### **MBARA Diver's Reef Survey Form**

Updated 11 July 2010

Reef Site Name: MB 20 Hale's Hole

Position Readings:

GPS Manufacturer & model: Garmin 188C N Lat.: 29 53.883 W Lon.: 85 31.530

Sonar Depth: 51'

Survey Date & Time: 23 Jul 2010/1400

Weather conditions and sea state: Partly Cloudy/1-2'

Boat Name: Bobcat Boat Captain: Bob Cox Dive Leader: Bob Cox

Dive Team Members: Carol Cox

**Diver Observations** 

Computer/Depth Gauge Depth: 53' Diver Bottom Time on Survey: :58

Water Temp: Surface: 87F Bottom: 80F Water Visibility: Surface: 10' Bottom: 20'

Thermocline Depth: 40' Current direction and speed:

Other noted water column characteristics (plankton, algae, jellyfish,

turbidity, etc): Jellyfish and turbid.

Description of Bottom Composition (sand, silt, mud, gravel, shell, etc):

Sand

Description of Reef Materials & Quantity: Concrete culverts and boxes

Reef Height (highest point): 4'

Reef Physical Condition (Durability and Stability): Good; some pieces settling in the sand.

Storm damage or movement? If yes, describe: None

Other damage or movement? If yes, describe: None

# Fish Count:

Species:	Quantity	Size
Angelfish, Queen		
Anglefish, Blue	1	10"
Baitfish - Round Scad		
(Cigar Minnows)		
Baitfish – Glass Minnow		
(Bay Anchovy)	10,000+	1"
Baitfish - Menhaden		
Baitfish - Pinfish		
Baitfish, species?		
Barracuda - Guaguanche		
Barracuda-Great		
Batfish, Polka-Dot		
Blenny, Molly Miller		
Blenny, Seaweed	10	1-2"
Blenny, Tessallated		
Bonito		
Butterflyfish, Reef		
Butterflyfish, Spotfin		
Cardinalfish, Two-Spot	20	1-2"
Cobia (Ling)		
Cowfish, Scrawled		
Croaker, Atlantic		
Chromis - Purple Reeffish		
Chromis - Yellowtail		
Reeffish		
Damselfish - Cocoa	20	.5-1"
Damselfish sp?		
Dolphin, sp?		
Drum - Cubbyu	40	1-10"
Eel, species?		
Flounder, Gulf	4	12-14"
Frogfish, Ocellated		
Goby, Blue		
Goby, Bridled		
Goby, species?		
Grouper, Gag	100	8-22"
Grouper, Goliath		
Grouper, Red		
Grouper, Rock Hind		
· <i>'</i>	<u>ı</u>	

