

Table 22. Kyle' Crossbar Reef Benthic Species Census.

	Common Name	Scientific Name
Cnidarians	Sea Anemones	<i>Aptasia sp.</i>
Crustaceans	Caribbean Spiny Lobster	<i>Panulirus argus</i>
Mollusca	Rock snails	<i>Muricidae (Unidentified species)</i>
	Octopus - Caribbean Reef	<i>Octopus briareus</i>
Porifera	Encrusting Sponge	<i>Halisarca sp.</i>
Polychaeta	N/A	<i>Spirorbidae</i>

5.7 SIROTKIN DIAMOND PATCH - CENTRAL

- Location: Sirotkin Reef
- Materials: 5 Reefmaker “Florida Special” units (steel and concrete)
- Maximum Depth: 105 feet
- Reef High Point: 95 feet
- Year Created: 2005
- Monitoring Date: 09/05/2012
- Total Cost: \$3,975 (FWC 89% & Martin County 11%)

5.7.1 History of the Sirotkin Diamond Patch - Central

As part of a FWC grant Martin County received in 2005, sixty (60) Reefmaker “Florida Special” pyramid shaped artificial reef units made of concrete and steel were deployed around existing artificial sites, in addition to being placed as stand-alone reef sites. Fifteen (15) of the artificial reef units were deployed in three (3) groups of five (5) units each (North, Central, and South) within the Sirotkin Reef site on May 21, 2005. Charts showing the artificial reef’s location within the Sirotkin site, and the placement of the units at the reef location for the Diamond Patch are shown in Figure 20 and Figure 21.

The placement pattern shown in Figure 21 is roughly diamond-shaped with one central unit surrounded by the remaining four, spaced approximately 100 feet apart. Color coded zip ties were attached to the top of each unit during deployment to simplify identification of individual units during monitoring.

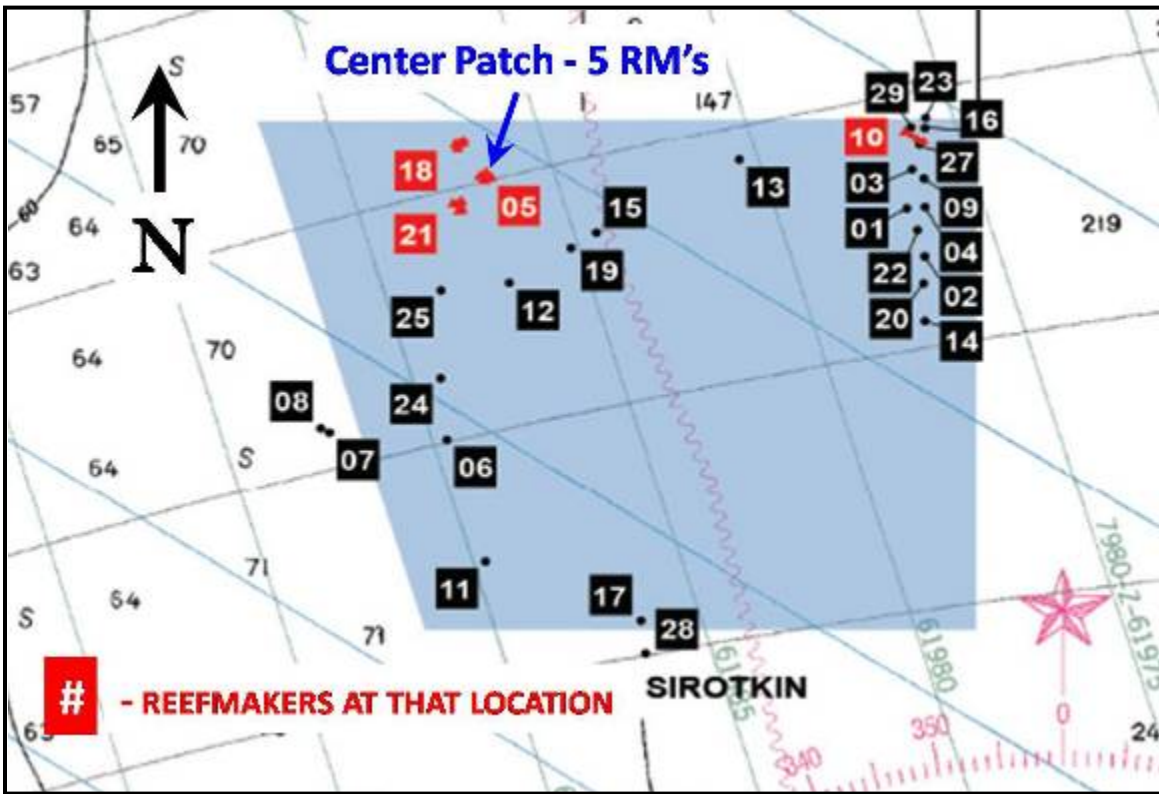


Figure 20. Chart of the Sirotkin site showing the Diamond Patch – Central location.

