers deployed in 2005
- Monitoring Date: 09/18/2012
- Total Cost: \$3,180 (FWC 89% & Martin County 11%)

5.2.1 History of the Traffic Barge - 4 Reefmakers

The Traffic Barge derived its name because there were several concrete traffic barriers (also known as “jersey barriers”), that were sitting on top of the barge when it was deployed in December 1993. It sits upright in 60 feet of water in the Donaldson permitted reef area.

In 2005, four Reefmaker “Florida Special” artificial reef units were deployed around the Traffic Barge site as part of a grant Martin County received from the FWC. The Traffic Barge site is one of four barge sites within the Donaldson Site where four Reefmaker units were placed approximately 100 feet to the north, south, east and west of each barge to enhance the existing artificial reef sites. One colored zip tie was attached to each reef unit to mark the Reefmaker units deployed around the barges to assist divers with locating units. The following color code was used: blue - reef unit to north, red - reef unit to west, green - reef unit to east, yellow - reef unit to south.

Figure 8 shows the location of the Traffic Barge and the Reefmaker units within the Donaldson site. A chart showing the placement of the units around the Traffic Barge location is shown in Figure 9.

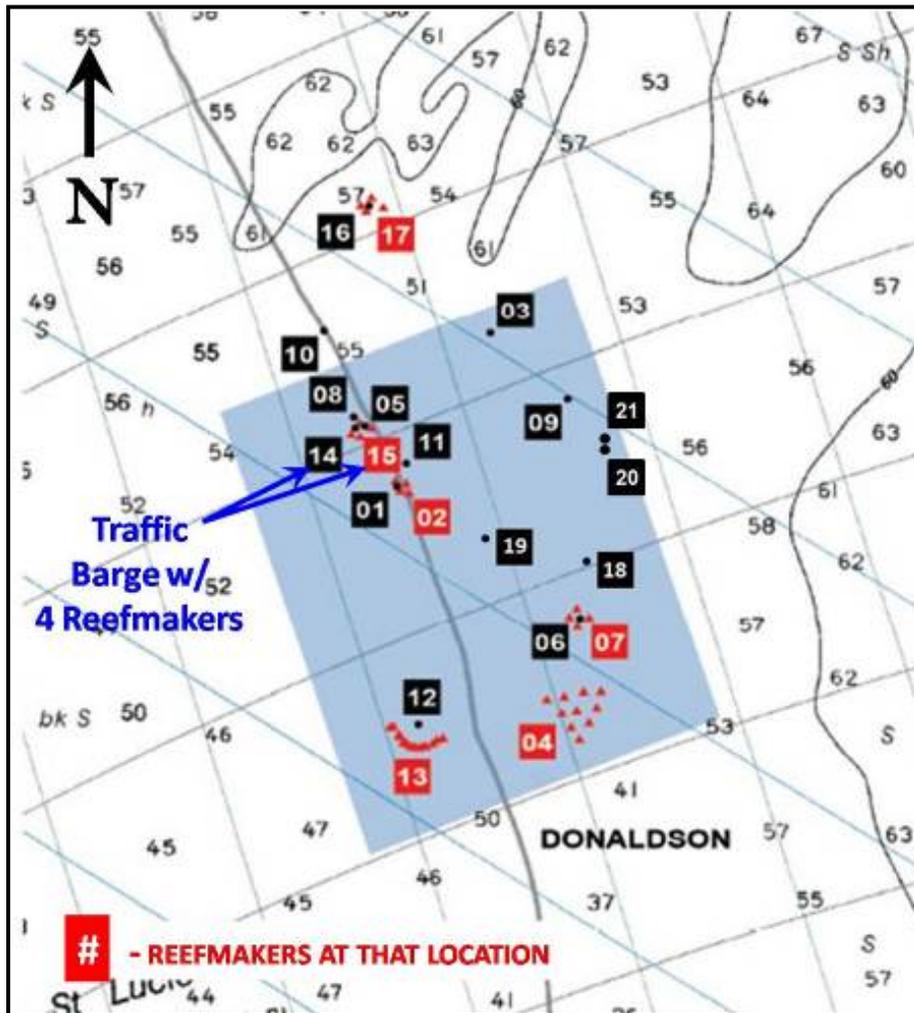


Figure 8. Chart of the Donaldson Reef site showing the Traffic Barge and Reefmakers location.