Grunt - Tomtate Grunt, White Grunt, sp? Jack – Blue Runner (Hard Tail) Jack - Greater Amberjack Jack sp? Jack, Almaco (Lesser) Jack, Lookdown Jack, Rainbow Runner Lizardfish, Blue-Lined Mackeral, King Mackeral, Spanish Mahi Margate, Black Porgy , Saucereye Porgy - Sheepshead Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Bank Seabass, Belted Sandfish Seabass, Belted Sandfish Snapper, Gray (Black) Snapper, Red Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Triggerfish, Gray Southern Tirger Govy Tirger Groy Taick Tirger Groy Tirger	Grouper, Scamp	10	11"
Grunt, sp?  Jack – Blue Runner (Hard Tail)  Jack - Greater Amberjack  Jack sp?  Jack, Almaco (Lesser)  Jack, Lookdown  Jack, Rainbow Runner  Lizardfish, Blue-Lined  Mackeral, King  Mackeral, Spanish  Mahi  Margate, Black  Porgy , Saucereye  Porgy - Sheepshead  Puffer - Balloonfish  Puffer, Sharpnose  Ray, Manta  Ray, Southern Stingray  Remora (Sharksucker)  Sailfish  Seabass, Bank  Seabass, Belted Sandfish  Shark, sp?  Snapper, Bigeye  Snapper, Gray (Black)  Snapper, Vermillion  (Mingo)  Soapfish, Whitespotted  Spadefish, Atlantic  Toadfish, Leopard  Triggerfish, Gray  Wrasse - Slippery Dick  10-12"  10-12"			
Jack – Blue Runner (Hard Tail)  Jack - Greater Amberjack 20 10-12"  Jack sp?  Jack, Almaco (Lesser)  Jack, Lookdown  Jack, Rainbow Runner  Lizardfish, Blue-Lined  Mackeral, King  Mackeral, Spanish  Mahi  Margate, Black  Porgy , Saucereye 20 8"  Porgy - Sheepshead 5 10-14"  Puffer - Balloonfish  Puffer, Sharpnose  Ray, Manta  Ray, Southern Stingray  Remora (Sharksucker) 1 24"  Sailfish  Seabass, Bank  Seabass, Belted Sandfish 10 .5-3"  Shark, sp?  Snapper, Bigeye  Snapper, Gray (Black) 80 8-16"  Snapper, Vermillion  (Mingo)  Soapfish, Whitespotted 10 6"  Spadefish, Atlantic 100 10"  Toadfish, Leopard 1 11"  Triggerfish, Gray  Wrasse - Slippery Dick 100+  1-2"	Grunt, White	4	12"
Tail)  Jack - Greater Amberjack  Jack sp?  Jack, Almaco (Lesser)  Jack, Lookdown  Jack, Rainbow Runner  Lizardfish, Blue-Lined  Mackeral, King  Mackeral, Spanish  Mahi  Margate, Black  Porgy , Saucereye  Porgy - Sheepshead  Puffer - Balloonfish  Puffer, Sharpnose  Ray, Manta  Ray, Southern Stingray  Remora (Sharksucker)  Sailfish  Seabass, Bank  Seabass, Belted Sandfish  Shark, sp?  Snapper, Bigeye  Snapper, Gray (Black)  Snapper, Red  Snapper, Vermillion (Mingo)  Soapfish, Whitespotted  Toadfish, Leopard  Triggerfish, Gray  Wrasse - Slippery Dick  10 10-12"  Wrasse - Slippery Dick  10 10-12"	Grunt, sp?		
Jack - Greater Amberjack Jack sp? Jack, Almaco (Lesser) Jack, Lookdown Jack, Rainbow Runner Lizardfish, Blue-Lined Mackeral, King Mackeral, Spanish Mahi Margate, Black Porgy , Saucereye Porgy - Sheepshead Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Bank Seabass, Belted Sandfish Shark, sp? Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  100 10-12"  10-12"  10-12"	Jack – Blue Runner (Hard		
Jack sp? Jack, Almaco (Lesser) Jack, Lookdown Jack, Rainbow Runner Lizardfish, Blue-Lined Mackeral, King Mackeral, Spanish Mahi Margate, Black Porgy , Saucereye Porgy - Sheepshead Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Belted Sandfish Shark, sp? Snapper, Bigeye Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Toadfish, Leopard Triggerfish, Gray Mrasse - Slippery Dick  Jack, Almaco (Lesser)  8"  1	Tail)		
Jack, Almaco (Lesser) Jack, Lookdown Jack, Rainbow Runner Lizardfish, Blue-Lined Mackeral, King Mackeral, Spanish Mahi Margate, Black Porgy , Saucereye Porgy - Sheepshead Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Bank Seabass, Belted Sandfish Seabass, Belted Sandfish Shark, sp? Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  Jack, Lookdown Jack, Leopard Jack, Lookdown Jack, Rainbow Jack, Rai	Jack - Greater Amberjack	20	10-12"
Jack, Lookdown Jack, Rainbow Runner Lizardfish, Blue-Lined Mackeral, King Mackeral, Spanish Mahi Margate, Black Porgy , Saucereye Porgy - Sheepshead Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Bank Seabass, Belted Sandfish Seabass, Belted Sandfish Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  Mahi  Ackeral, Ray Bural	Jack sp?		