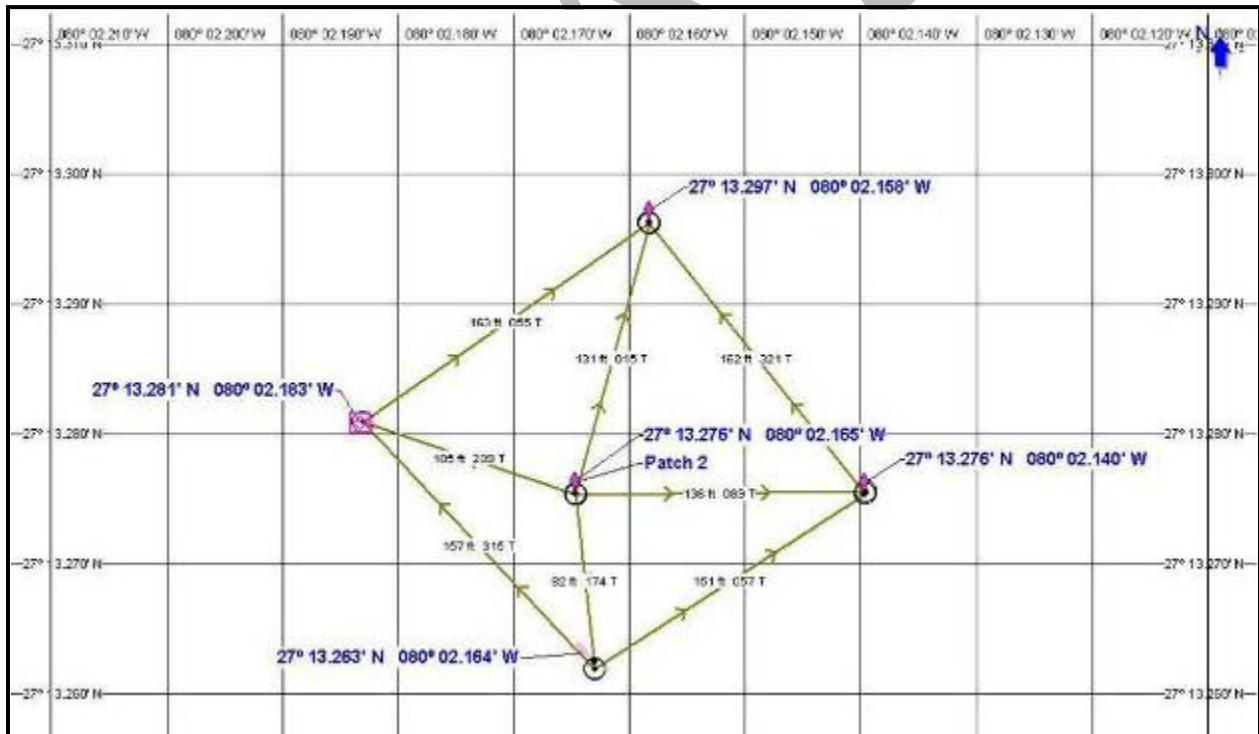


Figure 21. Chart view of the Sirotkin Diamond Patch - Central unit locations.

5.7.2 Fathometer Survey Summary

A fathometer survey of the Sirotkin Diamond Patch – Central site location was conducted to obtain depth information in the vicinity of the reef site, and a depth profile image of the individual Reefmaker units. The map in Figure 22 shows the relative location of the Reefmaker units at the Sirotkin Diamond Patch – Central reef site, which is identified by the blue dots and the dive flag symbol. The path of the survey vessel during the fathometer readings is represented by the yellow line. The survey track had an average depth of 101.5 ft, a minimum depth of 97.3 ft, and a maximum depth of 107 ft. During the course of the survey, attempts were made to locate each Reefmaker unit within the patch using the Hummingbird depth profiler, however, the individual Reefmaker units have a small profile in comparison to the larger debris piles or sunken vessel artificial reef sites, and were difficult to locate given their size and the water depth.