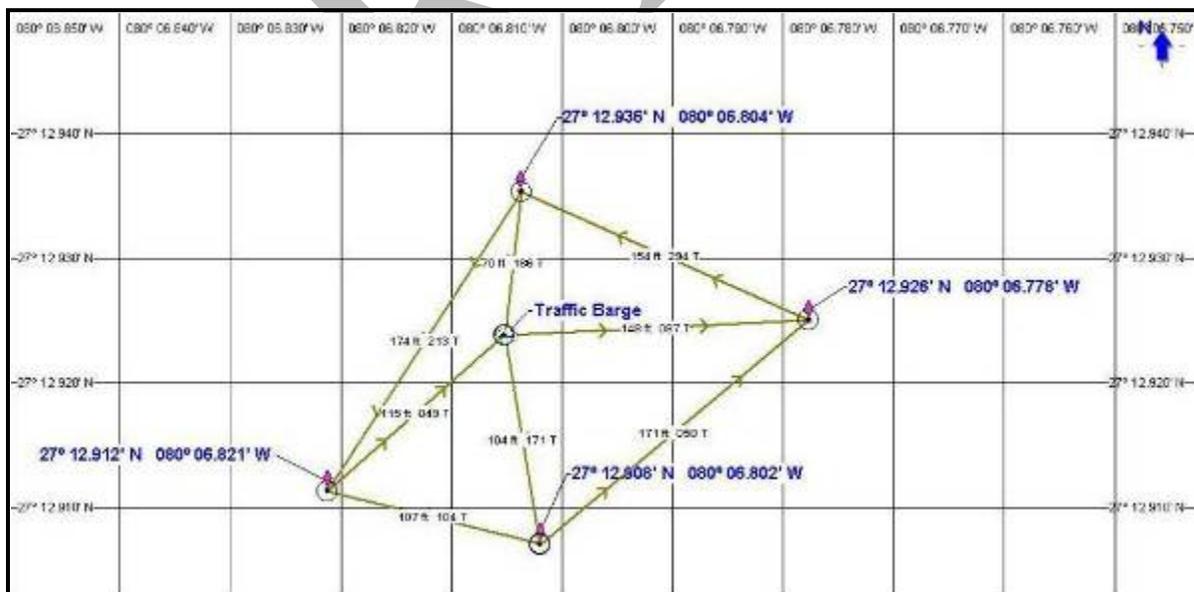


Figure 9. Chart view of the Traffic Barge and 4 Reefmaker units.

5.2.2 Structural Summary

The four Reefmaker units at this site are intact and overall, good condition. Because these units are situated in one of the more shallow locations, similar to Cement Barge, the units are experiencing levels of erosion, corrosion and degradation not observed on the deeper sites. The shallower artificial reef sites are closer to the shoreline; therefore much more sand transfer is experienced seasonally as well as during tropical storm events. This additional sediment movement has eroded the steel side sections considerably in the zone (within 24 inches) of the seafloor. Several steel bars were eroded, it is estimated that 25% of the original thickness is remaining, however; the concrete base and solid concrete framework is the main structural component of each Reefmaker unit. Over time, it is anticipated that much of the steel will be lost through corrosive and erosive forces, while the concrete framework will likely remain for many decades to come, providing an environment for good benthic habitat.

Based on past monitoring efforts, this particular site has demonstrated seasonal trends with sediment movement. During this 2012 monitoring survey, some of the units had substantial sediment buildup inside and around the concrete bases, partially covering them. Refer to Figure 10 for the general condition of some of the Traffic Barge Reefmaker “Florida Special” units and evidence of sand build up along the base.



Figure 10. Traffic Barge Reefmaker units 2012 photographs.