Jack, Rainbow Runner Lizardfish, Blue-Lined Mackeral, King Mackeral, Spanish Mahi Margate, Black Porgy , Saucereye Porgy - Sheepshead Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Bank Seabass, Belted Sandfish Senapper, Bigeye Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  Mahi  Aller Aller Aller Aller  Burner	Jack, Almaco (Lesser)		
Lizardfish, Blue-Lined  Mackeral, King  Mackeral, Spanish  Mahi  Margate, Black  Porgy , Saucereye  Porgy - Sheepshead  Puffer - Balloonfish  Puffer, Sharpnose  Ray, Manta  Ray, Southern Stingray  Remora (Sharksucker)  Sailfish  Seabass, Bank  Seabass, Belted Sandfish  Seabass, Belted Sandfish  Shark, sp?  Snapper, Gray (Black)  Snapper, Red  Snapper, Vermillion (Mingo)  Soapfish, Whitespotted  Spadefish, Atlantic  Toadfish, Leopard  Triggerfish, Gray  Wrasse - Slippery Dick  Day  8"  20  8"  10-14"  24"  24"  Sa"  5 10-14"  80  8-16"  Shark, sp?  Snapper, Gray (Black)  Soapfish, Whitespotted  10  6"  Spadefish, Atlantic  100  10"  Toadfish, Leopard  11"  Triggerfish, Gray  5 10-12"	Jack, Lookdown		
Mackeral, King Mackeral, Spanish Mahi  Margate, Black Porgy , Saucereye Porgy - Sheepshead Puffer - Balloonfish Puffer , Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Bank Seabass, Belted Sandfish Seabass, Belted Sandfish Shark, sp? Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  Margate, Margate  20 8"  10-14"  24"  24"  Sailfish Seabass, Balted Sandfish 10 .5-3"  Shark, sp? Snapper, Bigeye Snapper, Gray (Black) 80 8-16" Snapper, Vermillion (Mingo) Soapfish, Whitespotted 10 6" Spadefish, Atlantic 100 10" Triggerfish, Gray 5 10-12"	Jack, Rainbow Runner		
Mackeral, Spanish Mahi  Margate, Black Porgy , Saucereye Porgy - Sheepshead Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Bank Seabass, Belted Sandfish Shark, sp? Snapper, Bigeye Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  20 8"  20 8" 10-14"  24"  24"  51 24"  84 85 86 86 87 87 87 88 80 88 88 88 88 88 88 88 88 88 88 88	Lizardfish, Blue-Lined		
Mahi Margate, Black Porgy , Saucereye 20 8" Porgy - Sheepshead 5 10-14" Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) 1 24" Sailfish Seabass, Bank Seabass, Belted Sandfish 10 .5-3" Shark, sp? Snapper, Bigeye Snapper, Gray (Black) 80 8-16" Snapper, Vermillion (Mingo) Soapfish, Whitespotted 10 6" Spadefish, Atlantic 100 10" Toadfish, Leopard 1 11" Triggerfish, Gray 5 10-12" Wrasse - Slippery Dick 100+ 1-2"	Mackeral, King		
Margate, Black Porgy , Saucereye Porgy - Sheepshead Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Bank Seabass, Belted Sandfish Shark, sp? Snapper, Bigeye Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  80 8" 10-14"  10-14"  10-14"  10-14"  8" 10-14"  80 10-14"  100 10" 100 10" 100 10" 100 100 100 1	Mackeral, Spanish		
Porgy , Saucereye 20 8" Porgy - Sheepshead 5 10-14" Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) 1 24" Sailfish Seabass, Bank Seabass, Belted Sandfish 10 .5-3" Shark, sp? Snapper, Bigeye Snapper, Gray (Black) 80 8-16" Snapper, Red 10 10-18" Snapper, Vermillion (Mingo) Soapfish, Whitespotted 10 6" Spadefish, Atlantic 100 10" Toadfish, Leopard 1 11" Triggerfish, Gray 5 10-12" Wrasse - Slippery Dick 100+ 1-2"	Mahi		
Porgy - Sheepshead 5 10-14"  Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) 1 24" Sailfish Seabass, Bank Seabass, Belted Sandfish 10 .5-3" Shark, sp? Snapper, Bigeye Snapper, Gray (Black) 80 8-16" Snapper, Red 10 10-18" Snapper, Vermillion (Mingo) Soapfish, Whitespotted 10 6" Spadefish, Atlantic 100 10" Toadfish, Leopard 1 11" Triggerfish, Gray Wrasse - Slippery Dick 100+ 1-2"	Margate, Black		
Puffer - Balloonfish Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Bank Seabass, Belted Sandfish Shark, sp? Snapper, Bigeye Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Spadefish, Atlantic Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  Puffer - Balloonfish 1 24"  24" S4" S4" S4" S4" S4" S4" S4" S4" S4" S	Porgy , Saucereye	20	8"
Puffer, Sharpnose Ray, Manta Ray, Southern Stingray Remora (Sharksucker) Sailfish Seabass, Bank Seabass, Belted Sandfish Shark, sp? Snapper, Bigeye Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  1 24" 24" S4" S4" S4" S4" S4" S4" S4" S4" S4" S	Porgy - Sheepshead	5	10-14"