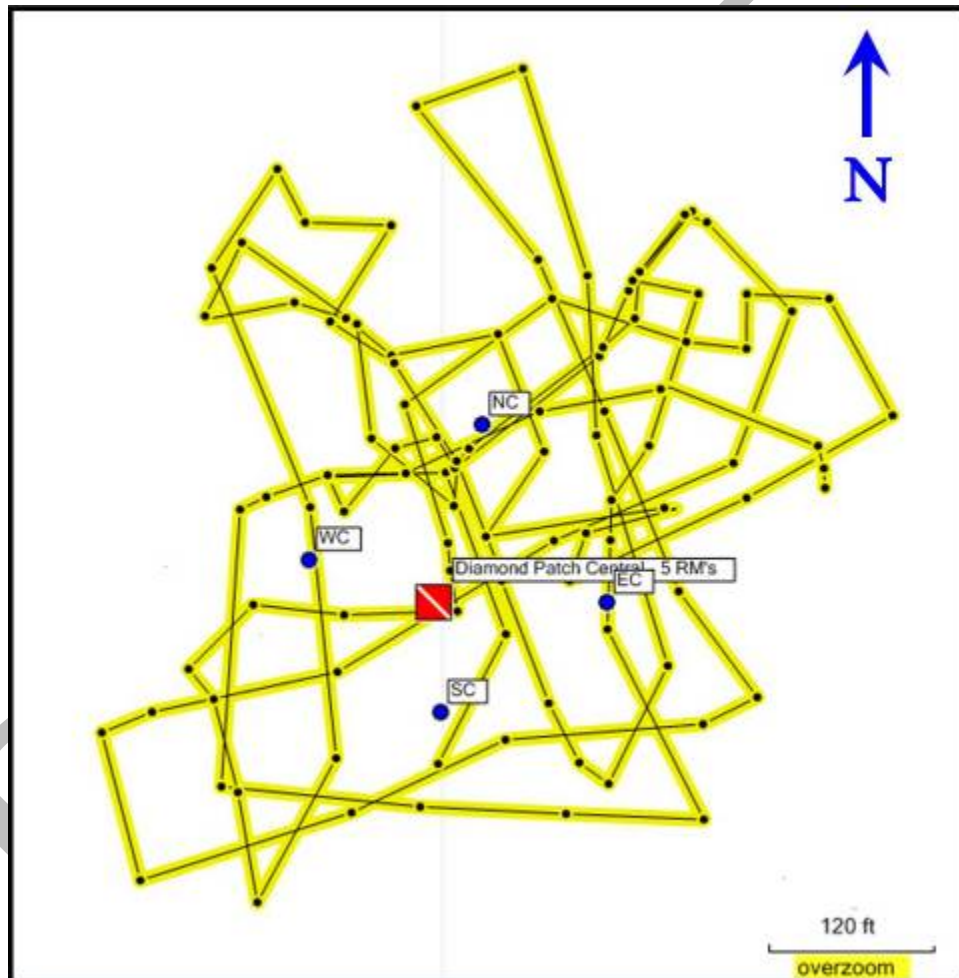


Figure 22. Garmin GPS track of the Sirotkin Diamond Patch - Central Fathometer Survey.

The survey boat maneuvered within the artificial reef site to pass over each Reefmaker unit and obtain the depth at each unit location. All units were observed on the screen during the course of the survey. The screen-shot images in Figure 23 were captured during the survey as the Reefmaker units appeared on the depth profile. Due to the triangular profile of the units, the wide bases have a greater target signature and are more distinguishable in the depth profile. The depth profile images show the individual units on the bottom with associated latitude/longitude, time, course over ground, temperature and depth information.