5.2.3 Biological Survey Results

Species identified in Figure 10, clockwise from the top left include (1) lionfish, (2) atlantic spadefish, (3) shortnose batfish, and (4) none. Of the 20 fish species identified during the 2012-monitoring event, four are noteworthy. Three sport fish species are sought after by fishing enthusiasts, including gag grouper, greater amberjack, and Spanish mackerel. Unfortunately, the fourth species, the red lionfish, was also observed. A total of three were documented, a small one can be seen in Figure 10. Table 10 lists the fish species census, including relative abundance and size class (adult, intermediate, and juvenile) observed during the monitoring dive. Table 11 lists the observed benthic species.

Table 10. Traffic Barge - 4 Reefmakers Fish Species Census.

Family/Common Name	Species	2012	
		Abundance	Size
Carangidae			
Greater amberjack	<i>Seriola dumerili</i>	F	J/A
Blue runner	<i>Caranx crysos</i>	M	A
Chaetodontidae			
Spotfin Butterflyfish	<i>Chaetodon ocellatus</i>	F	A
Dasyatidae			
Southern Stingray	<i>Dasyatis americana</i>	S	A
Ephippidae			
Atlantic spadefish	<i>Chaetodipterus faber</i>	F	A
Haemulidae			
Tomtate	<i>Haemulon aurolineatum</i>	A	J & J/A
Porkfish	<i>Anisotremus virginicus</i>	F	J & A
Labridae			
Spanish hogfish	<i>Bodianus rufus</i>	S	J/A
Slippery dick	<i>Halichoeres bivittatus</i>	M	J & A
Ogcocephalidae			
Shortnose batfish	<i>Ogcocephalus nasutus</i>	S	A
Pomacanthidae			
Blue angelfish	<i>Holacanthus bermudensis</i>	S	A
Pomacentridae			
Beaugregory	<i>Pomacentrus leucostictus</i>	F	J
Sergeant Major	<i>Abudefduf saxatilis</i>	F	J & A
Scombridae			
Spanish mackerel	<i>Scomberomorus maculatus</i>	S	A
Scorpaenidae			
Red Lionfish	<i>Pterois volitans</i>	F(3)	J
Serranidae			
Belted sandfish	<i>Serranus subligarius</i>	F	A & J
Gag grouper	<i>Mycteroperca microlepis</i>	S	J/A
Whitespotted soapfish	<i>Rypticus maculatus</i>	F	A
Sparidae			
Sheepshead porgy	<i>Calamus penna</i>	M	A
Tetraodontidae			
Sharpnose puffer	<i>Canthigaster rostrata</i>	F	A
	Total	20	

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 11. Traffic Barge - 4 Reefmakers Benthic Species Census.

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

5.3 UPSIDE-DOWN BARGE - 4 REEFMAKERS

- Location: Donaldson Reef
- Materials: Barge (Steel) & 4 concrete and steel Reefmaker units
- Maximum Depth: 65 ft (barge), 67 ft (Reefmaker unit)
- Reef High Point: 62 ft (barge), 57 ft (Reefmaker unit)
- Year Created: Reefmaker units deployed in 2005
- Monitoring Date: 09/08/2012
- Total Cost: \$3,180 (FWC 89% & Martin County 11%)

5.3.1 History of the Upside-Down Barge - 4 Reefmakers

The “Upside-Down Barge” derived its name because it landed “upside-down” when it was deployed. Based on the Martin County archives it was established that the Upside-Down Barge was deployed as an Artificial Reef in the Donaldson Permitted Area sometime between 1980 and 1986. It remains upside-down in 65 feet of water, located in the most northern of the four Reefmaker barge sites within the Site, and approximately 1 nm north of the Traffic Barge site.

In 2005, the site was augmented when Martin County deployed four Reefmaker “Florida Special” artificial reef units north, south, east and west of the Upside-Down Barge site. Similar to the other barge/reef maker sites, colored zip ties were attached to the top of each reef unit to help with identifying and photo documenting the individual units during monitoring efforts. The following color code was used: blue - reef unit to north, red - reef unit to west, green - reef unit to east, yellow - reef unit to south.

A chart showing the location of the barge and the Reefmaker units surrounding the barge is shown in Figure 11. A chart showing the placement of the units around the Upside-Down Barge location is shown in Figure 12.