Ray, Manta Ray, Southern Stingray Remora (Sharksucker)  Sailfish Seabass, Bank Seabass, Belted Sandfish Shark, sp? Snapper, Bigeye Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  1 24" 24"  24"  24"  24"  34"  24"  34"  3	Puffer - Balloonfish		
Ray, Southern Stingray Remora (Sharksucker)  Sailfish Seabass, Bank Seabass, Belted Sandfish Shark, sp? Snapper, Bigeye Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Spadefish, Atlantic Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  1 24" 24" 24" 24" 24" 24" 24" 24" 24" 24"	Puffer, Sharpnose		
Remora (Sharksucker) 1 24"  Sailfish  Seabass, Bank  Seabass, Belted Sandfish 10 .5-3"  Shark, sp?  Snapper, Bigeye  Snapper, Gray (Black) 80 8-16"  Snapper, Red 10 10-18"  Snapper, Vermillion (Mingo)  Soapfish, Whitespotted 10 6"  Spadefish, Atlantic 100 10"  Toadfish, Leopard 1 11"  Triggerfish, Gray 5 10-12"  Wrasse - Slippery Dick 100+ 1-2"	Ray, Manta		
Sailfish  Seabass, Bank  Seabass, Belted Sandfish  Shark, sp?  Snapper, Bigeye  Snapper, Gray (Black)  Snapper, Red  Snapper, Vermillion (Mingo)  Soapfish, Whitespotted  Spadefish, Atlantic  Toadfish, Leopard  Triggerfish, Gray  Wrasse - Slippery Dick  10  Seabass, Bank  10  S-3"  80  8-16"  10  10-18"  10-18"  10-18"  10-12"  10-12"	Ray, Southern Stingray		
Seabass, Bank Seabass, Belted Sandfish Shark, sp? Snapper, Bigeye Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Spadefish, Atlantic Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick  10 .5-3" 80 8-16" 10-18" 10-18" 10-18" 10-18" 10-18" 10-18" 10-10" 10" 10" 10" 10" 10" 10" 10" 10" 10"	Remora (Sharksucker)	1	24"
Seabass, Belted Sandfish 10 .5-3"  Shark, sp?  Snapper, Bigeye  Snapper, Gray (Black) 80 8-16"  Snapper, Red 10 10-18"  Snapper, Vermillion (Mingo)  Soapfish, Whitespotted 10 6"  Spadefish, Atlantic 100 10"  Toadfish, Leopard 1 11"  Triggerfish, Gray 5 10-12"  Wrasse - Slippery Dick 100+ 1-2"	Sailfish		
Shark, sp?  Snapper, Bigeye  Snapper, Gray (Black)  Snapper, Red  Snapper, Vermillion (Mingo)  Soapfish, Whitespotted  Spadefish, Atlantic  Toadfish, Leopard  Triggerfish, Gray  Wrasse - Slippery Dick  Snapper, Vermillion (Mingo)  10 6"  6"  100 10"  11"  11"  11"  11"  11"	Seabass, Bank		
Snapper, Bigeye Snapper, Gray (Black) Snapper, Red Snapper, Vermillion (Mingo) Soapfish, Whitespotted Spadefish, Atlantic Toadfish, Leopard Triggerfish, Gray Wrasse - Slippery Dick Snapper, Red 10 10-18" 10-18" 10-18" 10-18" 10-18" 10-18" 10-19" 10-10" 10" 10-12" 10-12"	Seabass, Belted Sandfish	10	.5-3"
Snapper, Gray (Black) 80 8-16"  Snapper, Red 10 10-18"  Snapper, Vermillion (Mingo)  Soapfish, Whitespotted 10 6"  Spadefish, Atlantic 100 10"  Toadfish, Leopard 1 11"  Triggerfish, Gray 5 10-12"  Wrasse - Slippery Dick 100+ 1-2"	Shark, sp?		
Snapper, Red 10 10-18"  Snapper, Vermillion (Mingo)  Soapfish, Whitespotted 10 6"  Spadefish, Atlantic 100 10"  Toadfish, Leopard 1 11"  Triggerfish, Gray 5 10-12"  Wrasse - Slippery Dick 100+ 1-2"	Snapper, Bigeye		
Snapper, Vermillion (Mingo)  Soapfish, Whitespotted  Spadefish, Atlantic  Toadfish, Leopard  Triggerfish, Gray  Wrasse - Slippery Dick  10  6"  100  10"  11"  11"  11"  11"	Snapper, Gray (Black)	80	8-16"
(Mingo)  Soapfish, Whitespotted 10 6"  Spadefish, Atlantic 100 10"  Toadfish, Leopard 1 11"  Triggerfish, Gray 5 10-12"  Wrasse - Slippery Dick 100+ 1-2"	Snapper, Red	10	10-18"
Soapfish, Whitespotted 10 6"  Spadefish, Atlantic 100 10"  Toadfish, Leopard 1 11"  Triggerfish, Gray 5 10-12"  Wrasse - Slippery Dick 100+ 1-2"	Snapper, Vermillion		
Spadefish, Atlantic 100 10"  Toadfish, Leopard 1 11"  Triggerfish, Gray 5 10-12"  Wrasse - Slippery Dick 100+ 1-2"	(Mingo)		
Toadfish, Leopard 1 11"  Triggerfish, Gray 5 10-12"  Wrasse - Slippery Dick 100+ 1-2"	Soapfish, Whitespotted	10	+
Triggerfish, Gray 5 10-12" Wrasse - Slippery Dick 100+ 1-2"	Spadefish, Atlantic	100	10"
Wrasse - Slippery Dick 100+ 1-2"	Toadfish, Leopard	-	11"
11 /	Triggerfish, Gray	5	10-12"
	Wrasse - Slippery Dick		