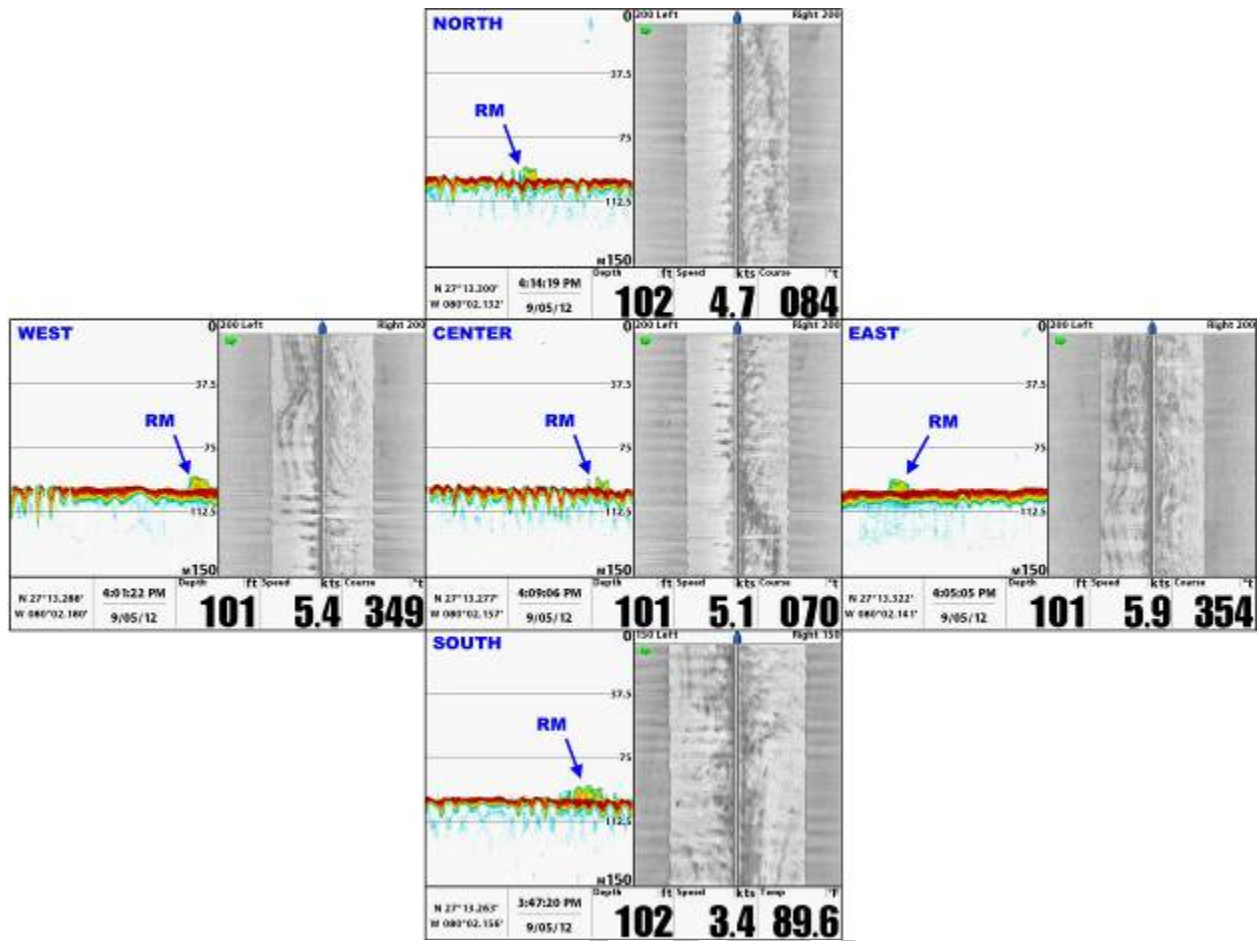


Figure 23. Hummingbird depth profile/sidescan images of the Sirotkin Diamond Patch - Central.

The timestamp for each screen-shot image was used as a point of reference to display the Hummingbird data for each Reefmaker unit as the survey vessel passed over the units, and they became visible on the depth profile. The results from the fathometer survey in Table 23 show the data within the timeframe each unit was observed. Depth data obtained during the fathometer survey of the Sirotkin Diamond Patch - Central reef are included in the Appendix.

Table 23. Sirotkin Diamond Patch - Central Artificial Reef Fathometer Survey Results.

Time	Latitude (DD)	Longitude (DD)	Depth (ft)	Water Temp (°C)
NORTH REEFMAKER UNIT				
16:13:30	27.222	80.037	98.9	32.7
16:13:34	27.222	80.036	100.3	32.7
16:13:38	27.222	80.036	99.3	32.8
16:13:42	27.222	80.036	100.3	33
16:13:46	27.222	80.036	98.6	33.1
16:13:50	27.222	80.036	100.9	33.1
16:13:54	27.222	80.036	99.6	33.1
16:13:58	27.222	80.036	100.9	33
16:14:02	27.222	80.036	100.6	33
16:14:07	27.222	80.036	102.6	33
16:14:11	27.222	80.036	101.2	32.8