Other: Tiger Govy 2 1"

Description of Biological Growth on Reef:

Species	Quantity/Area of Coverage (% of area or dimensions)	Size	Color
Algae			
Barnacles			
Christmas Tree Worm			
Coral - Colorful Sea Whip	5%	10-18"	Purp
Coral - unk gorgonian	1	10"	Red/Brn
Coral - White Telesto			
Bulb Anemone	2"x12"	2"	
Tube Anemone	1	5"	Gray/Pnk
Hard Corals-Assorted	20%	1"	
Mussells			
Oyster, sp?			
Scallops sp?			
Sponges	2	4"	Org/Pnk

Other: Feather Dusters 10 1" Wht/Purp Pale Anemones 12"x12" 1"

## Description of Invertebrates on Reef:

Species	Quantity	Size
Cowry - Atlantic Deer		
Cowry - Spotted Cyphoma		
Crab, Blue		
Crab, Rock		
Crab, Sargassum Swimming		
Crab, Stareye Hermit		
Crab, Yellowline Arrow	20	2-4"
Crab, species?		
Lobster, Shovelnose		
Lobster, Spiny		
Sea Cucumber	1	14"
Sea Slug, Species?		
Sea Urchin	40	1-3"
Snail - Atlantic Harry Triton		
Snail - Giant Eastern Murex		
Snail - Netted Olive		
Snail - Queen Helmet		
Snail - Spiny Murex		
Snail - True Tulip		
Snail- Florida Horse Conch	2	6-10"
Invertibrate, species?		

### **Other:**

Marine Amphibians:

Species	Quantity	Size	Color
Turtle, Loggerhead			
Turtle, Green			
Turtle, Leatherback			
Turtle, Species?			

#### Other:

#### Other Observations:

One culvert/pipe was standing on end creating a bowl effect with chunks of concrete inside. This small area created a habitat diversity that many fish frequented. One toadfish, 10 Cardinal Fish, 6 Gray Snapper, 2 Gag Grouper, 1 Triggerfish, 1 Arrow Crab, 4 Cocoa Damsels, 1 Seaweed Blenny, and 14 Cubbyus were observed holding on this small area.

