16:14:15	27.222	80.036	100.9	33
16:14:18	27.222	80.036	102.9	33
16:14:23	27.222	80.035	101.6	32.8
16:14:25	27.222	80.035	100.9	32.8
EAST REEFMAKER UNIT				
16:03:00	27.222	80.036	99.3	32.8
16:03:04	27.222	80.036	99.6	33
16:03:08	27.222	80.036	100.6	33
16:03:12	27.222	80.036	101.2	33
16:03:16	27.222	80.036	99.9	33.1
16:03:20	27.222	80.036	99.9	33
16:03:24	27.222	80.036	101.2	33.1
16:03:28	27.222	80.036	100.6	33
16:03:32	27.221	80.036	103.2	33
16:03:36	27.221	80.036	102.6	33
16:03:40	27.221	80.036	101.2	33.1
16:03:44	27.221	80.036	104.9	33.1
16:03:48	27.221	80.036	102.2	33.1
16:03:52	27.221	80.036	102.9	33.1
16:03:56	27.221	80.036	101.9	33.2
SOUTH REEFMAKER UNIT				
15:47:00	27.221	80.036	102.2	31.9
15:47:04	27.221	80.036	99.9	31.9
15:47:08	27.221	80.036	100.9	32
15:47:12	27.221	80.036	103.2	31.8
15:47:16	27.221	80.036	102.2	32
15:47:20	27.221	80.036	101.2	32.1
15:47:24	27.221	80.036	101.6	32.2
15:47:28	27.221	80.036	101.2	32.8
15:47:32	27.221	80.036	101.2	32.7
15:47:36	27.221	80.036	100.9	32.6
15:47:40	27.221	80.036	101.2	32.4
15:47:44	27.221	80.036	100.6	32.4
15:47:48	27.222	80.036	103.9	32.6
15:47:52	27.222	80.036	100.9	32.4
15:47:56	27.222	80.036	101.2	32.3
WEST REEFMAKER UNIT				
16:00:29	27.221	80.036	100.3	31.8
16:00:33	27.221	80.037	99.3	32.1
16:00:37	27.221	80.037	99.9	32
16:00:41	27.221	80.036	99.6	32.1
16:00:45	27.221	80.036	100.9	32.3
16:00:49	27.221	80.036	103.2	32.3
16:00:53	27.221	80.036	100.6	32.6
16:00:56	27.221	80.036	99.9	33.1
16:01:00	27.221	80.036	101.6	33

16:01:08	27.221	80.036	99.9	32.7
16:01:08	27.221	80.036	99.3	32.5
16:01:12	27.221	80.036	100.3	32.2
16:01:16	27.221	80.036	101.9	32.1
16:01:20	27.221	80.036	102.2	32.2
16:01:25	27.222	80.036	99.6	32.2
CENTER REEFMAKER UNIT				
16:08:12	27.221	80.037	98.6	33.2
16:08:16	27.221	80.037	98.3	33
16:08:20	27.221	80.037	97.3	33
16:08:24	27.221	80.037	100.6	33
16:08:28	27.221	80.037	100.9	33
16:08:32	27.221	80.037	101.2	32.8
16:08:36	27.221	80.037	105.8	32.8
16:08:40	27.221	80.037	99.6	33
16:08:44	27.221	80.037	100.6	33.2
16:08:48	27.221	80.036	101.2	33.3
16:08:52	27.221	80.036	105.8	33.1
16:08:56	27.221	80.036	102.9	33.1
16:09:00	27.221	80.036	100.9	33.1
16:09:04	27.221	80.036	103.2	33.2
16:09:08	27.221	80.036	102.6	33.1
Note: All information obtained using a Hummingbird 1197c/997c, depths are relative to NAD83 Horizontal Datum				

5.8 SIROTKIN DIAMOND PATCH - SOUTH

- Location: Sirotkin Reef
- Materials: 5 Reefmaker “Florida Special” units (steel and concrete)
- Maximum Depth: 100 feet
- Reef High Point: 90 feet
- Year Created: 2005
- Monitoring Date: 09/05/2012
- Total Cost: \$3,975 (FWC 89% & Martin County 11%)

5.8.1 History of the Sirotkin Diamond Patch - South

Through a grant from the FWC, Martin County deployed five (5) Reefmaker “Florida Special” artificial reef units adjacent to existing reef materials in the Donaldson and Sirotkin reef sites, as well as four (4) stand-alone sites. Fifteen (15) of these units were deployed within the Sirotkin Reef site on May 21, 2005 in three groups of five units (North, Central, and South). Charts showing the location of the South Reefmaker Diamond Patch within the Sirotkin site and the placement of the individual units at the reef location are shown in Figure 24 and Figure 25, respectively.